A CRITICAL ANALYSIS OF ASSISTIVE TECHNOLOGIES:

AN APPENDAGE OR A COMMODITY

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A CRITICAL ANALYSIS OF ASSISTIVE TECHNOLOGIES: AN APPENDAGE OR A COMMODITY

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DECLARATION OF ORIGINALITY

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● this is a true copy of the thesis approved by my advisor and thesis committee at Boğaziçi University, including final revisions required by them.

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ABSTRACT

A Critical Analysis of Assistive Technologies:

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This research argues that the experiences of people with disabilities regarding assistive technologies cannot be reduced to a mere technical encounter; instead, it claims that these experiences encompass various economic, social, and political dimensions. In this context, the study aims to examine the dynamics surrounding prosthetics and orthotics realm through three lines of inquiry. Firstly, the formation and development of the modern prosthetics and orthotics realm are historicized in the context of institutionalization of the modern state and the industrialization process, focusing specially on Turkey, the United States, and Britain. Secondly, within the scope of contemporary Turkey, the institutions, legal regulations, and market dynamics constituting the prosthetics and orthotics realm are explored. Finally, the subjectivity processes of prosthetic users, including practices of identity formation, body perception, and experiences of independent living, are examined by adhering to individuals' statements and placing them within a social context.

ÖZET

Yardımcı Teknolojilere Dair Eleştirel Bir Analiz:

Uzantı Mı Meta Mı?

Bu araştırma, engellilerin yardımcı teknolojilere ilişkin tecrübelerinin asla yalın bir teknik deneyime indirgenemeyeceğini, aksine bu deneyimlerin ekonomik, sosyal ve politik birçok boyutu bulunduğunu iddia etmektedir. Bu bağlamda, protez ve ortez alanındaki temel aktörlerle bunlar çevresindeki dinamikleri üç başlıkta incelemeyi hedeflemektedir. İlk olarak, modern protez ve ortez alanının oluşumu ve gelişimi, Türkiye, Birleşik Devletler ve Britanya odağında, modern devlet ve sanayileşme bağlamında tarihselleştirilmektedir. İkinci olarak, çağdaş Türkiye odağında, protez ve ortez alanını teşkil eden kurumlar, yasal düzenlemeler ve piyasa dinamikleri incelenmektedir. Son olarak ise protez kullanıcılarının kimlik edinimi, beden algısı, bağımsız yaşam deneyimleri gibi özneleşme pratikleri, kişilerin beyanlarına bağlı kalınarak, sosyal ve tarihsel bir bağlama yerleştirilerek irdelenmektedir.

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ABBREVIATIONS

ABA	Architectural Barriers Act
AFO	Ankle Foot Orthosis
AKP	Justice and Development Party (*Adalet ve Kalkınma Partisi*)
ASBL	International Confederation of Amputee Associations
BCODP	The British Council of Organizations of Disabled People
DAFO	Dynamic Ankle Foot Orthosis
ENIL	European Network of Independent Living
GSS	General Health Insurance (*Genel Sağlık Sigortası*)
ISPO	International Society for Prosthetics and Orthotics
KAFO	Knee-Ankle-Foot Orthosis
SDP	Health Transformation Program (*Sağlıkta Dönüşüm Programı*)
SGK	Social Security Institution (*Sosyal Güvenlik Kurumu*)
STS	Science, Technology and Society Studies
SUT	Health Practice Notice (*Sağlık Uygulama Tebliği*)
TUBİTAK	Scientific and Technological Research Council of Turkey (*Türkiye Bilimsel ve Teknolojik Araştırma Kurumu*)

CHAPTER 1

INTRODUCTION

Today, advances in technology are considered to be the most realistic basis for the claim and desire for the equal participation of people with disabilities in the labor force and public sphere. Both the technical knowledge and tools to form the raw materials in the desired way and the developing computer technologies enhancing and enriching the functionalities make a great breakthrough possible in the field of assistive technologies which is an indispensable part of the daily lives of the disabled. Balanced and durable wheelchairs that can be easily controlled increase the mobility and maneuverability of their users. Navigation applications or screen reader programs make information that is mostly transferred visually accessible to the visually impaired. Prostheses and orthosis designed with sensitive sensors and strong, flexible materials enable lifelike movement. All those developments significantly enhance the participation of disabled people in employment, education, or social life.

Accordingly, concepts such as equal access and inclusive design have become frequently referred terms by disability activists, public officials and the human resources officials of private companies on many occasions. The daily lives of the disabled are surrounded by social responsibility projects or events organized around the advocacy of accessibility and equal participation emphasizing the importance of the assistive technologies in gaining autonomy. Furthermore, projects funded by municipalities, associations or public institutions mean that a large resource is transferred to the field of accessibility and inevitably to the design of assistive technologies. On the other hand, the assistive technologies each have turned

into the commercial products and has created its own competitive market. For instance, there are globally monopolized companies in the field of prosthesis and orthosis exporting products to almost all over the world such as Ottobock and Össur. Apart from this, the silicones that need to be used with prostheses or the cushions that wheelchair users acquire show that the market relevant to the assistive technologies is much larger than the assistive productions themselves. Attempts for accessibility solutions or R&D studies on assistive technologies supported by both public institutions and the private sector as well tends to enhance its market share.

On the other hand, the access to and proper usage of them by the persons with disabilities require a well-organized process that includes prescribing, social security, rehabilitation as such. In this regard, in most of the national contexts historically states led institutions were formed to meet the needs germane to such processes such as large rehabilitation centers and social security services. For the proper functioning of those institutions, regulations and legal bases should be created as well, such as the laws regarding the health care or pension policies. In short, in most of the cases, disabled people should be in constant contact with different institutions and applications of the modern state. In this regard, UNICEF and the World Health Organization, in a jointly published report (2022) provides a brief introduction to the realm of assistive technologies defining it as "an umbrella term for assistive products and their related systems (Constantine, 2022). The report addresses the development of the assistive technology system on four levels: policy, product, provision, and personnel. Although it is certain that those institutions and regulations provide some convenience in terms of access to assistive technologies historically, it is also clear that because of either the institutional gaps or precarious functioning of existing ones they cause problems and might even be disabling in some cases. The European

Parliament has also published a survey and interview-based research on users' experiences with assistive technology (Boucher, 2018). In this regard, the exorbitant costs of prosthetics and orthotics often result in a substantial financial burden for users, occasionally leading to significant indebtedness. Additionally, the services and training that users need after provision of assistive technologies can also imply bureaucratic and economic challenges. Some users also express that assistive technologies may increase the likelihood of facing social stigma because they make the disability more visible.

Similar concerns regarding assistive technologies have indeed paved way for this study. In this research, I am planning to engage in the following questions: to what extent does the assistive technologies liberate people with disabilities? What are the institutions working throughout the process of access to the assistive technologies? What might be the other components and layers related to the assistive technology experience that cannot simply be reduced to a technical experience? Is a smooth, fully equal, and identical assistive technology experience possible, or could assistive technologies themselves become a barrier to users in some case? What is the role of assistive technologies in self-perception, identity formation and subjectivity? What are the milestones regarding the transformation of user perceptions about their assistive technology experiences throughout their lives? In this study, I aim to seek answers to such questions about assistive technologies in general and prostheses and orthosis in particular. By prosthesis we refer to the artificial limbs designed to replace the partial or total loss of a limb due to an amputation or from the birth. Orthosis, however, is applied to enhance the functionality of an existing limb that suffers lower capacity either from the birth or due to an illness or an accident acquired later.

To begin with, each answer to those questions should problematize the access of people with disabilities to assistive technologies. When we say assistive technology, be it a wheelchair or a prosthesis, we are not talking about an identical application, but rather a wide range of products. When the material used or the programming support it contains are taken into account, we can say that there are significant price variations among the products offered to the consumer. Prosthetics, which is the major field of research of this study, for instance, can range 15 times in terms of price in widest. Access to assistive technologies is rigidly limited by the available financial resources whatever the needs of the user. Moreover, the same financial limitations persist in the repair processes or the provision of other additional materials as well. In this regard, the orthotic and prosthetic market with all its parties constitutes one of the important research themes of this study. The historical formation of the orthosis prosthesis market, the decisive factors in pricing, commercial strategies of the producers, the financial burden of the users and their strategies to handle such burden can be stated among my questions under this theme.

Secondly, I plan to investigate the institutional parties working throughout the access to the prosthesis and orthosis. In this regard, I focus on the contemporary Turkey context. Today, sending procedures to higher authorized hospitals, prescription and insurance practices regarding prosthetics and orthotics in Turkey are framed in detail by the Social Security Institution. I would like to investigate to what extent these institutions meet the need and whether there are institutional gaps, inefficiency and precarity. I aim to examine the extent to which they are inclusive and the contexts in which they may play an exclusionary role, how certain types of social inequalities may have been reflected in these institutional regulations, and in

what forms these institutional regulations may have perpetuated such inequalities. Also, I wonder the experiences of the individuals encountering those institutions

Lastly, I plan to question the individual experiences regarding prosthesis and orthosis under the themes such as life satisfaction, independent living, identity formation, body image and self-perception. I hope to trace the variables such as age, gender, the class as such in relation to those themes. As a whole I would like to shed light on the dynamics forming users' perception regarding their experiences with its transformation. As a result, I believe that such an enquiry sheds lights on the relationship between access to assistive technologies that enhance the disabled individual's autonomy and the development of the disabled subjectivity and the formation of disability identity as well. All in all, I argue that the disability is a socio-technical experience where the social background and technical experiences intertwine; and the assistive technology experience of the disabled cannot be reduced to a simple technical one. In the Following chapters, I aim to show that a series of economic, institutional, and discursive mechanisms have been at work throughout the whole process.

I believe that disabled people's experiences with assistive technologies actually provide important clues for thinking about the relation of the humankind with technology in general. The mechanisms that operate in the human experience of technologies continue to be effective in the assistive technology experiences of the disabled. Therefore, technology experiences in different contexts can be enlightening for each other. For instance, it plays a role in perpetuating various inequalities under diverse circumstances, too, similar to the economic disparities in the access of persons with disabilities to assistive technologies. Many artificial intelligence applications are criticized of being sexist or racist because they feed on the sexist and

racist data created by humankind (Tischbirek, 2020). The criteria or priorities according to which investments in technology are determined is another highly controversial issue that concerns very different segments of the society. In this regard, patent implications, for instance, present a controversial social and political processes that might be relevant for any technological development and assistive technologies as well (Ernst et al., 2016). Similarly, the transformation of labor due to the development of technology marks a radical change in social structures alternating the production relations for all segments of society and the disabled as well. In this respect, I believe my research can be illuminating for broader inquiries into technology.

1.1 Resources and methodology

As a visually impaired individual, I shall say that my personal experiences have played an important role in shaping the questions of this research. I have always felt the great support of assistive technologies such as navigation systems and screen reader software's for cell phones and computers that I use in my social, education and employment life. Moreover, as I met people with different disabilities, I discovered that this applies to other disability groups as well, that there is a wide range of assistive technologies and a large sector surrounding them. So, the promises of assistive technologies, and technology in general, seemed to me the most realistic ground for the equality demand of disability activism. At the same time, to some extent, the discussions about the transformation of labor due to the development of technology are relevant to the employment of the disabled. In this respect, I can say that self-reflectivity has an important contribution in posing the questions leading this research. However, for my field research, I chose prosthetic and orthotic

technologies to take a critical distance from my own personal experience. Moreover, prostheses and orthoses are specialized, institutionalized, industrialized, structuralized technologies with a long history compared to the technologies I use.

In this regard, I will argue that the experience of disabled people with prosthetics and orthotics is not only technical, but also has economic, social and political dimensions. Therefore, personal narratives constitute the main data source of this research. I conducted face-to-face and online interviews with a prosthetic orthotic technician, an orthopedist doctor, 6 prosthesis and one wheelchair users. Interviews were scheduled for an average of 45 to 60 minutes, although some were longer or shorter. Within the scope of the interviews, I asked the prosthesis users structured open-ended questions about institutional processes such as prescribing, social security and rehabilitation, financial burden of prosthesis, technical experience and socio-psychological dimension of prosthesis use besides their personal stories. I selected all my respondents among people who use leg prosthesis, since I left out orthotic and arm prosthesis users, my sampling may be open to discussion. However, such a selection is much more convenient so that I can deepen and make comparisons in a framed field. I believe that my study has outputs in other areas, as prosthetic and orthotic production overlaps in both market and professional fields, and official procedures are very close. I tried to select my respondents by considering diversity in terms of education level, gender and the way them being disabled, but it should be stated that female participants are much less. It can be argued that this situation carries a certain bias in terms of the data I collect. On the other hand, as will be explained in the next sections of the study, the presence of a dimension of access to the prosthesis depending on the dynamics associated with participation in the public sphere and labor force is the main distinguishing factor for the difference

between the visibility of male and female prosthesis users. Apart from the interviews, another very important data source for collecting personal experiences was the forum site, "engelliler.biz". Thus, I had the opportunity to access the experiences of a much larger group of prosthetic users avoiding some of the risks of face-to-face interviews.

Considering the multidimensionality of the research, it can be said that apart from the interviews, I was contributed by various other materials and methods. For the comparative historical background that I tried to present in the second chapter I benefited from the studies of micro-historians. Especially in Britain and United States the historians studying artificial limbs made use of a variety of materials that might be related to the experiences of users, limb makers or surgeons to reach out the whole picture of the limb making industry. Correspondence between users and limb makers, for instance, was an important source of information regarding the distribution of prostheses or the way manufacturers work because specialized limb makers were not spread all over the country; and if the consumer wanted to purchase these products, he would notify his order in writing, the product was shipped to him, and various adaptations were carried out with personal correspondence. For historians, another important source is the trade catalogs because they showed the distribution networks of the products along with the price information (Jones, 2015). The flyers distributed by the firms at the time are considered as a useful tool to elaborate the firm’s priorities and which features of the productions were highlighted (Jones, 2012; Turner & Withey, 2014). Such entities might give an idea of how disability was perceived or who was targeted as a consumer at the time. Also, the petitions written to the institutions regarding prosthesis or wage demands are an important source to hear the voices of the disabled people who lived in the past. In addition, parliamentary minutes are another useful source for historians who study

the practices of war veterans, especially in the Ottoman and Republican periods. Those materials, which I had the opportunity to read through second-hand sources, were quite enriching for my work.

I should mention a few more material that contributed to my research. Health Practice Notices that were announced by Social Security Institution (Sosyal Güvenlik Kurumu [SGK]) constituted the main resource to trace insurance policies, and processes related to the diagnosis, disability reporting and rehabilitation practices. These notices also state the support provided under the General Health Insurance for prostheses and orthotics. The updates made in the Health Practice notices were important as they made it easier to monitor the changes in those areas. Those documents also helped to make sense of my interviewees' experiences with institutions. In addition, national congresses held in the field of prosthetic orthotics and the publications of these congresses were an important source to see the trends of related professions. The profiles of the congress participants and the contents of the discussions conducted in the sessions provided a very productive background for observing the prosthetic orthotics field comparatively in its historical transformation. The product catalogs of prosthetic orthotics companies, all kinds of publications and activities, and national and international trainings in this field have also enriched my research. Through these resources, I accessed the prosthetic product range and had an idea about the professional competencies and skills that the personnel working in the field are supposed to have.

1.2 Literature review and the outlines for the chapters

In particular, I was mainly contributed by two disciplines for this research: disability Studies and Technology, Science and Society studies. Of course, my research cannot

claim to answer all the questions of these two disciplines, or a complete presentation of these fields cannot be made in this short section. Nevertheless, I must emphasize the substantial contributions of these two disciplines to the clarification of the core questions and lines of inquiry in my research; and yet not comprehensive, a very brief look to the literature will support the development of a critical perspective regarding assistive technologies. Fortunately, there are studies exemplifying how different approaches from within these two disciplines may have interacted with each other. Both disciplines have undergone a similar transformation from structuralism to post-structuralism, shifting the focus from the general to the local and transitioning the object of investigation from structure to agency.

One of the main theoretical foundations of this research is Disability Studies, which, in the 1970s, opposed defining disability as a medical phenomenon and instead turned it into a subject of inquiry within the social sciences. Oliver attempts to develop a model that takes into account the organization of contemporary capitalism's production and institutional mechanisms concerning disability. While acknowledging Finkelstein's work (1980) on the three stages of disability for highlighting the significant role of the mode of production in the experiences and perceptions of disabled individuals, he argues for a more intricate model. He contends that this model should consider changes in both the mode of production and the mode of thought. Drawing on Althusser's discussions on institutions as ideological apparatuses, Oliver underscores the impact of the state and institutions on the experience and perception of disability (Oliver, 1990). In his later works, as he aimed to critique the ‘ideology of normalization’ concerning disability, he elaborated on the ideological underpinnings of his approach which is shaped by political economy (Oliver, 1994). On the other hand, Braddock and Parish's work titled 'An

Institutional History of Disability' examines institutions such as schools and mental hospitals that have been created for the disabled throughout history, taking into account the disability perception and policies of the period (Braddock & Parish, 2001). Influenced by Foucault and Butler, Siebers (2001) critiques social constructionism that emphasises the role of institutions in the disability experience, highlighting the agency and subjectivity of the disabled body using the concept of bio power. Other criticisms regarding social model indicate that it ignores the disabled body's experiences such as pain, fatigue and uncertainty (Crow 1996). These criticisms, although not implying a complete rejection of the social model as a whole, indicate a shift in the focus of the research object: these new approaches have shifted their focus from the analysis of structures to the particular experiences of the body with its agency in limitations and possibilities.

In Science and Technology Studies, the transformation from structuralism to post-structuralism has been experienced as the blurring of boundaries between technology and society. Although the discipline has been recently formed, we can trace the relevant questions through the different theoretical and political agendas rooted in previous decades and even centuries. Marx devotes the chapter on machines of the first volume of Capital to the relationship between society and machine. Here he opposes the idea that the industrial revolution is simply the next stage in man's tool-making ability, or that the machine is a more complex tool. For Marx, mechanized society means a social formation completely different from the previous one (Marx, 2004). However, Marx did not provide a complete analysis of technology, and conflicting approaches have coexisted in the subsequent Marxist literature. The discussions over technology perpetuated its existence through the investigations over the relationship between productive forces and relations of

production, with their implications on the relationship infrastructure (base) and superstructure. For instance, the debates about the transition from capitalism to socialism, which resulted in the ideological-political split between Lenin and Kautsky, are mainly about the relationship between social change and technological progress. Currently, G. A. Cohen's work on Marx's history thesis can be considered as an important example of the technological determinist approach within Marxism theoretically. In this study, Cohen defends the primacy of productive forces over production relations (Cohen, 2000). On the other hand, David Nobel, while following the development of the American military industry in his doctoral study, points to the social hegemony of white American men, thus aiming to show the effect of production relations and social phenomena on the development of technology (Noble, 1979). While the roles assigned to different phenomena may vary, both Noble and Cohen maintain the classic cause-and-effect relationship. In contrast, the actor-network theory proposes a new interaction that can be described as the "social shaping of technology," making a post-structuralist move. A crucial aspect in this context is, departing its classical definition, Latour's redefinition of the social as a new assemblage that incorporates both the human and the non-human elements, along with his dispersal of agency within this innovative framework. Latour states that ANT renders the social as flat as possible; and aim to frame the social assemblages as a whole by tracing the actors along with the dynamics and institutions surrounding them, instead of taking as unit the deconstructed or divided units of the social as in the classical understanding of sociology.

It can be asserted that the initial critical perspectives on assistive technologies originated from the field of rehabilitation. Considering that the category of disability represents a highly diverse group, and acknowledging the inevitable diversity of

assistive technologies, obtaining empirical knowledge from these studies proves to be quite beneficial. Marcia Sherer's study (2005), which particularly focuses on cases resulting in paraplegia due to spinal cord injuries and cerebral palsy, serves as a compelling example. Sherer conducted her research by engaging in extended interviews over time with individuals having severe disabilities, often relying on advanced technologies. One of the author's initial emphases is the close correlation between the effective use of assistive technologies and one's social and educational background. Another crucial point that Sherer raises is the relationship between the use of assistive technology and independent living. There are numerous studies aiming to demonstrate the positive correlation between autonomy and life satisfaction (Alonso-Sardón et al., 2019). Sherer observes that assistive technologies can disrupt the social support system, including friends, family, and coworkers, for individuals with disabilities, and this can influence their perception of their own disability (IBID. 96). This is significant because the individual's social support system is a major source of their perception of their disability, she asserts.

A significant portion of the existing literature on assistive technologies involves investigations into the design of these technologies. Jennifer Harris (2010), for instance, gathers user experiences in the domestic technology field using both quantitative and qualitative methods, claiming that despite the attention assistive technologies in the public domain receive, there is much less research on home technologies. She highlights policy-level obstacles, such as the lack of universal design standards and EU laws, as additional barriers to accessibility. Harris emphasizes mainstream solutions over the design and engineering of expensive 'specialist' products. On the other hand, Betsi Phillips et al. (1993) explain technology abandonment through four factors: lack of consideration of user opinion

in selection, easy device procurement, poor device performance, and change in user needs or priorities. They argue that consumer involvement and addressing long-term consumer needs can reduce device abandonment and enhance consumer satisfaction. Gennifer Mankoff discusses the contributions of disability studies to the design of assistive technologies based on her extensive observations spanning many years, focusing on two projects related to the education of autistic students. One key takeaway is the necessity of recognizing the general culture of disability and specifically the culture of autism, suggesting that a broader understanding of communication can be gained. Secondly, she notes that assistive technologies predominantly focus on the caregivers of severely autistic children, while the crucial aspect is empowering these students.

Gleeson's proposed historical-geographical perspective on assistive technologies stands as an exemplary investigation regarding assistive technologies, rooted in a structural approach influenced by the social model (1998). Gleeson underscores that discrimination against individuals with disabilities is ingrained in the social, institutional, and historical framework that underpins contemporary commodity society. By highlighting this, she conveys that mere visible modifications through environmental regulations are inadequate to effectively confront this discrimination. While workplace design is often seen as an immediate cause of social exclusion, the real issue lies in social forces shaping disabling workplaces and exclusionary technology, she reminds. Moreover, this process of exclusion is not merely an issue of access; it has also led to feelings of not belonging and identity crises. Therefore, it's crucial to extend the focus beyond accessibility to address the fundamental needs of security, autonomy, affiliation, accomplishment, intimacy, and identity for disabled individuals. In this regard, Julie Anderson's research on the

rehabilitation of World War II veterans at Stoke Mandeville's Spinal Unit in Aylesbury that laid the foundation for subsequent Paralympic Games can be considered another example of such an approach (2003). Anderson interprets the replacement of philanthropy and the Ministry of Pensions with the Ministry of Labour in the management of the rehabilitation practices as an attempt to transform veterans into active participants contributing as taxpayers to the labor force; and all investments and developments related to assistive devices should be perceived as part of this policy. David Serlin's works shall be regarded as the attempts that prompt contemplation on the embedded symbolic presence of prosthetics in institutions, to specify, in the army. In his study over the veterans after World War II, he reflects on the influence that the expectations regarding the gender roles might play in the prosthetic design processes; and the function that the army had undertaken in building and reproducing those gender roles (2002). In one of his later accounts, drawing from the narrative of amputee veterans who identified as "The Amputees" and showcased dance performances with their artificial limbs as part of hospital activities, Serlin delves into the conflicted history of bodily normality and homosexuality within the normative framework of the US military (2003).

In scholarly works on assistive technology, we can assert that the most prominent reflection of Actor-Network Theory (ANT) is a methodological shift, as exemplified in Moser's examination of Jarle's experiences with assistive technologies (2006), a Norwegian and captain of a skydiving team who became disabled after an accident. Jarle must be connected to a ventilator 24 hours a day to breathe, and thanks to the Norwegian welfare state, he has access to a smart home equipped with technological devices that enable him to lead an active life. According to Moser, Jarle's disability is a new reassemblage where human and non-human

elements come together under a new order. Moser concludes that, despite the high cost of the Norwegian welfare regime and the facilities those devices provide, assistive technologies reproduce the body's normality by sustaining a compensation that maintains the duality between abled and disabled, normal and abnormal. Vicki Gausi's work (2021) focusing on the working environments of people with disabilities in Malta can be considered a fine example of Actor-Network Theory (ANT). The author's illustration frames the working environments of physically or visually impaired participants, along with technological equipment and collaborations with other human participants. For instance, physically disabled Yanica and visually impaired Lionel create a working assemblage in the workplace, supporting each other and benefiting from technologies designed for them, the author argues. The author emphasizes that agency does not belong to a particular body, but rather, it is enabled by material conditions that encompass social and technical forces surrounding that body. As seen, attempts informed by ANT, in contrast to structural approaches that focus on certain institutions and the dynamics surrounding them with a kind of topographical approach, should be perceived more as efforts to understand the subject and subjectification.

It is also possible to trace those approaches through the works over prostheses. Today, the term prosthetics is not only used in its most direct sense to refer to artificial limbs, but it is also metaphorically employed in researches from a variety of disciplines ranging from anthropology to cultural or communication studies with a post-humanist theoretical framework to express the expansive and contextual societal relationship between human and technology. One of the most significant theoretical sources for these studies is Donna Haraway, who proposes a cyborg myth not directly focused on prosthetics but as an attempt to blur the

boundaries between technology and society (Haraway, 1985). Haraway celebrates the emancipatory potential of the 'cyborg,' a hybrid entity that resists dualities and challenges the suppression of women. In their introduction to a compilation of essays that make use of Haraway's notion for post-human scholarly attempts ranging through diverse fields, the editors express concern about dismissing the metaphorical potential of the prosthesis and acknowledge their appreciation for its imaginative speculations, analyses, and interpretations (2006). By utilizing diverse materials, the essays explore epistemological, ontological, and linguistic inquiries arising from the interplay between technology and society within a prosthetic discourse. Margrit Shildrick, however, embraces Disability Studies as a critical endeavor for the prosthetic imaginations regarding post-human societies (2022). When compared to the works at stake, she is rather into disability studies in her attempt to question the prostheses; yet, her main interests are still related to the ontological and epistemological possibilities that it may provide within a post-human world.

This research aligns with the caution raised by Katherine Ott (2002) opposing the 'cyborg' myth suggesting that prosthetics, as portrayed mostly in the literature, often function as a cultural construct detached from everyday practices. She emphasizes that the focus should be on the materiality of the body rather than its abstract or metaphorical meanings. Ott argues that understanding the history of prosthetics requires more than a simplistic domination relationship between human and technology; instead, it involves a complex intertwining of practical human needs and social institutions. She suggests that their attempts are to understand the relation between the development of technology and civilizing modernization process as the disabled transformed into a consuming modern citizen. Such an approach necessitates adopting a historical perspective on disability as a societal category, she

asserts. It involves treating disability both as a dynamic relationship where individuals with disabilities transform their assistive technology experiences and are transformed by them. Roulstone also shares the idea that Haraway's approach carries the risk of overlooking the everyday issues of disabled people and points out that the existing literature on assistive technologies is primarily dominated by advanced capitalist and industrialized contexts (2016).

My study aims to examine the experiences of prosthetic users in the context of Turkey, a late-industrializing country highly dependent on the global market for medical products. Dependency on the global market inevitably requires consideration of the international context, and a comparative perspective, especially with advanced capitalist contexts, can be quite insightful. This is relevant both in terms of the limitations and delimitations at the institutional level of prosthetics and the organizational dynamics surrounding market dynamics. The study argues that the subjective experiences of prosthetic users can only be understood through a topographic historical and institutional perspective in contemporary Turkish context.

I have organized my thesis in 4 chapters including introduction. In the following chapter, I offer an overview of the historical formation of the prosthetic and orthotic market with its production and distribution stages and initial attempts for social security. Here I pay particular attention to industrialization and the formation of the modern state with their localizations in different national contexts. In the second chapter, I provide a brief overview for the contemporary prosthetic and orthotic realm in turkey particularly focusing the market forces and institutional practices. I highlight the dynamics that arise from the recent transformation regarding the healthcare sector and social security regulations in Turkey. In the third chapter, based on the interviews, I focused on individual experiences of prosthesis

and orthosis. Selecting the themes made precise in common, I highlight the practices of subjectivity such as body perception, identity formation and autonomy.

CHAPTER 2

AN OVERVIEW OF THE HISTORICAL FORMATION OF PROSTHETIC AND ORTHOTIC REALM:

BRITAIN, UNITED STATES AND TURKEY

The main hypothesis of this study is that our experiences with assistive technologies are a socio-technical phenomenon. This is because not only the social dynamics effective in interactions with assistive devices but also the design, production, and distribution processes of these technologies are framed within social contexts. In this section, I aim to trace the development of various social dynamics and structures by outlining a certain historical background related to the realm of prosthetics and orthotics. I believe that such an endeavor will contribute to developing a more comprehensive and detailed methodology with a broader approach to my research object, as I attempted by combining the disability studies and science, technology and society studies. Therefore, starting from ancient times and roughly tracing the field of prosthetics up to the First World War in this section, I attempt to follow major themes that have been affective in the realm, shifting through the cases of Britain, the Ottomans, the United States, and Germany.

In this chapter, one of the main objectives I attempt to achieve is to demonstrate the formation of the prosthetics and orthotics market and how it varies across different national contexts. I argue that the emergence of a certain demand is crucial in the formation of this market; and alongside historical events such as the great wars resulting in the large numbers of casualties and industrialization, I emphasize the significance of the development of medicine and the prosthetics profession in the genesis of this demand. Furthermore, I observe these associated

variables in different national contexts. Another significant aspect shaping this chapter is my emphasis on the importance of examining the macro and micro-level analysis of modern states and their institutions to understand the field of prosthetics and orthotics. I argue that the impact of the emergence and development of the modern state on the field of prosthetics and orthotics can be examined in two aspects. Firstly, I exemplify the direct and indirect support of state institutions for prosthetic production and distribution. On the other hand, I track the formation and development of welfare state mechanisms to enable workers and veterans to access prosthetics, which have historically been considered luxury products for the middle and lower classes.

Inspired by the recent works and approaches in disability history studies, I attempted to incorporate the voices of prosthetic users into this historical narrative. While such an attempt is highly enlightening from the perspective of disability studies, it is important to acknowledge the serious challenges it faces due to both constraints related to the resources and the relative modernity and complexity of the "I narrative." Nonetheless, particularly from the 19th century onwards, it is possible to access sincere and direct personal narratives of veterans. Additionally, correspondence conducted by individuals with local authorities or government institutions, often for material claims, can somehow provide insight into the voices of disabled individuals. Apart from these, myths, historical stories, or certain fictional texts in modern literary genres, when carefully examined, can also offer proper representations of the disability experience. In this context, I find the stories of prosthetic users turning their self-designed prosthetics into ventures particularly fruitful, as they offer insightful perspectives on how experiences related to assistive

technologies may have become part of their commodification process since the 19th century.

In this regard, I am interested in the findings uncovered through excavations and mythical narratives that might be related to the artificial body parts in the first section of the chapter, exploring what types of assistive technologies individuals with disabilities might have used in ancient times and for what purposes, and what these resources might reveal about the perceptions of disability and experiences with assistive technology. Subsequently, I shift my focus to factors such as the destructive wars, harsh industrial working conditions, and medical advancements that may have influenced the emergence of the first modern prosthetics, as well as the differences that might have shown in national contexts. I seek to understand the basic dynamics of the prosthetics market that emerged from the late 18th century onwards. Then, I examine the earliest practices that could have historical origins for social security institutions, which are now among the most important entities in the field of prosthetics. I attempt to frame the impact of state allowances allocated for prosthetics and pension funds for the disabled on the organization of prosthetic realm. I argue that the First World War was highly critical for both social security and the global organization of production in the realm of prosthetics and orthotics. Lastly, I focus on the transformation of the healthcare sector and the formation and development of the modern social security system in Turkey, thereby attempting to demonstrate the relationship between the formation of the prosthetics and orthotics field in Turkey and macro policy making.

2.1 Assistive technologies before industrial revolution

Unfortunately, we do not have rich and diverse sources for prosthetic manufacturing before the Industrial Revolution, but we know that artificial limbs have been produced since ancient times, thanks to the findings unearthed in various excavations. Furthermore, though in the form of fiction, narratives of wooden-legged soldiers or pirates still hold a considerable place in our collective memory. While the available resources may not enable comprehensive answers to all inquiries about production processes and individual user experiences with prostheses, they do offer valuable insights for thoughtful and well-articulated reflections. It is essential to underscore, as pointed out by Jane Draycot (2018), that our comprehension of assistive technologies as well as our perspectives on impairment and disability need not strictly apply to those of ancient societies.

It can be assumed that this also applies to the prostheses as well, as it is exemplified through 'Turfan Limb' which was supposed to be used as replaceable with a disabled leg without an amputation. Being one of the earliest instances of prosthetics, it is situated in Western China and dated to 300-200 BC. Its foundational structure is intricately carved from wood, while the distal portion is fashioned from animal components which was supposed to stable the movement, similar to the function of the 19th century artificial limbs where an iron tip had been applied. This prosthetic limb was employed by an ordinary male who had suffered leg impairment due to tuberculosis. Although it is debatable how successful it was in carrying the weight of the entire body, it was expected to be used by being attached to the body and supporting the left leg from the outside (Li et al., 2013). Another limb found through excavations is Cairo toe which was considered to be used by a noble woman who lived between 700 – 900 BC. The toe has a leather and wooden construction and

was refitted exactly to the user's foot that requires a very laborious attempt[1]. Found in the late 19th century and destroyed during Second World War, Capua Leg is another very famous early prostheses about which a couple of scholarly works have been carried out. Covered with a bronze sheath, the limb is considered a very robust one; and the scholars believe that it was produced by skillful artisans who knew the human physiognomy well (Otte et al., 2021).

As investigating a large range of literary references such as the myth of Pelops and the account of Hegesistratus beside the ancient limbs uncovered through excavations, Jane Draycot (2018) concludes that the duality between the concerns regarding cosmetic and functional motivations in the prosthetic design in the ancient times was rather complicated. Furthermore, though such contemporary market did not exist leading a diverse production range, she also highlights how the combination of social status and available materials was reflected in limb production. She also adds that while it was quite common for people to lose extremities in ancient times, the utilization of prosthetics for these extremities was not widespread. Some of the reasons she asserts to explain such a phenomenon is that, individuals having clear coping mechanisms in societies where limb loss was frequent, reducing the pressure to conceal their condition; undeveloped surgery techniques depriving from bleeding and enabling a stump suitable for prosthetic application; alternative devices such as crutches and canes being more preferable and accessible than prostheses.

No doubt that one of the most crucial factors in the historical development of artificial limbs is the advances in amputation surgery. For a long time in history, amputations were fatal due to intra- or post-operative bleeding or infection. Leading the modern amputation practices, Ambroise Pare who was a barber surgeon living in

[1] Please see this news by Jason Daley at June21 2017: https://www.smithsonianmag.com/smart-news/study-reveals-secrets-ancient-cairo-toe-180963783/

Paris in the 17th century suggested the ligature of arteries instead of cauterization during surgery. Yet it is possible to trace his practices through ancient medical monographs, Pare standardized and popularized those techniques. Barber surgeons are charged in caring soldiers during and after the battles. Considered to have lower status compared to the physicians working in academia or palace, they were mostly engaging in basic surgeries and amputations (Kuronen & Heikkinen, 2019). Upon his achievements Pare was accepted in the Royal service in 1552 and his works that were based on his experiences on the battlefield were compiled in Paris in 1575. They were later translated into Latin and English. Through the popularity he gained, Pare became a pioneer in the field of medication of the gunshot wounds (Drucker, 2008). His case is also historically important as it shows the role of battles in the development of surgery.

In modern terms, while the advancement of surgical techniques is crucial for the development of modern prosthetic applications, forming it into a distinct profession and industry required waiting for a couple of centuries. The history of the first artificial legs with movable joints can be traced back to the 16th century. It can be stated that the prostheses produced before the Industrial Revolution were mostly wooden. Although some metals were used for certain reasons, wood continued to be the main material for millennia. This tells us that prosthesis production is essentially a carpentry activity before the Industrial Revolution; and there was no specialized industry or profession in that field. The disabled, who could not afford the prostheses, carved quite simple prostheses from the woods in their surroundings with their own labor or used small, simple wheeled cars instead of prostheses to move around. The Industrial Revolution, however, marked a significant turning point in the historical formation of the prosthetic realm causing a great increase in the demand.

2.2 Early attempts for modern prosthesis

One of the first modern examples of prosthetics that we trace through the institution's archive emerged as an alternative to the peg leg is currently preserved in the Household Cavalry Museum. This is an above-knee prosthesis made of wood with movable joints, equipped with a tan coating. The prosthesis belonged to the Marquess of Anglesey, who lost a leg at the Battle of Waterloo. The Marquess lived between 1768 and 1854; and after his injury, he lived a brilliant life, as did his battles. He ordered a large number of those prostheses throughout his life. The prosthesis was manufactured by James Potts, who lived and worked in London. Marquess was one of the leading figures in the popularization of such prostheses in Britain; and despite minor variations, until the end of the 19th century his prosthesis remained the main model for manufacturers in Britain and United States (Joll, 2021). Such a device typically would consist of a willow exoskeleton covered in rawhide, metal mechanisms and a foot with a rubber sole; and would be attached to the body through fabric, elastic or leather straps. The production process was craft-based as the leg was planned as a solid block of willow. Thus, it can be stated that wood continued to be the main material of artificial limbs even after the industrial revolution, but now the design is much more sophisticated. The limb-maker would have the amputee's measurements by him and would plane away and hollow out the wood until the leg fit to the user. It was a laborious process requiring highly skilled staff: the construction of a single wooden leg could take up to six weeks with a couple of adjustments.

Thomas Jackson, who also lost a leg in the same war, left us with a very sincere and direct narrative about amputation and prosthesis with his diaries written after the age of sixty from the 19th century. In his diaries, he vividly described the

physical pain he felt during minor operations performed by army doctors during or after the amputation. Apart from that, he clearly explained his embarrassment about the prosthesis that was given to him. Thomas Jackson underwent successive operations to combat the infection for which he and his wife moved to a house close to Chelsea Hospital. After his recovery, the state gifted him a wooden leg and provided a monthly pension. Thomas Jackson worked in a wide variety of jobs throughout his life, including school administration, and his diaries he wrote after his sixties attracted a lot of attention from the public (White, 2013). Today, rehabilitation practices after amputation are accepted as a non-deferable and irrevocable part of treatment, and it is extremely critical to involve the patient in the rehabilitation process. No doubt that gaining the honor and psychological well-being of the amputated person is one of the most important functions of rehabilitation practice. Therefore, it is exciting for disability historians to unearth the voices of artificial limb users in history to uncover their prosthetic experiences as in the case of Thomas Jackson.

B. Frank Palmer, who came from a lower-class family in the United States and lost a leg in a childhood accident, received the first prosthesis patent in 1847. He returned to his country to establish his own office after exhibiting his own prosthesis at the fair in Britain and winning the first place. His prostheses were immensely popular in antebellum America. He was in constant contact with surgeons and argued that amputation should be done with prosthetic application in mind. Before Palmer, artificial limbs were made by carpenters or leatherworkers, but he took a major step to transform limb making a profession itself. Another important influence of Palmer in the prosthetics industry was his emphasis on philanthropy. In his second patent application, Palmer explained that all of his users benefited from varying amounts of

financial support and that no user paid the full price of the prosthesis. This is presented as an indication of the contribution of Palmer's products to the public good (Lieffers, 2017). His case is inspiring in that he was able to made use of his disability as a splendid opportunity for an entrepreneurial attempt. In addition, his collaboration with surgeons set a model for the development of artificial limb production as an autonomous profession.

Although artificial limbs produced by Palmer and James Potts were exceedingly popular in the United States and Britain, it should be noted that there were alternative products and diverse attempts in terms of materials and techniques used as well. Though wood dominated the prosthetic industry until the late 19th century, materials such as iron and steel were also used for several occasions. However, these were not preferred by users because they were heavy. Since they are hard and difficult to work, they did not allow for later readjustments when necessary.

Among those other attempts we can state James Edward Hanger who lost a leg in the Civil War and established his own firm in Richmond in 1862 obtaining a patent after Palmer. Hanger who opened offices in many states in America at the end of the 19th century; and had an office in Europe at the beginning of the 20th century (Eckert et al., n.d.; McDaid, 2002). As in the cases of Palmer and Hanger, amputees played a significant role in shaping the limb-making industry and undoubtedly their individual experiences guided them while designing their products. In return, their being amputee became a reasonable theme for their advertisements because it meant that their products were directly experienced and tested by a needy person. Italian Doctor Giuliano Vanghetti worked on a prosthesis system that works with the muscles of the person and made significant contributions to the field, especially related to the over-the-knee prosthesis at the end of the nineteenth century.

Vanghetti's work is critical as it demonstrates the importance and effectivity of preparing the stump suitable for the prosthesis during the surgical operation and the relationship between the surgeon and the limb maker (Tropea et al., 2017).

Assistive technologies have been a significant source for profit making not only today but also throughout history. Figuring those cases out, we can conclude that in the 19th century, a competitive market for prosthesis with a diverse production range available. Those companies were undoubtedly for profit, and thanks to the transportation and communication facilities made possible by the 19th century, the companies had a significant commercial potential. Trade catalogs that circulated between countries and even continents and international fairs are important in terms of showing companies' attempts to expand their market share. In this regard, Claire L. Jones' studies is inspiring as it demonstrates the role trade catalogs play in expanding the commercial scope of artificial limb production as a business (Jones, 2012, 2015). Apart from those, one of the most important components of the commercial value and potential of artificial limbs was undoubtedly patents. The role of patents in the commercialization of inventions and their impact on the development of related technology are well known, and this was also true for artificial limbs. Patents increased the credibility and thus commercial potential of prostheses as a kind of social contract. Palmer, who received the first prosthesis patent in the United States in 1946, soon had several offices in New York City, Massachusetts and Philadelphia. Ultimately, Palmer made a profoundly serious profit estimated around $30000 per year (Lieffers, 2017). In parallel with the expansion of the market and the diversification of consumers, new themes were also emerging in the field of advertising. For example, quiet and polite-looking prostheses were aimed at women (Sweet, 2017).

Considering those cases help us to problematize several issues relevant to the prosthetics industry in 19th century of which one is related to the pricing. Marquess of Anglesey ordered prosthetics multiple times in his life, even once four at a time. It is not difficult to guess that he has a wealth that can afford many prostheses. On the other hand, Thomas Jackson lived with the prosthesis given to him by the state. What if he had to obtain his prosthesis himself? How did Thomas Jackson acquire a new prosthesis or afford the repair of an existing one? We do not have price information for either of those two cases, but there are various sources from which we can obtain precise information about prosthetic prices in the 19th century. For instance, as a result of the wars in South Africa at the end of the 19th century, Anderson states that the newspapers of the period reported that the state provided fifteen pounds of aid for the prosthetic needs of 26 people who were injured (Anderson, 2017). Let us note here that the annual income of a woman working as a shop keeper or a street seller, for instance, in the second half of that century was between 30 and 40 pounds (Enders, 2014). Lieffers writes that Palmer informed his interlocutors about his prostheses cost being an average of $150 in his second patent application. In the 19th century, a worker's annual income in the United States of America ranged from $400 to $500 (“American Labor in Comparative Perspective,” n.d.). The modern prosthetic was one-third of a worker's annual income in Britain and United States in average, meaning that only a fraction of the population could afford these tools on their own. What matters here is the notable surge in demand for prosthetics due to the industrial revolution and destructive wars, which shifts the pricing issue from an individual concern to a social phenomenon. The transformation of prosthetic affordability into a widespread problem necessitated centralized intervention, thereby paving the way for the inception of the first modern practices of the welfare state.

2.3 Assessing the disabled: Early practices for the prosthetic and orthotic provision

The first state-level practices and social initiatives to supply and finance prosthesis targeted war veterans. The devastating wars of the nineteenth century resulted in large numbers of injuries. A significant part of the debates on disability in the Ottoman period was over the war veterans, and there are some studies, albeit limited, in this area (Beşikçi, 2023; Kurnaz Şahin, 2012). Nineteenth-century societies were faced with the task of caring for, rehabilitating, and reemploying the war-disabled. The provision of artificial limbs for those who lost their limbs after injuries, frostbite or illness appeared as a prerequisite for these tasks. Philanthropy first came into play for the needs of the war veterans. In this field, in parallel with the international initiatives, in Ottoman Empire, the existence of several organizations seemed to be necessary and in 1876 the Mecruhin-i Zuefa-yı Askeriyeye İmdad ve Muavenet Cemiyeti was established which was later renamed Hilali Ahmer. Those organizations, which can be considered as the first non-governmental organizations in the modern sense in the Ottoman Empire increased in number and diversified after the Tripoli, Balkan and First World Wars. Fundraising exhibitions, bingo competitions and lotteries organized to collect aid can be counted among the activities of these societies. The exhibition 'Evlad-ı Şüheda ve Malûlîn-i Guzât-ı Asâkir-i Şahane' which was held after the Turkish-Greek War of 1897 was one of the most famous cases of those exhibitions (Yurekli, 2018).

However, the problem of the war veterans had to be addressed centrally and comprehensively, both because of the large number of veterans and because of the complex process of reintegrating the disabled back into society. In this regard, the first modern implications on issues such as organizing nursing homes, Pension arrangements and prosthesis for those who cannot take care of themselves started in

the 19th century and became institutionalized and expanded in time. The Geneva Convention signed in 1864 was the first international regulation on the rights of war veterans, and the Ottoman Empire is also a signatory. In this regard, the Fund of Pension (Tekaüd Sandığı) was created in 1866, and the law of Pension as enacted in 1869. Accordingly, the injuries of war-disabled soldiers should had been reported by the chief physician of the hospital where they were examined. According to those reports, the ratio of the soldiers' injuries was measured within the three-level disability scaling. First-degree disabled soldiers are soldiers who have suffered a significant loss of function as a result of the wounds they received during the war and cannot move on their own. Second-degree disabled people are those who can move with a chairperson or other assistive devices. Third-degree disabled people, on the other hand, refer to a lower level of disability compared to the first two groups, but which prevents the execution of their military duties. With the regulation made in 1880, people such as carpenters who were on duty in the battlefield but were actually engaged in civilian occupations, were also included in the scope of the law. With the regulation published in 1909, these practices were both detailed and expanded: injuries were increased from 3 degrees to six, and those who were injured while establishing order in the country outside of wars were also included in the scope of the law. This regulation, with minor changes and extensions, remained in force until the Retirement Fund (Emekli Sandığı) was established in 1949 (Kurnaz Şahin, 2012; Nurdoğan, 2020)

In addition to those legal regulations regarding the conditions of war veterans, measures that required the organization of more complicated processes such as prosthesis supply had to be taken. The main problem in the Ottoman State with respect to the manufacture of modern prosthetics was the lack of trained

personnel. However, the inadequacy of the existing production and the fact that it was limited to Istanbul made it very difficult for the war veterans to access the prosthesis. The first modern prosthesis manufacturing in the Ottoman Empire took place during the reign of Abdülhamit II. Our knowledge related to the artificial limb manufacturing in the Ottoman Empire is based on correspondence among different state entities. The majority of those correspondences are the petitions written by the amputated people demanding artificial limbs to be covered by the state budget and the responses given to those petitions. These correspondences began during the reign of Abdulhamid II, especially in 1890. As far as is known, the first modern prosthetic limbs in the Ottoman Empire were made by Hugo Avellis, who was a medical doctor and settled in Istanbul after the Russian war and established a production facility in Beyoğlu. In line with the petitions sent to the state, the first prosthesis demands were transferred to Hugo Avellis to be met from the budget of Atıyye-i Seniyye, Sultan's Relief Fund (Aktaş, 2021). However, Hugo Avellis alone was insufficient to meet the demands, and importing prostheses from abroad was expensive and troublesome.

In 1892, two students from Tophane-i Amire, Imperial Armory, and two students from Tersane-i Amire, Imperial Dockyard, were sent to Paris to be trained in Monsieur Mathew's workshop, and in 1894, Monsieur Mathew was invited to Istanbul to establish a workshop similar to the one in Paris. It can be traced from government correspondence that Hüseyin Efendi, one of those four students who were sent to Paris, later worked in Tophane in state duty in the manufacture of prostheses. After this first group, a second group was sent to Paris for training. When it comes to the 20th century a dozen of limb makers were working in Istanbul, whether in the state duty in the workshops established under Hamidiye Etfal Hospital and Darülaceze, Poorhouse, or as a private enterprise (Gültekin, 2021; Şimşek,

2018). At the beginning of the 20th century, the main prosthetic manufacturing center was Gülhane Hospital for the veterans injured during Tripoli, the Balkans, and during the First World War. However, beside the lack in production, as customizing the prosthesis requires a long measurement process and it is very difficult to transport disabled soldiers from the front to hospitals and from there to their homes, most disabled soldiers could not access the prosthesis. Furthermore, especially during the First World War, Hilali Ahmer signed agreements with foreign companies to bring prostheses from abroad. Prosthesis manufacturing in various hospitals in Anatolia was established during the War of Independence. Here, what is interesting is that, in contrast to the disabled entrepreneurs in the USA and UK, prosthetic supply in the Ottomans was mostly met by international companies and partly by state interventionism.

In his work, Aktaş provides us a detailed information about the materials used in the prostheses produced in the Ottoman Empire through the list created by Hüseyin Bey for the prosthesis workshop that he requested to be opened in the Hamidiye Etfal hospital where he was employed at that time. There were twenty-eight items in this list, and they included the fabric, leather and wood to be used in production, as well as needles and wires to be used for production besides the sewing, sanding and soldering machines. At the end of the list was Platre de Paris, which was supposed to be used for measuring the amputee's stump. Apart from this, the content of the above-knee prosthesis, which was made by Hüseyin Bey in 1906 and attached to the body with a corset, was also mentioned in official correspondence. The main materials of this prosthesis included English steel, French chamois leather, linden wood, nickel buckle, nickel wire, brass screw, spring, silk fabric and elastic bands. To have a sense about the financial burden of the prosthesis

we can have a look at the fees that were mentioned in official correspondence. In a table on artificial limbs made in Tophane-i Amire, prices were estimated in the range of 2500-3000 Kuruş for hip prostheses, 2000-25000 Kuruş for above-knee prostheses, and 1500 Kuruş for below-knee prostheses though fees may decrease depending on the method or material used. Considering the wages of state officials in the Ottoman Empire, for example in the Mosul province, helps us to get an idea about the prices of those artificial limbs (Marufoğlu, 2011). Accordingly, when a few high-paid civil servants are excluded, salaries varied between 75 and 900 Kuruş.

It can be stated that during the reign of Abdulhamid II, an image of a benevolent and paternalistic sultan was tried to be created in order to attract and unite the people around Palace in response to the rising social opposition. The poor, the disabled and the war victims have been among the primary addressees of those policies by the state. The first deaf and blind schools were also established in this period, too. In this context, the Atıyye-i Seniyye budget was expanded, and its efficiency enhanced. Government initiatives for prosthesis manufacturing shall also be considered in this context. In fact, it is not a coincidence that those state-led initiatives coincided with the 1890s, a period when the Committee of Union and Progress was gaining strength again (Özbek, 2005). Another critical point about the manufacturing artificial limbs is that this business was first thought of under the army. Army industry had an initiating role in general for the technological developments in Ottomans and prosthetic technique in this case, too. We can say that over time, prosthesis manufacturing has become institutionalized as a part of military technology production especially after the declaration of the Second Constitutional Monarchy.

2.4 First World War and the standardization of the Limb-Making

Heather R. Perry, in his inspiring study over German orthopedists tackling a crisis endangering the welfare system and exacerbated by post-war labor shortages by creating rehabilitation programs and prosthetic devices for disabled veterans after World War I (2002). The author argues that the attempts to reintegrate war veterans into the workforce, aiming to ease financial strain on national insurance and gain government support, lost the sight of patient-centric care and reinforced the class inequalities. Reminding that the disability pension during Wilhelmine Germany was according to the soldiers' ranking and not to their injury, the author argues that the goal of the insurance system was to maintain the worker's socioeconomic status. In this regard, he continues, the attempts for prosthetic devices in terms of their design perpetuated similar social function in preventing social categories. His approach is significant as it illustrates the intricate relationship between the veteran issue and national motivations and conditions, emphasizing the imperative of contextualizing the formation and advancement of the prosthetic field within the national context. The substantial demand for prosthetics during World War I prompted society and the state to adopt standardized measures, constrained by the limitations of national resources and capabilities. In this regard, we can examine the dynamics brought about by World War I in the field of artificial limbs within the context of two issues of which one is related to the production and the other is pricing.

One of the major problems with artificial limb-making in the 19th century was that it is basically a craft required to be tailored to the individual and therefore does not allow rapid mass production. It was a labor-intensive field where the production of a limb lasted a few weeks, and it took other few weeks to adapt to the person. Moreover, the number of personnel specializing in the production of prosthetics in

the modern sense was quite small and they were located in the certain parts of the country in the 19th century. Therefore, considering the transportation possibilities of the period, access to artificial limbs was very difficult for both physical and financial reasons. Moreover, similar transportation problems persisted when these limbs failed unexpectedly and had to be repaired. For such cases, especially in Britain and United States, the catalogs that the companies put into circulation were doing great work. Through those catalogs, users ordered the manufacturer in writing and reported their measurements, too. If repair and adaptation were required, the user would ship the artificial limb back to the manufacturer. It is not difficult to guess that all these processes are quite tiring for the user. In the case where repairs were required, it meant that the user could not continue their daily routine for a long time. To further, not to mention the inherent risks and financial burden of all those shipments. In the Ottoman Empire, it was obvious that all of the requests that can be traced through the official correspondence were from Istanbul. As far as is known, the manufacture of modern prostheses was mostly made in Istanbul, and under the existing communication and transportation facilities, it was not possible for people living in provinces outside Istanbul to benefit from modern prostheses. During the War of Independence, very few workshops could be opened in hospitals outside of Istanbul.

During the First World War, with the great increase in the demand for prosthetics, the problems regarding the prosthetic supply came to a head marking a turning point in the artificial limb industry. Small producers settled in certain regions were very inadequate both spatially and quantitatively to meet this huge demand. It was not possible for the production of artificial limbs which was completely based on manual labor and required long periods of time to meet such a demand. Moreover, the transfer of wounded soldiers from the front to the hospital and from the hospital

to their homes was a huge burden for the states. In this process that required a large organizational capacity most soldiers had to return to their homes after being discharged from the hospital without visiting the limb-makers. The need for standardized and mass production seemed inevitable. Thus, the mode of production that now dominates the prosthetics industry began to take shape in Britain and other western countries at around First World War: certain parts of prostheses that do not require customization were mass-produced; and were distributed to various parts of the country. Afterwards, local manufacturers made customizations by taking measurements of amputees. During the First World War, a wide variety of prostheses were available in terms of technique and material. Standardization proceeded by selecting some of the best and identifying portions suitable for mass production. Scotland was where this type of production was most clearly visible, where shipbuilders and engineers produced artificial limbs at only their cost; Guyatt provides an example (2001). The two-stage production model, initially pursued within a national context and popularized with World War I, now dominates the global prosthetic market.

Another major problem was that the prostheses were too costly, even for the middle class. Moreover, amputation meant loss of labor force, and recovery of this labor force, whether in war or peacetime, was critical. But such a recovery should have been very rapid in the war time. In the first half of the 19th century, in Britain and the United States, this field seems to have been transferred to philanthropy. Yet, the mass casualties caused by the wars required institutional intervention and thus became the beginning of legislation such as insurance or pensions related to the artificial limbs. After the Civil War in 1862, it was legally guaranteed to meet the prosthetic needs of the war disabled in America by the state; and amputees were

given the right to replace their prostheses every five years. In Britain, there are records that the costs related to the prostheses of war veterans were covered by the state in the 19th century, but it was only at the beginning of the 20th century that the state assumed this responsibility completely and the procedures were standardized when the Ministry of Pension was established during the First World War to meet the needs of disabled at the end of 1916. In this regard, in the Ottoman Empire, lacking an internal prosthetic market, the Red Crescent was assigned to supply prostheses, if necessary, from abroad and they made a contract with a Germen company to meet the large demand due to the World War I.

However, this approach didn't eliminate the economic burden of prosthetics; rather, it shifted it from individuals to the state, necessitating the implementation of alternative coping mechanisms. In this context, Perry (2002) examines the perspectives of German doctors during World War I, who linked various prosthetic prescriptions to veterans' pre-war occupations. For example, the demands of the “Kopfarbeiter” were viewed as notably different from those of industrial or agricultural workers, requiring less physical strength or manual dexterity. Consequently, while functional prosthetic arms were allocated to laborers and skilled workers, orthopedists considered cosmetic or simpler artificial arms adequate for the needs of the Kopfarbeiter. By expressing the difficulty veterans would face in engaging in other activities with the prosthetics they owned, the author highlights the contribution of German orthopedists to the restructuring of the pre-war social order. Today, even in peacetime, it should be noted that existing working conditions play a significant role in prosthetic prescriptions.

2.5 Institutionalization of prosthetic and orthotic realm

Anderson (2017) contends that by the onset of the First World War, prosthetics had essentially reached their modern form, though the subsequent century experienced substantial quantitative advancements in the field. Despite these developments, she asserts that there was little significant change in the techniques and materials employed. This assertion seems accurate particularly excluding the smart systems found in microprocessor-controlled prosthetics developed in recent decades. Surgical techniques related to amputation had also evolved to a form similar to today's by the early 20th century (Sachs et al., 1999). During this period, within the realm of amputation surgery, practices such as ligature of arteries to reduce bleeding, the use of infection-preventing antiseptics, and the application of anesthesia methods became commonplace. The use of anesthesia allowed for the amputations that previously had to be completed within a few minutes to be performed over a longer period, enabling the possibility of three-level amputations. However, despite attempts during the First World War in both Britain and the Ottoman Empire to address production and social security regulations, comprehensive solutions were not realized. Therefore, research on the 20th-century development of the prosthetics and orthotics field should particularly focus on relevant institutional regulations. In this context, institutions such as the healthcare sector and social security practices should be recognized as playing a crucial role in shaping the prosthetics and orthotics field.

Until the implementation of the General Health Insurance in 2008, there was a fragmented social security system in Turkey. In this context, it is necessary to separately trace the historical developments of the social Security systems for workers and civil servants. In the previous sections of this chapter, it was stated that during the Ottoman Empire period, various initiatives were undertaken at the state

level, especially to minimize the poor living conditions and financial losses due to war disability for soldiers. The most comprehensive regulation in this field during the Republic Period, which served as a basis for subsequent changes and regulations, is the law numbered 5434 enacted in 1949. According to this law, the establishment of the Pension Fund (Emekli Sandığı) in Ankara, which includes a health board and is affiliated with the Ministry of Finance, was foreseen. Indeed, in 1950, the Pension Fund was established, primarily covering military personnel, government employees, and public servants.

In the late periods of the Ottoman Empire, there were some limited regulations and regional security practices for workers. For instance, in 1909, funds were established for shipyard workers, in 1910 for the employees of the Hicaz Railways, and in 1917 for the employees of Şirket-i Hayriye that operated the majority of public transportation in the Istanbul. During the War of Independence, in 1921, two laws were passed by the Turkish Grand National Assembly, foreseeing certain regulations regarding the working conditions of miners in the coal fields of Ereğli. However, those remained limited and regional in nature. The Law No. 3008, enacted in 1936, is considered the first comprehensive social security regulation. This law ensured legal protection for state-provided social assistance in case of work accidents and envisioned the establishment of the Social Insurance Administration. Due to World War II, the establishment of this institution was not possible. The Labor Law has been amended in 1971, 2003, and 2012. In 1945, the Social Insurance Law and in 1946, the first central social security institution, the 'Workers' Insurance Institution,' was established (Yaşar, 2017). In subsequent periods, the issue of social security has been frequently discussed by various parties due to the increase in the number of wage earners. In this regard, various changes have been made at the legal

level, and social security has been recognized as a right in the constitutions of 1961 and 1982. In 1992, the Green Card Application was initiated with Law No. 3816 for citizens without social security under S.S.K., Bağ-Kur, or the Pension Fund. Although the General Health Insurance program was discussed several times since the late 1960s, it essentially came into effect in 2008 and became mandatory in 2012 (Uşan and Ersoy, 2023). The General Health Insurance unified the previously fragmented insurance system.

While both the 1961 and 1982 constitutions recognize social security as a right, many legal experts have argued that there has been a shift in the emphasis on the role of the state in this field. According to this perspective, the 1961 Constitution directly holds the state responsible for ensuring the health rights of citizens, whereas the 1982 Constitution assigns to the state a more supervisory and regulatory role in healthcare (Kol, 2015). This interpretation appears to be consistent with the liberal transformation that the Turkish healthcare sector has undergone in the last decades, with the addition of private healthcare institutions to public services, as reflected in subsequent laws following these constitutional changes. The first comprehensive initiative in Turkey aimed at regulating the healthcare sector as a public service is the Law on the Socialization of Health Services, numbered 224. This law envisioned the phasing of healthcare services and the establishment of health centers (sağlık ocağı) in every corner of the country, with one for every five thousand people. Although many of its articles were later canceled, the Basic Health Services Law, numbered 3359, declared in 1987, laid the groundwork for subsequent laws and debates on the liberalization of the healthcare sector. This law allowed health institutions owned by public entities to be transformed into healthcare businesses. Additionally, it opened the way for anyone with social security to benefit from both public and private

healthcare institutions. As a result, the private sector was incentivized, and the healthcare sector began to open up to the market. “Transformation in Health” program declared in 2003 is considered by many academics as a crucial element in the liberal transformation of the healthcare sector. With this reform, healthcare institutions were envisioned to be administratively and financially independent.

The field of Prosthetics and Orthotics can also be traced with regard to the transformation in the healthcare sector. In the mid-twentieth century, prosthetic and orthotic workshops were predominantly established under public institutions. However, later on, the number of private companies and workshops increased, taking on a significant workload in the field. The prosthetic workshop founded by Tanaş Kifidis in Beyoğlu in 1919 can be considered the first and largest private initiative operating in this field particularly in the beginning of the Republic of Turkey. Tanaş Kifidis, who worked as a chief technician in a French Ironworks at the end of the nineteenth century, had to change his work area when the entrepreneurship was handed over to the state. After receiving prosthetics and orthotics training in Germany, he established the Kifidis Prosthetics and Orthotics Workshop at Galatasaray. The company later expanded its product range and started distributing orthopedic products to different regions through pharmacies and medical retailers. Particularly, in 1975, with Laki Vasiliadis taking over the company, the company's focus shifted from prosthetics and orthotics to orthopedic products (Tanaçan, 1993).

The first modern workshop producing prosthetics and orthotics under a public institution was established at GATA in 1960. In the following years, many prosthetics and orthotics workshops were opened under Hacettepe, Ankara, Istanbul, and Gazi University Hospitals. These workshops, operating under both university and hospital settings, provided services and conducted research and development

activities. However, especially from the 1990s onwards, medium and small-scale private businesses also started working in the field of prosthetics and orthotics. In this context, Ortotek, established in 1993, and Protet, established in 1996, should be mentioned. Today, in various cities in Turkey, prosthetics and orthotics workshops of different sizes and capabilities provide services. The increase in the number of private companies can be attributed to the expansion of formal education in prosthetics and orthotics and the growth in the number of graduates. These companies operate with either General Health Insurance or private insurances based on their commercial strategies.

2.6 Conclusion

To sum up, we can state that studies on assistive technologies are both an important source and research area in the field of disability history. On one hand, the relationship that disabled people establish with their assistive technology provide important clues about their disability experience. On the other hand, assistive technologies can only be fully historicized by having a certain approach to disabled and disability because in return it provides a contextual background. In this regard it is necessary to consider the history of prostheses as a whole, including different themes such as the access and rehabilitation processes of users, the formation of limb-making as a profession, and the development of surgical techniques. Only in this way can it be possible to see the dynamic relationship between technique and society.

The Industrial Revolution has a critical and multidimensional role in the formation of the artificial limb industry. On the one hand, firearms and harsh working conditions in factories caused large numbers of injuries that resulted in

amputations. Unlike the surgical operations that resulted in death due to bleeding or inflammation in the past, developing medical methods begun to make successful amputations possible. It led to a huge increase in demand for artificial limbs. Soon it became clear that the state should take an active role in both promoting the supply of artificial limbs and regulating the access of the disabled. In the nineteenth century, for the first time, the state played active role in the treatments, free access to prosthetics and employment of the returning war veterans. These attempts formed the historical origins of contemporary modern state practices such as social security and rehabilitation regarding the prosthesis and orthosis. On the other hand, developing technology and transportation facilities has allowed varied raw materials and techniques available to be applied in limb making. Thus, industrial revolution facilitated a wide range of products with different equipment's available replacing the peg legs of the earlier times with very simple designs. As a result, contemporary prosthesis and orthosis market has begun to form in late 18th. And early 19th centuries.

We can say that those developments have two important consequences. Firstly, a state-level policy on prosthetics meant that modern prosthetic use would expand from the aristocracy to the middle and lower classes. Although there was a wide range of products, the average prosthesis or orthosis was too expensive for the middle and lower classes in the nineteenth century, as it is today, and a centrally led policy was needed to bring those classes into the labor force to compensate the great losses of labor force in factories and wars. With the involvement of the state, the large financial resources for modern prosthetics forcing a large supply became possible. Thus, in nineteenth century, the first attempts paving way for some modern state practices such as retirement, measurement of disability, provision of various

social security services to the disabled, and the establishment of rehabilitation institutions by the state were experienced. In this regard, the attempts to institutionalize the prosthetic and orthotic realm in line with the transformation of the healthcare sector and social security dominated the related dynamics in the 20th century. In parallel, as the suppliers for such demand, global profit-making companies with their international production and distribution networks began to emerge. In this regard, today, still, the globally monopolized companies working with the local workshops for the personal adaptations lead the prosthesis and orthosis sector.

Another development that was very important for the field of prosthetics in the nineteenth century was the specialization of prosthetics and orthotics making as a profession. Developing surgical techniques that prevents deaths due to amputation and allows the preparation of a stump suitable for the prosthesis should be considered among the reasons for the specialization of artificial limb making. The artificial limb makers realized that the maximum efficiency from the prostheses can only be obtained by removing the nerves as well as preparing the muscles and stump therefore they have to work together with the doctors. In addition, emerging new methods required up-to-date technical knowledge. Thus, artificial limb production, which was a simple carpentry activity, became a specialized profession acquiring knowledge that might be provided by the fields of engineering and medicine. And finally, today making prosthetic orthotics becomes a profession that is supposed to be given at the level of higher education.

CHAPTER 3

A GENERAL OVERVIEW OF PROSTHETIC REALM IN CONTEMPORARY TURKEY:

INSTITUTIONS, MARKET, SERVICES AND PROFESSION

In the previous chapter, I aimed at showing the historical development of private sector and public institutions, which are part of the contemporary prosthetic orthotics realm, and the practices and regulations in this field, focusing especially on the process following the Industrial Revolution. I aimed to do this by developing a comparative perspective regarding the Turkish, British and American cases. In conclusion, I attempted to show that the development of this field is directly related to the processes of industrialization and the development of the modern state, and that the prosthetic orthotics sector is a diverging context within the borders of different nation states.

In this chapter, I would like to develop an overview of the current institutional state of the field in Turkey though it is unescapable to call the international context at times. My objective is to gain a comprehensive understanding of various entities within the field and the dynamics that revolve around them. I plan to achieve this by examining processes such as prescription, rehabilitation, and production. For instance, I will explore the division of labor between prosthetists and orthopedists, investigate the factors influencing the state's investments in prosthetic research and development, and delve into the commercial operations of private prosthetic workshops. In writing this chapter, I draw inspiration from the field of Science, Technology, and Society Studies, and I have two primary motivations. First and foremost, I aim to demonstrate that the experiences of

prosthesis users encompass more than just technical aspects. They are shaped by a multitude of institutional, economic, and social dynamics. Secondly, I endeavor to emphasize that the historical progression of prosthetics is not solely a technical evolution; rather, it can be better understood as a social processç In this regard I suggest to pay attention to the institutional transformation of the healthcare and social security institutions.

When we talk about the field of prosthetics and orthotics, we are referring to a dynamically evolving domain over time; and to understand this transformation, a broad context is provided by examining the legal and institutional transformations related to disability that Turkey experienced in the twentieth century, offering a detailed background. In his thesis completed at Boğaziçi University, Volkan Yılmaz historicizes this transformation by taking disability as a category under the welfare regime and providing examples through practices such as disability allowance, employment quotas, and green cart, related to social security and employment policies (2010). In this sense, the production and provision of prosthetics and orthotics shall be considered regarding the welfare regime. For any attempt that aims to comprehend the dynamics of medical processes in contemporary Turkey, it is crucial to monitor and consider the advancements introduced by the "Health Transformation Reform." Specifically, in my efforts to contextualize the prosthetics and orthotics sector within a socio-economic framework, I have taken into account the changes and evolutions envisioned by this reform. Simultaneously, in my in-depth investigation of a particular aspect within the healthcare domain, I have sought to provide a comprehensive assessment of the reform. The Health Transformation Reform initially amalgamated the

practices of Bağ-Kur, the Pension Fund, and the Social Security Institution (SSI) to establish a unified approach to social security practices. On the other hand, it opted to privatize certain healthcare service providers, such as hospitals, rehabilitation centers, laboratories, and workshops. Consequently, the state transitioned from being a service provider to assuming a regulatory and supervisory role in the healthcare sector. These developments have faced criticism for potentially commercializing and commodifying healthcare. In this context, it is my hope that this chapter will contribute to the discourse surrounding the "Health Transformation Reform" by elucidating some of the dynamics within the prosthetics and orthotics field, offering valuable insights and critiques.

I plan to construct the section in a chronological way, including the pre-prosthetic orthotic period, the process of obtaining a prosthesis and orthosis and the life with prosthesis orthosis. I take the pre-prosthetic period as an opportunity to introduce the professional and sectoral background. I believe that such a narrative that includes the whole process will contribute greatly to seeing all the parties and dynamics as a whole. In this regard, for this chapter the notes from the medical congress held over prosthetics and orthotics, the health implication notices and interviews provide the main resources.

3.1 Prosthetic and orthotic market in Turkey and its basic dynamics

In the previous sections of this study, some figures and dynamics of the prosthetic orthotics market were framed on various occasions. As discussed earlier, the First World War was a very important milestone in the historical development of the contemporary prosthesis and orthosis market with its production, distribution and consumption phases, which started to form from the second half of the 18th century.

In the formation of the production and distribution networks of the prosthetic and orthotic market, the fact that they are not suitable for mass consumption and that they have to be adapted to the individual have been effective. Today, two global companies, one of German and the other of Icelandic origin, dominate the prosthetic production. The other important party of the production phase is the local prosthesis and orthosis workshops where the productions manufactured or supplied from larger companies were adapted to the persons. It is not possible to make a broad and detailed presentation or analysis of the prosthetic and orthotic market with its all phases in this limited section. Yet, I would like to highlight a few points regarding the commercial dynamics in this field that I encountered during my field research. First of all, the investment made for R&D gives an idea about the commercial possibilities of the field and the priorities regarding the parties engaging the sector. Secondly, the commercial potential of different products is decisive both in professional specialization and in the commercial strategies of companies. Finally, verry psychological factor of trust is very important in the commercial potential of companies in the sector.

In 2013, "Priority Areas R&D Support Program" was initiated by TUBITAK in line with the priorities specified in the National Science and Technology Innovation Strategy 2011-2016 document. Within the scope of the program, thematic calls targeting the private sector were announced (TÜBİTAK, 2013). The title of the call with the code 1511-HEALTH-2013-BE-01 made in this regard is "Development of Smart Prosthesis/Orthosis Systems, Exoskeleton Robots and Components for Rehabilitation/Support Purpose"[2]. Among the reasons for the call, it was stated that health

[2] Please access at https://www.tubitak.gov.tr/sites/default/files/saglik-_be01_cagri_duyurusu.pdf

technologies constitute a significant part of the country's current account deficit, and products with high added value are mostly imported. In addition, it was emphasized that the developments in the smart prosthetics/orthotics and exoskeleton robots will contribute to both the field of health, the manufacturing sector and the defense industry. The announcement targeted the development of intelligent prosthetic/orthotic technologies in line with international trends, and pneumatic and mechanical prostheses and orthoses were excluded from the scope of the call. The Announcement also stated that at the time there were at least 100 thousand people who lost a limb in Turkey.

The call presents an overall assessment of the prosthetics and orthotics market in Turkey today. The Turkish market is dependent on the foreign market, especially in terms of high-tech prostheses and orthoses, and this causes a significant commercial deficit. Another crucial aspect to note is that, as stipulated in the call text, efforts to address this existing commercial deficit are entrusted to the private sector. In this regard, projects are supposed as the beginning points of a commercial venture. The emphasis on the contribution of developed prosthetic and orthotic technologies to different fields such as defense industry shall be considered as an attempt to demonstrate its commercial potential. Thus, it was aimed to increase the interest in the project and to create a competitive prosthetic orthotic field.

Azer Bedir, whom I had the opportunity to interview during my field research, has a prosthetics and orthotics workshop in Kadıköy, Istanbul where 15 prosthetic/orthotics technicians are employed currently. They are relatively autonomous in their field of work: while one person is mainly interested in body corsets, someone else focuses on the cases related to the AFO (Ankle Foot Orthotic), KAFO (Knee Ankle Foot Orthosis), DAFO (Dynamic ankle foot orthotic). They

make use of their own software, 3D design machine and automation facilities for their productions. In addition, they offer services related to the design as such to small-scale workshops, especially located in the smaller cities. Azer Bedir states that the location of their company is an important commercial advantage for them, so that they encounter more diverse demands and have the opportunity to develop their abilities regarding to the diverse productions. He states that they work especially on scoliosis spines in their workshop. He emphasizes that if orthoses are used especially at an early age, they give a positive result at the rate of ninety percent, whereas the prostheses remain at sixty percent which indicates a relatively lesser contribution to the public good. He states that orthoses require much more special expertise since there is an obligation to adapt to an existing limb, so there are fewer companies and specialists working in this field. For those reasons, he adds that orthoses contribute more to the public good than prostheses, and the profit rate is higher. Furthermore, he states that upper extremity prostheses intended to compensate for more detailed movements such as grasping or fine dexterity require more special expertise than lower prostheses that aim to carry heavy loads.

I believe that my meeting with Azer Bedir was very inspiring to observe some commercial dynamics in the field. First, the emphasis on the public good as a commercial strategy and advertising choice was very evident during his speech. It would not be wrong to argue that this preference for the language of advertising is mainly due to the fact that the product is not sold to the end user, but to the social security or other mediating institutions. For this reason, the emphasis is placed on phenomena such as public good, which

may be the priority of a government institution or association, rather than on end-user criteria such as usability or comfort in the advertising language. His contribution to the public good is also effective, together with the expertise required in determining the commercial values of the products. The higher commercial value of orthoses compared to prostheses can be considered as a good case for this.

Although there is an overwhelming dominance of international companies in the field of prosthetics/orthotics in Turkey, we shall state that there are also some small-scale companies carrying out R&D activities. Among them, Ortetek was founded in 1993, and Proted in 1992. When the product catalogs on the websites of those companies are examined, it is seen that there are no microprocessor or electrical prostheses and orthoses while the variety in mechanical and limited hydraulic products are available[3]. Even though Ortotek employee, a mechanical engineer, stated in the First Student Prosthetic Orthotics Conference that he attended, R&D activities related to advanced technology prosthetic orthoses continue within the scope of the firm's strategy (Tabak, 2021), but the catalogs show that the final product has not been on sale at the time of writing this thesis. It is stated on the Ortotek website that it is the distributor of large companies among its commercial activities. Proted, on the other hand, mentions domestic institutions such as GATA TSK Rehabilitation Center (The General Turkish Rehabilitation Center for Army Staff), Hacettepe University and Gazi University, as well as some overseas locations based in the Balkan countries, among its main buyers.

It should be noted that during my field research, many users and technicians stated that the trust in local companies is quite low compared to global companies. It can be said that factors such as the product range, the company's production history

[3] Please visit ortotek's web site at https://www.ortotek.com/ and for Proted Access at https://www.protedglobal.com/

and the size of its commercial volume are effective in establishing that trust. At the same time, this trust can be considered as one of the biggest factors in the expansion of the commercial volume of those companies. The budget allocated by the state for prostheses and orthoses within the scope of General Health Insurance is framed by certain limits. The fact that these devices have a direct effect on vital activities such as participation in the public sphere and the labor force causes a lack of resistance to risk. Therefore, trust appears to be an important commercial dynamic in the market for medical devices. There is a mature literature that discusses the role of trust in filling institutional gaps, promoting cooperation, and integrating individual agents into economic networks in advanced capitalist regimes at the intersection of sociology and economics. In this regard, detailed and comprehensive discussions about the political economy of trust can arise in the medical field (Farrell, 2009; Korczynski, 2000).

3.2 Professional field and medical model of disability

In the 1970s, disability activists in Britain and United States initiated a movement in response to the institutionalization of disabled individuals and the medicalization of disability. They introduced the theoretical concept of the social model of disability as a counter to the medical model. By distinguishing between impairment and disability, they aimed to illustrate the societal factors that transform an impairment into a disability. Afterward, within the disability literature, social approaches to disability are being considered and introduced in contrast to the medical approaches classified under medical model (Thomas, 2002; Shakespeare, 2006). However, Roulstone (2016) opposes conceptualizing the social discrimination of disabled

people under the name of “medical model”, asserting its limitations in capturing the entirety of engagement, such as the treatment of disabled individuals. This conceptualization, Roulstone argues, may result in neglecting the role of occupational therapists and orthotists in the experiences of disabled individuals. Additionally, he reminds us of the necessity for historical and temporal contextualization for professional assumptions and treatments to disabled. Therefore, he claims, his works on assistive technologies challenge the conventional portrayal of a distant and authoritative professional with rigidly defined roles and perspectives on disability. In this regard, I aim to contribute modestly and empirically to these discussions by attempting to provide a framework for the professional field within the prosthetic and orthotic realm in Turkey in following section. In this context, I aim to discuss the division of labor between orthopedic doctors and prosthetist-orthotists, examining how this division may have varied based on national context and temporality, as well as exploring the contributions of different professions to the collective knowledge relevant to the prosthetics and orthotics.

In the previous chapter, I attempted to trace the specialization of prosthetic-orthotics production as a separate profession with the formation of the prosthetic orthotic market in the nineteenth century Britain, Ottomans and United States of America. In addition, I argued that the cases in Europe and America were an important model for the developments in the Ottoman Empire. It can be stated that this trend continued in the institutionalization attempts in the field of prosthetics and orthotics in the Republic of Turkey, as well as in the formation of the content of education or certification procedures. Yet, despite the international models, we should note that the Ottomans and later the Turkish Republic presented a varying and localized case in accordance with its national context. One of the basic differences

among the United States, Great Britain and Turkish Republic in terms of the formation of the field, for instance, is the varying roles and activities of the engaging in the process of access to the prosthesis and orthosis. The dominant party in the formation of the field within the developed countries both in the past and now is entrepreneurial prosthetist orthotist and leading firms as well as in the case of Frank B. Palmer or James Hanger. Yet, in Turkey, public attempts and institutions remained as the main figure in the formation of the prosthetic and orthotic realm as in the case of Abdül Hamit sending the army workers to be trained in Paris and the prosthetic workshops under the public universities during Turkish Republic.

The first professional certification in prosthetic orthotics was issued in 1951 in New York, in 1965 two, and in 1969, 25 students were graduated from the New York University completing their education over prosthetics and orthotics. In 1973, it was accepted by the American Board for Certification in Orthotics and Prosthetics that at least an associate degree education is required for vocational certification in the field (Algün, 2018). In Turkey, the institutionalization of vocational education in the field of prosthetics and orthotics at the university level quickly follows international precedents.

Avni Duraman who joined the Ankara Pediatric Surgery and Orthopedics Clinic established in 1945 carried out the first workshop initiatives in the prosthetic and orthotic field four years later. In the same period, Hans Press continued his studies in the field of prosthetic orthotics within the scope of Istanbul University Faculty of Medicine. In 1958, Avni Duraman became the clinical director and a few years later the name of the

clinic was changed to Orthopedics and Traumatology Clinic[4]. Rıdvan Ege established the Orthopedics and Traumatology Clinic within the scope of GATA GATA (Gülhane Military Medical Academy) in 1961 and a prosthetic orthotics workshop was opened under the clinic. In the same year, Hacettepe University physical therapy and rehabilitation academy was founded by İhsan Doğramacı; and the first prosthetic orthotics associate degree program started at Hacettepe University (Alsancak, 2000). Hidayet Erdem, one of the pioneers of the field as leading international congress in the field of prosthetics orthotics, who also has his own workshop and worked with one of my respondents, Edis, also was trained here.

Currently, prosthesis orthosis training is provided within 4 undergraduate and 23 associate degree programs in Turkey. Public and private schools provide education in the university level. While associate degree programs providing education in this field have existed for a long time, undergraduate programs are quite new. The training given in these schools is in parallel with the standard training recommendations of ISPO and experts from the fields of engineering, medicine and physiotherapy provide training.

The development of prosthetic and orthotic manufacturing as a distinct profession now necessitates various professional organizations operating at the international, national, and local levels to effectively coordinate its advancement especially in the last fifty years. The international society for Prosthetics and Orthotics is the largest internationally organized non-governmental organization involving professionals working in this field. There are many non-governmental organizations in Turkey where professionals, either medical doctors or prosthetists orthotists, working in the field of prosthetic orthotics are organized as well.

[4] For detailed information please see http://ortopedi.medicine.ankara.edu.tr/hakkinda/

Established in Ankara in 1998, Türkiye Protez Ortez Bilim Derneği (Turkish Prosthetics Orthotics Science Association) mainly focuses on increasing activities in this field and improving educational activities. The association, Hidayet Erdem, Serap Alsancak and Gül Çınar are among the founding board members, regularly organizes national and international congresses where professionals were invited from all around the world. The association also worked to establish İSPO's national committee contacts. The well-attended and competent congresses and publications organized and published within the scope of the association have made significant contributions to my research, too. In addition, Ortopedik Ortez Protezciler Derneği (the Orthopedic Orthotics Prosthetics Association) established in 1992 and Protez Ortez Teknikerleri Derneği (the Association of Prosthetic Orthotics Technicians) established in 1994 can be counted among the professional organizations.

While the institutionalization of prosthetic and orthotic education at the university level in Turkey and the USA can be roughly assumed to have occurred during the same period, it is important to highlight some fundamental differences to understand how the basic dynamics of the profession and the division of labor in the field can vary and how dynamic they are. As expressed on various occasions, by the twentieth century, both in Britain and the USA, there existed a competitive prosthetic and orthotic market. This phenomenon fundamentally determined the role of universities in these countries: universities, public institutions, and private enterprises were, sometimes in conflict and sometimes in collaboration, active in the field. For instance, Henry Dreyfus, an entrepreneur and industrial designer, in

the USA, besides producing many war technologies, also manufactured prosthetics for the Veterans Administration. Furthermore, some medical schools under certain US universities collaborated with the National Army in prosthetic production (Serlin, 2002). In contrast, the prosthetic and orthotic market in Turkey was quite limited in the mid-twentieth century, and initiatives under universities were an inevitable consequence of import substitution policies.

The particular nature of the prosthetic and orthotic profession necessitates a multidisciplinary approach and a multiparty production process. In this regard, the speech over the importance of teamwork of Ali Koray Özgün, lecturer at Ankara University Faculty of Health Sciences, Department of Prosthetics Orthotics, who spoke at the First Student Prosthetic Orthotics Congress held during the pandemic period gives an idea (Özgün, 2021). He states that in each stages parties should consider the next party of the production in mind. Surgeons should take in to account the processes over prosthesis orthosis application, and designers should work together with the technicians. One of my respondents, Orthopedist Dr. Dinçay Uluç embodied the emphasis on teamwork by making precise on continuous, proactive involvement throughout surgery, with a keen focus on accommodating the needs for future prosthetic applications. Accordingly, amputation can be carried out in three ways: below the knee, at the knee and above the knee. During amputation, the muscles and bones should be prepared for the future prosthesis application, he expressed. If the incision is too close to the wrist, it causes pain. If there is a bone shorter than 12 cm below the knee after the operation, the movement of the knee joint cannot be transferred to the prosthesis. Maximum tissue preservation is valid as a general principle in amputation operations; but sometimes it is necessary to pull the

incision up. Other principles are to achieve the closest movement to the real movement and to be able to move with the least body oscillation after

There are two major opportunities for surgeons and prosthetist orthotists to meet and interact with each other. The first is congresses and fairs where prosthetic orthotics set up their own stands and medical doctors present their research and studies. Secondly, medical doctor visits and brochure delivering by prosthetic orthotists within the scope of field studies can be considered. However, Dr. Dinçay Uluç also emphasizes that such contacts between commercial companies and doctors may carry some ethical risks.

Official curricula also wonderfully depict the multidisciplinary aspect of the profession. One of ISPO's most important attempts is to develop professional standardization and accreditation regarding the prosthetic and orthotic training. Accordingly, prosthetic orthotic training is handled in three categories by ISPO. At the level of the first category, it is aimed to gain the knowledge and skills to design, produce, solve the problems encountered, and conduct research. Students who have at least 4 years of education in undergraduate level at universities are required to receive education in anatomy, physiology, pathology, mechanics and biomechanics, mathematics and statistics, computer, materials, workshop information, workshop and business administration, graphics, electro technology, theoretical and applied prosthesis-orthotics, participate in clinical studies and receive practical training in prosthetist-Orthotist responsibility in their last year. The second category level training aims to train a Prosthetic Orthotics Technologist or Orthopedic Technologist. This training lasts for at least 2 years (associate

degree level) in which the knowledge and skills to make prostheses and orthoses are gained. At this level, students are expected to take anatomy, physiology, pathology, mechanics and biomechanics, mathematics, materials, workshop technique, pre-clinical knowledge, workshop and business administration, technical drawing, electro technology, theoretical and practical prosthesis-orthotics education courses, participate in clinical studies and do prosthesis-orthotics internship. The third category level is prosthetic orthotic technician or orthopedic technician training. It is the training given at secondary education level or through special courses in which technical information is given to assist in the production and connection of the prosthesis orthosis in a workshop or laboratory environment.

Based on my field research, it shall be stated that in terms of satisfaction in prosthetic orthotic application for users, professional experience is the most important criterion. Particularly, some of my respondents who have been using prosthetics for a long time had worked with different prosthetist orthotists, and they shall have the last word. Many people have pointed out the distinction between schooled and regimented orthotist prosthetists. The first group includes associate degree and undergraduate graduates, while the second group refers to professionals who were trained in a master-apprentice relationship and subsequently received external certification. Emphasizing the importance of practice and experience, all respondents stated that in most places, regimented professionals produce much better products than graduates. Other than that, depending on their previous experiences, some orthotist prosthetists may specialize in knee, some below-knee, some above-knee prostheses or different orthotic devices. Thus, those professionals can more easily identify the source of the patient's pain and what kind of repairs the products

need, Caner claimed. Therefore, most of my respondents tend to work with the same manufacturer who better know their physical conditions for long periods of time.

Many studies have emphasized the significance of the medical institution and the profession of medicine as a crucial symbol of Turkey's modernization as a professional field; and some research has been conducted on the formation of medical discourses. For example, Aslıhan Sanal has emphasized the lack of legal groundwork and terminological consensus regarding organ transplantation, illustrating medical doctors' attempts to construct a public discourse on organ transplantation through news media, claiming that the public opinion is a significant pillar in its construction. Ayşecan Terzioğlu (2011), in her field research on cancer patients in Turkey, has observed what kinds of segregations modern medical discourses can cause in terms of disease experiences and doctor-patient relationships. In the field of prosthetics and orthotics as well, especially considering the activities of relevant departments in public universities, it can be said that medical doctors professionally dominate the field's research and educational activities, and international contacts are mostly carried out through medical institutions. However, the initial dominance of medical doctors in the field is far from the theoretical productivity of the disability medical model for understanding assistive technologies. Indeed, the prosthetic and orthotic application is divided professionally between medical doctors and prosthetist orthotists. This division of labor is a dynamic interaction influenced by various factors such as governmental policies, the artificial limb market, and institutional capabilities, within both national and international contexts. Roulstone

critiques the theoretical concept of the medical model and favors Finkelstein's administrative model approach. Accordingly, under the modern welfare state, disabled individuals are a problem to be addressed in one way or another, and various expertise are supposed to play a role in this administrative process.

3.3 Prescribing

Prescribing procedures in Turkey are regulated through Health Practice Notices (Sağlık Uygulama Tebliği/SUTs) published by the Social Security Institution. SUTs frame who can benefit from General Health Insurance and who is excluded from this coverage. In addition, the services, medications and medical devices covered within the scope of the General Health Insurance and the ratio of the contribution that patients must pay in order to benefit is also framed through SUTs. The criteria to be taken as a basis in prescribing processes and the procedures related to the dispatch to the authorized health institutions are also reported within the scope of SUTs. Operations regarding the prosthetics and orthotics are also included in the scope of SUTs. SUT containing the latest updates regarding the prosthesis and orthosis was published in February and announced in the Resmi Gazete (Official Gazette)[5]. The appendix numbered 3-C2 of the notice shows the codes for the categories of prosthesis and orthotics and the contribution fee that patients must pay for these prostheses and orthoses (Sağlık Uygulama Tebliği, 2022). Prior to this, the most extensive change was made in December 2014.

Following the categorizations in SUTs, we can state that the field of prosthetics and orthotics has a wide variety in terms of the products. For instance, the usage of different source for dynamism or the suspension, vacuum and socket

[5] Please see the issue: 31744 at https://www.resmigazete.gov.tr/eskiler/2022/02/20220208M1-1.pdf

systems increase the product range. Prostheses can be classified into four main groups according to their sources of dynamism. In mechanical prostheses, movement is obtained from body power through swing. In pneumatic prostheses, air movement gives dynamism to the prosthesis. In hydraulic prostheses, movement is achieved by the transition of liquid between solid and liquid state. Microprocessor controlled prostheses, on the other hand, adapt to the floor, measure the pressure as such while moving. Upper extremity, arm, and prostheses include mechanical, electronic and semi-mechanical semi-electronic types. Orthoses have a much wider product range than prostheses, as they have to be adapted to an existing limb therefore requires to be personalized carefully. They can be roughly categorized as prefabricated, custom fabricated, and custom fitted orthotics.

Yet, it should be noted that there are cases which are not included within the scope of SUTs; and one of them was among the respondents I contacted for interview. Edis was born with Proximal Femoral Focal Deficiency that was caused by not developed femur while in the womb. Later in his childhood he got a bundle of surgical operations aiming to use the heel as a knee bone by turning the foot over. The surgical operation he got is called rotationplasty[6]. His case was rare and even unique; therefore, his prosthesis should have been special, requiring extra expertise. Then he visited Hidayet Erdem in his childhood and continued to work with him later. Finally, he got his prosthesis but it is not included within SUT.

In his inspiring ethnographic study conducted on veterans, Salih Can Açıksöz presents a case that gained attention in national newspapers in 2014.

[6] In Turkish, as the respondent expressed, the operation is called "vannes de rotasyon" and the prosthesis is called "vannes."

According to this, Kurdish conflict veterans have the right to use advanced prosthetic technologies under the anti-terrorism law, but until the early 2010s, most veterans mainly used mechanical prosthetics produced by the Turkish Armed Forces (TSK). In 2014, Bülent Kocaoğlan, who became disabled and amputated during the Kurdish conflict in Çukurca, took out a loan to acquire a high-priced, advanced prosthesis covered by the Social Security Institution. Despite writing consecutive petitions, the Social Security Institution did not fulfill the promised payment. Unable to repay the loans, Kocaoğlan expressed his situation in the public domain by creating video clips. The issue gained a place in many national newspapers. In response, the Social Security Institution Central Office quickly stated that the delay occurred because the prosthesis Kocaoğlan purchased was not covered by the regulations they had published (Açıksöz, 2020).

Yasin Demir who is a specialist in the University of Health Sciences Physical Therapy and Rehabilitation Training and Research Hospital gives information about the criteria observed during prescribing with his presentation titled *How Should Prosthetic Prescribing Be? According to Whom, According to What?* at the 10th International Congress of Prosthetic Orthotics. Accordingly, in addition to physical factors such as the patient's muscle mass, length and shape of the stump, and body weight, external factors such as daily life, occupation, and the physical conditions of the living and working environments are of great importance in the determination of the prosthesis. Yasin Demir states that the main factor in determining the prosthesis is the activity level and recommends to refer to the functional classification chart to determine it. According to the chart, patients are divided into 4 groups considering their level of motion. While patients at level K1 can move around within the house, patients at levels K2 and k3 are supposed to participate in the public space at

different levels. Patients in the category K4 can perform activities that require high energy and dynamism such as sports. Yasin Demir suggests that pneumatic prostheses can be preferred for K2 and K3 category amputees who move with low tempo and prefer light knees, and hydraulic prosthesis can be preferred for patients in K3 and K4 categories who have a relatively active daily life. In addition, variables such as muscle mass, soft or hard tissue, and stump length are important in determining socket and suspension systems (Demir, 2018). It is important to note that the functional mobility level is not solely a medical diagnosis, and some studies discuss its potential that can arise depending on rehabilitation, other variables, and encouragement. For instance, Michael S. Orendurff (2016) criticized the K levels for becoming the de facto functional level in several international locations, indicating variability between clinic-based estimates of capacity and real-world behavior. Jaclin Megan Sions (2018) pointed out the risk of overlooking the longitudinal monitoring of patient progress in K-Level functionality classification. Wurdeman (2019) emphasized the consideration of an individual's functional potential during prescription.

As a result, there are regulations such as SUTs in the prescribing phase and scaling tools such as functional classification charts though, the evaluation and decision is mainly depending on the medical doctor who is supposed to prescribe. If the patient has already used prosthesis before, the specialist tends to prescribe the prosthesis that the patient is already accustomed to. If there is a disagreement between the patient and the doctor, the patient can go to another hospital having a greater authorization as recognized in SUTs. As it was revealed in my interviews, this process can

easily turn into a large, tiring and stressful bureaucratic burden for people. Furthermore, it is very important for the patient to be able to accurately convey his convey his daily routine, activity level and other environmental factors to the specialist. In this regard self-reflexivity and conscious emerge as a critical variable for a proper self-reporting. In addition, the patient's experience and knowledge relevant to different prostheses is an important advantage in the prescribing phase.

In this regard, during the interviews I asked the participants about their experiences with different prostheses, their prescribing processes, and the factors on which they base their prosthesis preferences. If they used different prostheses, I requested them to compare their experiences. Many narratives hinted that age was among the most important criteria. Caner and Faruk, who started using prostheses in their primary school years, explained that they changed prostheses very often until the age of 18 because the body grew very fast. Therefore, doctors recommended cheaper mechanical prostheses that move through swing for early ages. However, it can be said that childhood is the most intense period in terms of doctor visits due to the high activity level. Accordingly, mechanical prostheses rather preferred at those ages can be replaced more frequently than high-tech ones within the scope of General Health Insurance. Caner recalled that as a child he hated going to the doctor for a prosthetic examination and refrained from talking about his pains in order to leave as soon as possible. As Dr. Dinçay Uluç stated, the user statement is the main data for evaluating the prosthetic and orthotic experience; and in this regard it is much more difficult to decide the appropriate prosthesis and orthosis in childhood.

Both Caner and Faruk, few years after the age of 18, started using microprocessor-controlled prostheses. Caner, a professional athlete in the field of wheelchair basketball, believed that this contributed him a lot to obtain prescription

for microprocessor-controlled prosthesis. Faruk, however, Faruk who is at the same age with Caner and working as a civil servant in a public institution dwelling in lodging stated that he could not get a prescription for a prosthesis with a microprocessor. When his living and working conditions are considered, it might be assumed that his level of activity does not comply with the requirements for microprocessor-controlled prosthesis. Yet, he decided to meet the authorized hospital claiming that his existing prosthesis prevents him making sports and allows him gain weight. He added that Being overweight affects quality of life more than a person without a disability. For this, he first went to Dicle University and then Ankara but his demand for microprocesser-controlled prosthesis was rejected in each case. Then he arrived to İstanbul for last opportunity; and finally, he got his prosthesis considering his age.

At first glance, it can be thought that prosthesis or orthosis having high-tech are more preferable. However, during my interviews, I encountered some cases that challenged such assumption; and showed that the need for prosthetics is extremely personal. In this sense, I first convey the statements of Caner, who has been using microprocessor-controlled prosthesis for a very long time; and has an active sports life. Caner stated that mechanical prostheses cause a more balanced muscle development as they require using the muscles in this part of the body. Microprocessor controlled prostheses which do not require much muscle use cause the upper body to be more unstable during movement, he argued. Fatma is a good example that in some cases it may be a better choice not to use a prosthesis. As a result of a childhood illness, Fatma had one leg amputated and started using a hip

prosthesis. Since there is no stump and suitable musculature, hip prostheses are usually attached to the body with a corset system. Fatma stopped using prostheses completely after a while due to the difficulties caused by the corset system in using his upper body and has been continuing his life with Canadian for 15 years. I should state that it is common to completely leave the prosthesis after a while preferring Canadians, wheelchairs or motorcycles, especially the hip prosthesis. I think this case is mind-opening on prosthetics, body image, and cosmetics, and I would like to expand this discussion in the next section.

Finally, I would like to note the case of Nuray as I think it will give an opportunity to make a comprehensive evaluation in this regard. At the age of 25, Nuray was injured in the Ankara explosion on October 10, 2015, and one of his legs was amputated below the knee. Thanks to the social aids after the explosion, she was able to access vast financial resources to get her prosthesis. Nuray had no experience with prostheses before, so she thought that the most expensive prosthesis with the highest technological equipment would be the useful one for her. She also believed that the prosthesis is acquired only once in the lifetime; and added that she did not know that it requires to be repaired regularly. However, she later decided to leave the microprocessor-controlled prosthesis and switch to a prosthesis with relatively simple system. First, microprocessor prostheses are often heavier due to its electronic parts, she stated. They also need to be charged regularly which means you need to plan your day accordingly, she continued. Finally, the main parts are very difficult to repair in Turkey and it takes a long time to send them abroad. Nuray is a teacher and loves to spend time at home. Therefore, she does not maintain a very active daily life, she expressed. All of these were decisive in her decision.

No matter how effective all these are in the prescribing processes, the most important factor is financial burden it brings. The product range in the field of prosthesis and orthosis is very large and there is a tenfold difference between the cheapest and most expensive options in terms of price. Although the General Health Insurance covers the expenditures over prosthesis and orthosis to some extent, the remaining part can still be a serious financial burden for the user. Some have tried to find alternative solutions for their share, but there are many who cannot. Therefore, it shall be noted that the budget of the person is also an important criterion for the specialist during the prescribing phase.

3.4 Social security and financing

According to the law, persons included within the General Health Insurance can obtain the prosthesis and orthosis for which they have been prescribed, if they pay the indicated contribution. Contribution fee is the share that the person or his dependents must pay in order to benefit from the health services covered within the scope of the General Health Insurance. A contribution fee must be paid for the prostheses and orthoses that are not stated to be vital in the health report. For prostheses and orthoses, those who receive income and monthly salary from Turkey Social Security Institution and their dependents must pay 10% and other persons must pay 20% of the total price. However, the contribution amount cannot exceed 75% of the gross minimum wage on the date of purchase of the prosthesis or orthosis. Each prosthesis and orthosis are evaluated independently in the calculation

of the upper limit of 75%[7]. In appendix 3C-2 of SUT, there are codes, insurance periods for replacement and repair, and contribution amounts for each prosthesis and orthosis. Furthermore, the explanation column contains factors that may affect insurance coverage, such as activity and function level, age, ambulation information as such.

Examining the list presented in appendix, for instance, we can conclude that the most important factor in determining the price of lower extremity leg prostheses is whether the prosthesis has mechanical, hydraulic, pneumatic or microprocessor-controlled system. Prostheses often involve a combination of these four sources of motion. Silicon and socket systems used are also effective on the price. For example, the contribution amount to be paid for the modular mechanical below-knee prosthesis is 1660TL, for the below-knee prosthesis without silicone linear locking system, it is 2500TL and 3000TL for the below-knee prosthesis with silicone linear locking system, according to the last update in SUT made in the beginning of 2022. All three prostheses can be renewed every 5 years within the scope of General Health Insurance. When the appendix is examined, it is easily observed that the insurance coverage is defined in much more detail as the technological equipment get complicated and fees of prostheses and orthoses increase. For example, for knee prostheses with microprocessor in the swing phase and hydraulic passive vacuum system in the stance phase, the renewal period is ten years and the contribution fee is 41500 TL. Those prostheses are only covered for people between the ages of 18 and 65 with body function at K3 and K4 level. In addition, factors such as cognitive deficiency, non-healing wounds, ambulation problems, musculoskeletal diseases which will affect the usage of the prosthesis with full efficiency also exclude the

[7] The contribution fee arrangement for Prostheses and Orthoses is explained in detail under the title of 'Medical Equipment Contribution Share' of SUT dated 2022.

person from the insurance coverage. In order for highly equipped prostheses and orthoses to be covered by General Health Insurance, users are supposed to be able to continue their daily lives fully independently. In addition, the patient must document or undertake that the user will not work in environments with special environmental factors such as excessive humidity, dust, high voltage and electromagnetic field, which may hinder the operation and use of the prosthesis.

Regarding the General Health Insurance, it can be stated that there are two points that almost all respondents have in common. The first of these is that prosthesis and orthosis pricing is very sensitive to exchange rate. Today, the prosthetics and orthotics sector is dominated by Ottobock of German origin and Össur of Icelandic origin. All of my respondents are using Ottobock products, and Azer Bedir, who has a prosthesis and orthosis Workshop, stated that they preferred Ottobock products and that Ottobock was incomparable in the field. Prosthetics and orthotics workshops in Turkey import especially high-equipped products from those companies and personalize them for the users. Although there are domestic companies, their product scale is quite narrow and their reliability is low, many interviewees were agreed. The high credibility and the large product range of those global firms are the reasons for Turkish prosthetic field is dependent on international suppliers; therefore, sensitive to the exchange rate. The tremendous depreciation of the Turkish Lira against the Euro and the Dollar in recent years has affected the prosthetics and orthotics industry as well as all import items. Despite the sharp and continuous rises in exchange rates, SUTs are

updated very infrequently, which means a serious financial burden and uncertainty for prosthesis and orthotics users, interviewees stated.

The second point is that the replacement and repair times are strictly indicated by SUTs. Many respondents stated that these devices, which are actively used in daily life, are at risk of malfunctioning at any time. In case of a need for a repair or replacement before the specified time in the SUTs, people have to pay these fees themselves. In addition, since the General Health Insurance does not cover a spare prosthesis or orthosis, the daily routines of people are disrupted in case of a malfunction of existing devices. Therefore, such sort of inevitable financial burden is often accompanied by stress and physical difficulties.

For such reasons, many people have sought alternative methods to reduce their economic burden. The most important of those options is private insurance. Prosthetist orthotist Azer Bedir stated that working with private security companies means receiving the payments regularly compared to the General Health Insurance, so he does not prefer to work with Social Security Institution anymore. Private health insurances can be made in two ways as complementary and full coverage, but complementary insurances are often insufficient for a complete change, he added. Only one of my respondents, Edis, who works as an engineer in a private company, took advantage of private insurance to gain his prosthesis and stated that he was very satisfied. However, this formula may be valid for people working in certain companies with qualified employment conditions. Another method is to find sponsors. Caner, who also plays wheelchair basketball stated that various companies sponsor prosthetics and orthoses, but this mostly depends on personal effort and visibility of the user; and being active or successful in a sports branch might be advantageous in this regard. Finally, it was stated by many respondents that there is a

large second-hand market regarding the field of prosthetics and orthotics, especially with the increase in exchange rate. However, in order to use prostheses and orthoses in full efficiency, suitability for the person is very important, which is very difficult to provide by in second-hand prosthetics and orthoses. Furthermore, it mostly causes injury or low efficiency of using second-hand prostheses and orthoses.

Due to similar uncertainties and the inadequacy of control mechanisms, most of my respondents stated that the trust in relatively small prosthetic orthotics workshops was very low, and I encountered records of significant grievances on forum sites. Especially on forum sites, many complaints were expressed such as that the workshop did not implement the technical application or did not use the material declared to the Social Security Institution. Mostly, the patient could not confirm the prosthesis provided by the workshop because he did not have the technical knowledge and equipment and had to rely on the statement of the prosthetist orthotist. In addition, Azer Bedir also stated that there are those who do not demand a new prosthesis at the expense of enduring the pain in order not to spend on the prosthesis, and that there are those who agree with the relevant prosthetist and get back the money provided by the insurance for their devices. In this respect, he emphasized that the relationship of the person with himself and life is also very important. During his field research, Açıksöz, too, indicates that he met at least one veteran who informally reached an agreement with a relevant company to receive the income paid by the Social Security Institution instead of a prosthesis in order to repay the mortgage loan (Açıksöz, 2020). Dr. Dinçay Uluç, on the other hand, stated that he observed

the patients being not that much demanding because of the information lack and seeming satisfied by the options with low contribution fees especially within the regions with lower incomes where he worked for long durée's. His statement reminded me of Faruk who changed the city to visit the hospital with a higher authority to receive a microprocessor-controlled prosthesis. Faruk decided to try after a conversation with another prosthesis user. His case was a great example to observe the importance of the knowledge and experience exchange.

To sum up, today, the prosthetic orthotics industry has a very large era organized on a global level and has a large trading volume. So, in many ways it depends on market conditions to access an appropriate prosthesis or orthosis. Although there are regulations to support the user financially at the level of states or institutions, these may be insufficient to meet the needs of individuals; or might create precarities. On the other hand, many individual variables such as communication skills, networks, employment conditions or social environments are also effective in the processes related to the prosthesis and orthosis.

3.5 Rehabilitation

In the report on disability published by the World Health Organization in 2011, rehabilitation is defined as a wide variety of practices historically improved as a respond to the disability aiming at improving bodily functions or increasing participation in the labor force as such, rather than a conventional notion. Accordingly, it can be stated that the practices carried out under the name of rehabilitation have a content that can change historically and contextually; and are framed by many variables such as the approach to disability, available facilities, knowledge and experience. Furthermore, when we acknowledge that this term

encompasses a diverse spectrum of conditions, encompassing mental, physical, and sensory related disabilities, it becomes evident just how extensive the array of rehabilitation approaches can be.

Disability studies, which undoubtedly started to find a place in the academy in relation to the rising disability activism and disability movement, has brought a comprehensive and critical approach to the existing understanding and practices of rehabilitation. The social model, which rejects the treatment of disability as a medical condition and suggests the necessity of an analysis of the institutional and social mechanisms that create disability, criticizes the medical treatment-centered understanding of rehabilitation emphasizing its holistic nature including psychological and social dimensions. A second approach within Disability Studies has re-emphasized that the need to meet the needs of the body is one of the important components of rehabilitation and emphasized that what is important is to protect the dignity of the disabled body. This approach, for example, stated that rehabilitation centers should not resemble a hospital environment. The research, completed by Anıl Gencelli within the Social Policies Master's Program at Boğaziçi University, aims to compile the views of disabled activists in Turkey about the available rehabilitation services. The research is based on interviews with people with different disabilities or with parents of children with disabilities. He evaluates the results under six themes: empowerment of the disabled, recognition of differentiating needs, consent of the disabled people, professional capacity and organization, psychological dimension of the rehabilitation practice and spatial suitability such as accessibility and comfort (Gencelli, 2019). However, this limited section is

not sufficient to present and develop those discussions comprehensively and gain an overall approach over rehabilitation. In this section, what I would like to do is presenting a few themes that came apparent throughout my field research regarding the rehabilitation practices related to access to assistive technologies.

Today, we can roughly group the practices carried out under the name of rehabilitation into three groups. The first of these may be called rehabilitation medicine and involves the treatment of complications, reduction of disability or symptoms through medicine therapy. The second is purposeful training and practices such as speech therapy, vocational training or physiotherapy. Finally, assistive technologies can be considered as the third level of rehabilitation (World Report on Disability, 2011). It is clear that access to and efficient use of assistive technologies is one of the most important stages for persons with disabilities to lead an independent life, and inevitably, both in the past and present, access to assistive technologies has been the subject of many policies and campaigns aimed at persons with disabilities held by either governments or philanthropic associations.

Historically, it can be said that the states' attempts regarding the production and distribution of orthosis prosthesis can be considered among the first rehabilitation practices. In the previous sections of this study, it was stated that the great wars that resulted in mass injuries in the nineteenth century paved the way for the opening of the first orthosis and prosthesis workshops, and the First World War was an important milestone in the institutionalization of the field. In several occasions, it was already stated that although the artificial limb production workshops were located in certain regions, the dispersal of the wounded soldiers all over the country created problems in terms of access to prosthesis and their adaptations to the persons. Aftermath, in the Republican Period, progress continued

in various fields such as professional standardization, institutional regulations, and social security practices in the field of orthosis and prosthesis. In this section, I would like to talk about some of the factors that are effective in the process of users getting used to prostheses and orthoses and gaining knowledge and experience that will enable them to use assistive technologies more efficiently, especially based on the interviews I conducted within the scope of field research. Thus, by detailing the process, I would like to show that the stage of rehabilitation regarding prosthesis orthotics in particular and assistive technologies in general is not just a matter of access; and rather it requires comprehensively organized and adaptable process, respecting the dignity of the disabled.

During my field research, I had the opportunity to interview users residing in Istanbul, Izmir, Ankara, Diyarbakir, Erzincan and Merzifon. The duration of prosthetic use of my respondents ranged from five to 25 years. Although I admit that my sample is limited, I can say that my field research offers a varying sampling in terms of urbanization and industrialization levels of the cities where the respondents live. Two of my respondents, Fatma and Nuray residing in Merzifon and Erzincan, have to change cities for processes related to prosthesis orthoses. On the other hand, Caner living in Istanbul had the opportunity to work with and make comparison among workshops of different scales; and his experiences were also very useful for my research, too. What I was acknowledged throughout my interviews is that users preferred to work with workshops in different cities, not only because of the lack of available equipment, but rather because of specialization and institutional reliability. Since Fatma who wears hip replacement and lives in

Merzifon stopped using prosthesis about fifteen years ago, I ignore her out-of-town experiences in this context. Yet, the experiences of Nuray who started using prostheses seven years ago and resided in Erzincan and traveled to Ankara during his prosthesis-related processes were helpful to elaborate the spatial challenges in rehabilitation processes.

She started by explaining that a total of two weeks is needed for the preparation and testing of the prosthesis. For this, she, as a teacher at a public school, has to take a leave of absence from work, and it is not easy during the semester. She has to prefer to wait for the summer vacation for the maintenance and repair of his prosthesis and manage with temporary solutions until that time. Processes related to orthosis and prosthesis often requires a break from work, especially if it requires to travel out of city. It is not difficult to guess that taking leave from the workplace can easily turn into a stressful bureaucratic process for many employees, and even become an element of mobbing, she stated. The most important problem she experienced during her travels to Ankara was accommodation. For a fee, she stayed at Teachers' House, or her friends host her at some times. Housing fee is not that much burden for her as she had a stable income and somewhat sustainable financial situation; however, the need for shelter can easily become an economic burden for some. However, it is certain that this means that the financial resources must be necessarily transferred to this process at the cost of diverse expenditures. Furthermore, she expressed that she had great difficulty in sheltering during the pandemic period when physical isolation is extremely important. During this period, she refused to stay with her friends. At the same time, compulsory long inter-city trips carried risks for her. In addition, despite the risks, she had to choose collective accommodation facilities such as hotels or Teachers' Houses during this period.

Another important issue to acknowledge regarding the rehabilitation processes is that prosthetic technologies encompass a broad spectrum of products, and the unique requirements of individuals often necessitate a diversified approach to prosthesis-related procedures. Edis's case is an example for the difficulties and complicated situations that can be experienced in this process. He wanted to change the manufacturer he worked with a few years ago for economic reasons, but he cannot get the desired result from anywhere because he needs a very special prosthesis. While he was a student, he could spare time for different pursuits during the summer holidays, but this was very difficult for him at the time because he worked and is not free for long time for seeking alternative places.

Unlike Edis, Caner had experiences with a large range of firms working on prosthesis. Among my respondents participated into field research, Caner was the one who had been using prosthetics for the longest time, and his ability to comfortably work with different companies now depended on his ability to express his needs and direct the prosthetist. The role of communication between users and prosthetists in the prosthetic experience was emphasized by many participants during the field research. Cultural anthropologist and below-knee amputee Steven Kurzman aims to examine this clinical language, which includes silence and bodily performances (2002). He concludes that technologization involves the tangible conversation between the experience of prostheses and the observation of how they biomechanically interact with bodies, as well as the communication between prosthetists and amputees bridging this divide. It can be readily asserted that this observation and communication exchange

between the user and the prosthetist constitute crucial elements of the rehabilitation process.

Another important question that I seek a response during my interviews was how my respondents accessed all kinds of information they need in all their processes regarding their assistive devices. Although the mediums or occasions vary, it can be said that the most reliable and effective source of information is other prosthesis orthosis users, respondents mostly agree. It was stated that meeting other users and transferring knowledge and experience is a common practice, especially in prosthetic orthotics workshops since it requires people to spend a long time while waiting for their devices. In addition, social media pages, groups and forums are another important medium for the information circulation, as stated by many respondents. Caner and Nuray whom I conducted interviews had met through social media. Apart from that, my other respondents told me that they met prosthesis orthosis users through the internet and developed friendships. Thus, users can share their experiences and information relevant to different firms and producers, financial problems that might be encountered, prescribing as such. In addition to such shares, we can say that psycho-social support holds a large place in these individual contacts. Thus, users who are alone in their own life settings meet their peers and gain a sense of community. Moreover, in some cases, especially people who have started using prostheses or orthoses earlier, consciously and voluntarily communicate with new users. Tahsin, residing in Izmir, has been working with the same prosthesis manufacturer for a long time and they became friends in the time, he expressed. He explains that the owner of the workshop sometimes introduces him to new users, and he takes care to show that he can go up and down stairs and walk at a certain speed with his prosthesis. Edis who is a materials engineer and residing in Ankara, believes

that it will be encouraging for others to show that he can run with the newly popular carbon foot.

Naim, a wheelchair user, underwent surgery to address pressure sores while hospitalized. During his hospital stay, he encountered another paraplegic individual facing similar pressure sore issues. Their roommate, a child, had a permanent catheter in use. Recognizing the potential infection risks, Naim advocated for the removal of the indwelling catheter, which led to its removal after a week through bladder training. Naim had previously received comparable training during a six-month rehabilitation period in Ankara, experiencing significant benefits. He emphasized the need for a broader rehabilitation culture, despite limited available resources. Naim's experience serves as a poignant illustration of the drawbacks of doctor-centered and medical intervention-driven rehabilitation, highlighting the importance of sharing experiences in the field of rehabilitation. Furthermore, it demonstrates how disability produces an embodied knowledge as a bodily experience unlike the medical realm claiming domination over disability related treatments and attitudes.

Such experiences of sharing and information transition among the disabled that seem personal and voluntary at the first glance are covered within the literature under the name of peer support; and there are attempts to institutionalize them. It has been stated and emphasized in Article 26 of 'conventions on the Rights of Persons with Disabilities' published by United Nations in 2005[8]. The article states that the parties should implement different practices, including peer support, in order for people with

[8] The convention is accessible online at https://www.un.org/disabilities/documents/convention/convoptprot-e.pdf

disabilities to fully participate in the labor force and achieve maximum independence. There are few instances today where peer support is offered as an an institutional application as part of rehabilitation. Sandra Sexton describes one of one of these rare examples at the 1st International Student Congress she attended in Ankara. As a prosthetist orthotist, she works with the International Confederation of Amputee Associations (ASBL). Emphasizing the importance of peer support, she talks about the projects they have developed to contribute the peer support with their association. Summer and youth camps can be stated among good practices in this regard. Moreover, in some Hospitals in Berlin, people with similar disability or amputation experience are employed as guides, she explains (Sexton, 2021).

One of the themes that emerged in particular regarding current rehabilitation practices during my interviews was the problems related to the privatization of rehabilitation centers mentioned by Naim Within the scope of the "Health Transformation Reform", there has been a significant increase in the privatization of rehabilitation centers recently; and the most direct consequence of this is the problems regarding the professional status of education personnel working in rehabilitation centers. Naim stated that these personnel, who normally should work as teachers, found positions with worker status in private rehabilitations, and they were forced to work under low wages and insecure work conditions. In this context, he added that it is not possible for the staff to access the necessary training and that the lack of qualified educators in rehabilitation centers is a serious problem. He also added that the government allocates an 8-hour rehabilitation budget for a child with autism, for example, but this is very insufficient for adequate education. Privatization policies for rehabilitation centers have undoubtedly radically affected institutional dynamics and motivations; and carries the risk of turning these institutions into

commercial centers, expressed by many activists. In this context, detailed and interview-based research on private rehabilitation centers may be fruitful to impact of the “Health Transformation Reform” on rehabilitation practices.

In this regard, according to my field research, I can say that there are three main directions to which access in prosthetic and orthotic rehabilitation shall be pushed. First of all, it remains an important problem, which complicates and sometimes hinders the rehabilitation process, that prosthetic and orthotic workshops are mainly concentrated in urban centers though the distance of users from these workshops is not the same as in the past. This situation can be particularly crucial when there is a sudden need for repairs. Secondly, users are mostly left alone in the decision-making process or obtaining information regarding orthotic and prosthetic types, collaborating workshops, alternative methods for financial support, daily life problems they may encounter, and their management. There is almost no institutional transfer of information, or the existing resources supposed to be provided by specialists are far from meeting the need, as all respondents agree. However, this situation is not only related to the lack of institutions but also to the inadequate inclusion of users' experiences, thus it pertains to the organization of knowledge regarding disabilities in the field of prosthetics and orthotics. Lastly, collaboration between clinical settings and prosthetists is crucial both for unity of purpose and for accurately transferring the user's experience to the prosthetic production and design.

3.6 Repair and replacement

So far, I have mentioned replacement and repair processes in various contexts under other chapters. In this section, I plan to present a tidier framework. When my respondents need a repair or replacement, they prefer to go to the workshop that made their prosthesis, but in order to benefit from the General Health Insurance, the repair and replacement must be prescribed by medical doctors. Which replacements and how often of those replacements will be covered by the General Health Insurance have been regulated precisely by the SUTs. For instance, socket replacement can be done with a contribution of 350 TL every 18 months, and silicon replacement with a contribution of 475 TL per year for lower extremities, artificial legs. Also, the contribution fee and replacement period for the wrist and knee joints and the ankle parts of the prostheses are specified in the SUTs. If the need for replacement and repair arose earlier than the time specified in the SUT, the user must pay for it himself. This often means an unpredictable economic burden for the user, as the need for repairs is unpredictable. For example, one of my respondents, Caner, stated that he took a loan for the last repair cost. Nuray said that he had to spend his monthly salary for the last repair need.

The most important problem that arises during the repair period is that the lives of the users will be interrupted significantly without a spare device during this period. According to one of my respondents, Caner, when you buy a new prosthesis under SUT, you have to deliver the old one, but due to the difficulties in storage, this practice is often not applied. Therefore, some users can keep their old prostheses spare, but they are very likely to be worn and therefore injurious when used. Moreover, every prosthesis needs to go through a certain period of getting used for a usage with full efficiency; therefore, the transition to a new prosthesis is often

challenging. Some companies or workshops may offer replacement prostheses, depending on their possibilities and commercial strategies, but the situation regarding the adaptation process is also same here.

Finally, we can say that the changes covered by the General Health Insurance in SUTs are strictly framed; especially the main bodies of prostheses and orthosis such as the basic dynamic parts are excluded. When it comes to the need for replacement or repair of these parts, users have to cover the cost themselves. Moreover, it is very difficult to find an orthotist prosthetist who has the knowledge and experience to perform the necessary repairs, especially for exported products. In these cases, it may be necessary the device to be sent abroad; inevitably it results in long periods of waiting and heavy costs.

3.7 Conclusion

To sum up, all processes regarding access to prostheses and orthoses in Turkey have been framed in detail by the state through institutions, regulations and laws. On the one hand, efforts were made to train professionals to work in the field and to create production workshops in public universities and hospitals. In the associate and undergraduate programs opened in public universities, trainings are given in the curricula prepared following the international standards. On the other hand, some arrangements have been made within the scope of General Health Insurance to support disabled people's access to medical devices financially; and rehabilitation institutions were established. In this regard, procedures for practices such as prescribing and social security have been framed precisely within the scope of SUTs.

On one hand, all this institutionalization initiative makes a comprehensive and sustainable policy for disabled people's access to assistive technologies possible; regulates their participation in the labor force and in the public sphere. Today, every citizen included within the scope of General Health Insurance is financially supported in their access to prostheses and orthoses. On the other hand, as the students who attend orthosis prosthesis training in public and private universities increase, the number of professionals specialized in the field also increase. Thus, prosthetics orthotics workshops also become available to produce in medium and small cities. However, these non-dynamic arrangements can cause institutional gaps and precarities; and it sets limits on access to assistive technologies as well. Because prostheses and orthoses are not mass produced and customization is crucial, the result is fundamentally dependent on the manufacturer's skills and experience. Furthermore, in many cases, users have to trust the manufacturer due to inequality in terms of the relevant knowledge. When SUTs are not updated in appropriate periods, the contribution that the users are required to pay may be compelling due to the alternating exchange rate. To state a more specific case, through SUTs, a significant population that does not meet criteria in terms of age and body function is excluded from coverage for access to microprocessor prostheses. It also results in this social group being excluded from participation in the labor force and the public sphere as well.

This seemingly contradictory situation regarding access to prostheses and orthoses is an excellent example of Tuba İnci Ağartan's discussion of the commodification and commercialization of health in Turkey (2011). The author describes the neo-liberal transformation of the health sector in the world as a process in which the balances between the public and private sectors become unstable; and

especially in developing countries, attempts to expand the scope of General Health Insurance are accompanied by infrastructure problems encountered in the organization of functions such as financing, presentation and supervision. She argues that in Turkey, like many developing countries, the state's role has shifted from a provider to a supervisor and planner (Ağartan, 2011), pointing to the growing share of the private sector under the Sağlıkta Dönüşüm Programı (Transformation in Health)[9] which was put into legislation in 2003 under the rule of AKP (Justice and Development Party). Although prostheses and orthoses are covered by the Social Security Institution as a public institution, the supply of these devices is strictly subject to market rules and conditions. The share they hold in the current account deficit can be considered as one of the most initial cases of the commercialization of health.

Such relation between the state and the market imposes market conditions on the state as in the case of prevailing account deficit in the field of medical devices. To cope with the current account deficit, the state resorts to practices such as contribution share, which are a significant financial burden for many, or excluding certain disability groups from accessing high-priced prosthetics and orthotics. Thus, the state introduces a population policy that decides which group of disabled people shall be included within the scope of labour force and which others shall be excluded.

[9] Detailed information about the program can be found in Turkish and English on the official website of the Ministry of Health.

CHAPTER 4

PROSTHETIC SUBJECTIVITIES: INDIVIDUAL EXPERIENCES OF IDENTITY FORMATION AND SELF PERCEPTION

In the previous chapters, my objective was to establish a comprehensive historical context for the evolution of the prosthetics and orthotics industry and institutional background for accessing them. In the initial chapter, I delineated the sector's emergence and growth, driven by the substantial surge in prosthetic demand triggered by the Industrial Revolution and the great wars resulting in the large numbers of injuries. I drew parallels and differentiations among the Ottoman Empire, the United States, and Britain to underscore this development. Additionally, I delved into the influence of modern state policies in facilitating access to prosthetics for individuals with disabilities and tracked the historical progression of these policies. In the subsequent chapter, I narrowed the focus to Turkey, where I examined the structural organization of the prosthetics and orthotics field at the institutional level. I also explored the key players in this domain, including doctors, technicians, and the end-users. Furthermore, I analyzed the various dynamics that exert influence within the field. Through this exploration, I aimed to emphasize that the experiences of disabled individuals related to prosthetics extend far beyond mere technical encounters, encompassing intricate economic, political, and socio-cultural dimensions.

In this chapter, my intention is to delve into the subjectivities processes of prosthesis users through an examination of their personal narratives. I aim to elucidate the factors that shape these users' self-perceptions and their perceptions of

the external world. Additionally, I seek to understand how these factors impact their processes of identity formation and mobilization. Furthermore, I plan to explore the hurdles individuals encounter during their subjectification journey and the coping strategies they develop to address these challenges. To achieve this, I have conducted interviews to uncover a range of emotions, including anger, shame, self-esteem, resistance, life satisfaction, and the processes related to the decision making or reasoning. I also aim to analyze the thought processes and cognitive frameworks that individuals employ when shaping their self-concept and their understanding of the world around them. I will contextualize this holistic experience within the overarching themes of public perception, gender roles, age, and the pursuit of independent living. While recognizing that it may not be possible to fully encapsulate an individual's interaction with the external world, I believe those themes will provide valuable insights and stimulate productive discussions.

The book *Türkiye'de Neo-Liberalleşme ve Mahremiyetin Dönüşümü* edited by Ayşecan Terzioğlu, Cenk Özbay, and Yeşim Yasin, plays a pivotal role in shaping the content of this section. In the book's introduction, the editors assert that the collected articles collectively explore the processes of publication, commodification, or neoliberalization of privacy and the simultaneous integration of private matters into the public sphere. This intricate interplay between the private and public domains serves as an endeavor to comprehend various aspects encompassed by privacy, such as desires, selfhood, identities, emotions, and decision-making mechanisms. These aspects are typically considered isolated but are, in fact, influenced by power structures, inclusion/exclusion mechanisms, and dynamics inherent in the public sphere. Consequently, the editors propose that in order to fathom the transformation of the intimate sphere within the context of societal

changes, one must adopt a perspective that acknowledges social inequality and incorporates it into intellectual processes (Terzioğlu et al., 2011). This perspective prompts crucial questions about which groups have their health, desires, and physical integrity legitimized and valued, and whose rights are recognized. From my standpoint, these inquiries have played a central role in shaping the content of this chapter and framing the ensuing discussions as well. For instance, the scrutiny faced by individuals who use prosthetics unveils the underlying socio-cultural forces that marginalize them and reflects the significance society assigns to their dignity. Additionally, the section addressing independent living raises inquiries about various systems that either embrace or ostracize prosthesis users, thereby shedding light on the communal dimensions of disabled individuals' reactions, such as frustration or shame, which were previously considered private matters.

On a broader scale, I firmly believe that research of this nature holds the potential to elucidate the dynamic, mutually influential relationship between individuals and society. It stands to offer valuable insights that can benefit various research fields, particularly in the realms of identity politics and social movements. Identity politics, exemplified by movements such as the disability rights movement, played a prominent role in twentieth-century radical politics. It brought to the forefront the intricate interplay between self-perception, subjectification, identity formation, and the impetus behind social movements, all of which have become focal points of inquiry in the social sciences. Within this context, when considering the development of disability identity as a comprehensive and inclusive construct, alongside its connection to the industrial revolution and modernism, it becomes evident that the emergence of the disability rights movement with its distinctive demands is a socio-historical process. In this regard, I contend that research into

individual experiences and mechanisms, akin to the approach I have undertaken in this chapter, can serve as a vital intermediary in comprehending the link between the social dynamics influencing the formation of a specific identity and the subsequent mobilization of social movements rallying around that identity. I hold the aspiration that studies of this nature will make enduring contributions to the existing body of literature on social movements, enhancing our understanding of these intricate and transformative societal processes over time.

4.1 Standing side by side: Prosthetic experience as a public category

The relation between the identity formation and the space has been subject to the works of a large group of scholars from various disciplines ranging from urban planning to geography for the last decades. Henri Lefebvre's attempt to denaturalize the space arguing that it is a production shaped by the political, social and economic forces can be considered among the prominent works that paved the way to sub-discipline of urban sociology. By describing the three moments of space, that are, spatial practice, representation of space and spaces of representation with their social implications, Lefebvre attempted to explore the socio-cultural phenomena germane to space (Lefebvre, 2014). On the way led by Lefebre, the two works written in nineties can be considered as the two prominent examples of the exploration between the social identity and the space in the context of globalization and the level of global cities. In her book *The Global City: New York* (Sassen, 1991), marks the metropolitan urban centers as the hubs for the global production networks driven by the flows of capital, information and labor. She argues the spatial transformation and social formation marked by inequality and poverty of the urban as the result of the governmental practices of global economic networks. Harvey, on the other hand, in

his book *Justice, Nature and the Geographies of Difference* argues the social and environmental differences regarding the spatial differences that limit marginalized and disadvantageous groups access to the resources, services and opportunities (Harvey, 1996). Unlike Sassen and Harvey who imbed the urban, that is, the public space, in their wider exploration over global economies, Nancy Fraser directly intends the political implications of the participation into the public space (Fraser, 2014). By indicating the necessity of recognition for social justice, she expands the political practice formed within the public space beyond economic realm (1990). Lastly, Dorene Massey's work titled *Space, Place and Gender* can be stated as an example investigating the relation between the spatial practices and the contemporary social issues. She argues that the space as a dynamic and constructed concept can either be inclusive or exclusive shaping women experiences and opportunities (1994) (Massey, 2013). To sum up, the relation between social dynamics, identity formation and space has been subject to the various works by diverse scholars with their studies over diverse topics and levels of research. Inspired by the discussions made within the literature and based on the interviews, I also plan to argue the disability as a category in relation to public space in this short section. Although it is not possible to make a comprehensive theoretical discussion here, I believe disability serves as a thought-provoking lens through which we can examine the interplay between spatiality and the development of one's identity. In this particular section, I focus on the notion that individuals who use prostheses carved out alternative public spaces for themselves in the seek for coping mechanisms to their social frustrations. I believe the interviews I conducted throughout my field research clearly reveal both the tangible, physical aspects and the symbolic, representational facets of public participation.

As a considerably young social movement, the main and first demand of disability activism regarding public space was related to the physical accessibility of the common places and public buildings. The street protests by disabled people, especially those organized in the United States in the seventies, laid the groundwork for the first legal regulations regarding the accessibility of public spaces. The Architectural Barriers Act (ABA), which was enacted in 1968, was the first initiative at the federal level to lay a legal basis for the accessibility of public buildings. In the 1973 update to the Rehabilitation Act, Section 502 established the Access Board as a central unit to work to regulate and promote the accessibility of public buildings. After that, standards regarding the accessibility of public buildings were created and detailed with updates made at various occasions[10]. In this regard, the Center for Universal Design was opened under the University of North Carolina in 1989; and the seven principles[11] listed by the center for universal design are the important keys for designers today. In Turkey, clause F of the third article of Law No. 5378[12], adopted in 2005, can be considered one of the first legal regulations regarding spatial accessibility. The Accessibility Monitoring and Control Regulation, announced in the official gazette dated 07.20.2013, regulated the details regarding the implementation. The purpose of the regulation was stated as "determining the issues regarding the establishment of the commissions that will monitor and control accessibility in transportation vehicles, their working procedures and principles, the implementation

[10] For a brief summery please visit https://www.access-board.gov/about/history.html#:~:text=Congress%20passed%20the%20Architectural%20Barriers,or%20leased%20with%20federal%20funds.

[11] 7 principles are equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort, size and space for approach and use.

[12] Please see the law at https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=5378&MevzuatTur=1&MevzuatTertip=5

of administrative fines and the use of administrative fine amounts recorded as revenue to the general budget"[13].

Undoubtedly, accessibility regulations in the legal level are empowering for disabled people's participation in public space. However, it shall be stated that in most cases the practices lag behind the legal regulations and the processes of making old buildings accessible are progressing intermittently. This process is experienced as a struggle that has also moved into the legal domain for activists. For instance, with the Law on Making Amendments to Some Laws and Decree Laws Numbered 7417, dated 1/7/2022, and the 47th article of the Law on State Officials Numbered 5378, dated 1/7/2005, with the temporary 3rd article's sixth paragraph, the phrase "...four years..." was envisaged to be changed to "...eight years...". As a result of intense campaigns by disabled activists, the decision was brought to the Constitutional Court, and on 19/9/2023, with Decision No. 2023/115, the Constitutional Court annulled the regulation[14]. Moreover, the social barriers that accompanies the physical barriers in the public sphere continues to operate even despite the physical improvements. Here, the social barriers refer to all kinds of reactions making disabled people wary of participating into the public space, received through the gazes or orally. Throughout the interviews, it was a view shared by all interviewees that the most challenging component of disabled people's experiences of public space was the gaze of the other. The respondents repeatedly expressed their discomfort with the curious or pitying glances directed at them outside. While this discomfort sometimes caused momentary emotional expressions such as anger, in other cases, especially if the injury story was new, it could reach levels that prevented the person

[13] Access the entire document at https://www.resmigazete.gov.tr/eskiler/2013/07/20130720-9.htm
[14] Please see the regarding press release by TİHEK (Turkey Human Rights Institution) here: translate into english TIHEK (Türkiye İnsan Hakları Kurumu)'in konuya ilişkin basın açıklamasını: accessed on 19.09.2023

from participating in the public sphere. Prosthesis users, on the other hand, developed their own methods of coping with the pressure created by these gazes, such as hiding their prostheses or socializing in certain areas. Therefore, it can be stated that the use of prosthesis produces a new category of public experience that works from beginning to end, by disrupting, stopping or differentiating public engagement.

My respondent's experiences regarding the disability associations or summer camps can be considered as the spatially embodied narratives related to the experience of participation in such public spaces. During associations or camps, they experienced socialization in relative isolation from the gaze of the 'other'. Thus, they had the opportunity to meet with people who had the same or other types of disabilities. Caner had such an opportunity when he started playing wheelchair basketball in 2013. He stated that he felt very comfortable when he first started doing sports, that he met people similar to himself, and that he had a wide range for observation since there were many different people. He added that thanks to this wide range, he establishes cause-effect relationships regarding the diverse behaviors and reactions of the people which in return supported him in terms of self-recognition. Fatma thanks to disabled summer camps that facilitated her to go to many regions of Turkey. In 2006, she attended a summer camp for the first time where many other people with diverse sorts of disabilities also participated. She was surprised that there could be so many and so many different types of disabilities, and that after a while she stopped seeing how she looked and started to watch her surroundings, and over time normalized the situation. She stated that thanks to summer camps, she realized that everyone has their own unique life stories. These relatively segregated spaces produce a certain comfort zone by providing relief from

the gaze of the ‘other,’ even for a while; It made it easier or facilitated adaptation to engage in public space with their prosthetic devices. In this regard, it can be discussed that those places play a mediating role between the private and public spaces for Caner and Fatma. These narratives serve as compelling illustrations of the connection between identity formation and spatial experiences, manifested through the dynamics of public participation in this particular instance.

Yet, those mediating forms of spaces contributing adaptation do not play the same role for each case. My respondents mentioned that they had other disabled acquaintances who spent almost all their days in the places facilitated by the Associations. I also knew that many visually impaired people spend most of their free time in such places; and form their social circles there. During my first year at university, I recall my participation in a trip to Istanbul’s Islands coordinated by a disability association. This was just one of the numerous travel opportunities facilitated by various disability associations. It was evident that those organizations not only coordinate captivating excursions but also host an array of engaging events aimed at fostering connections and camaraderie among the disabled members. I witnessed firsthand how many individuals with disabilities significantly enhanced their social lives and expanded their support networks through active involvement in such Association-driven social activities. No doubt that these spatial encounters do indeed signify a specific type of social interaction relatively secure and homogeneous. Nonetheless, some of the disabled individuals voiced criticism regarding such form of socialization practices. I recall a particular incident from when I began my university studies: a fellow visually impaired student, who was about to graduate, advised me not to exclusively interact with other visually impaired individuals. I remember that his suggestion made me angry. At the time, I was a 19-

year-old who had spent the previous nine years without any visually impaired acquaintances in her social circle, and I was grappling with the challenges of adapting to a new city all by herself.

Although Caner, too, has a negative opinion about such segregated areas because they offer a separate comfort zone, all participants do not share his opinion. For instance, Fatma believes that areas reserved for the disabled were important in the public spaces and buildings; and she even argued with the police for this very recently. A few months ago, Fatma went to the concert and there was an area reserved for disabled people in the concert field. However, everyone was randomly crowded there. She went to the police and told them that just as no one was allowed to enter other parts of the concert area, people who were not disabled should be prevented from entering here shouting. She explained her reaction by stating that she wanted to feel special in a public space. In some cases, it can be argued that segregated areas are functional in relation to very physical conditions; and it shall be kept in mind that the needs for each disabled are very personal and changeable. Areas with fast and intense circulation may be more difficult to manage for some. Disabled toilets can be considered as one of the most functional segregated areas. However, those working on universal design insist on flexible designs in terms of the tools and places as well that everyone can use at the same time.

The intricate psycho-social dynamics that foster a sense of comfort among prosthetic users in secluded and relatively isolated environments also operate in various forms of public participation as well. Beyond simply demarcating spatial divisions, prosthetic users generate their own ways of shared practices of public engagement. Here I shall mention experiences with personal cars and taxis that facilitates being mobile within the city without being noticed by the public gaze. The

narratives that surprised me the most during my interviews, and which were out of the practical universe of a visually impaired, were about those experiences over personal automobiles. It should be noted that it is these narratives that encouraged me to write a section on the relationship between participation in the public sphere and identity formation. Caner described his first start playing wheelchair basketball as follows. “I got out of the car to go to the market and while I was walking, someone stopped next to me in his car and invited me to their team. After all, when you are in the car, you are a driver like everyone else, but when you get out, you can be distinguished much more easily.” During the interview, we did not talk specifically about his relationship with his personal car, but then I started thinking about the possibility that the cars might have a psychological function beyond their physical facilitation. When I reviewed my interview notes from this perspective, I found incredible narratives. In the last parts of our interview, while describing the socialization practices of some of his amputee friends, Caner placed great emphasis on their personal cars. For example, one of the main forms of entertainment was going to different parts of Istanbul in their personal vehicles and drinking alcohol or other substances without leaving their vehicles, he expressed. Traveling by car was also a common activity. Fatma clearly expressed the concealing role that taxis played for her. She explained that, especially in the early stages, when she had to go to Ankara for treatment or prosthetics after the amputation, she preferred to take a taxi to the bus terminal without being seen by anyone. She added proudly that she could now move freely around the city without fear of her amputated leg being noticed and without using a taxi or private vehicle. It can be suggested that, personal vehicles and taxis, in those examples, provided a mobile segregated space and made concealment from the public gaze possible.

Undoubtedly, one of the most frequently mentioned means for socialization during the interviews centered around the extensive use of social media and online forums. In a chapter of his master's thesis completed at Boğaziçi University, Can Evren, too, devotes attention to the relationship between the measurement of disability and the construction of the modern state by tracing several discussions made under the ‘engelliler.biz’ platform. Drawing from discussions on medical report processes, exchanges of ideas regarding institutional shortcomings, and suggestions for petitions, the author argues that the platform serves as a means for individuals with disabilities to develop an intervention in modern state practices related to disability (Evren, 2012). Nuray, who had limited knowledge about prostheses after amputation, turned to the online community to seek information and establish personal relationships with individuals who shared similar experiences with her. In particular, Nuray, too, explained that he encountered very few people in his physical surroundings who used prostheses, but through the internet, she found a supportive online community through the website engelliler.biz. It was through this forum that Faruk was informed about my research, as I had posted a call for participants there. My engagement with the forum, commencing with my field research, involved an extensive period of reading the various discussions and posts covering a wide array of topics. While I did not have the opportunity to meet these individuals face-to-face, the forum provided invaluable insights into their daily practices and emotional landscapes. The undeniable truth is that the internet and social media platforms play a pivotal role in the socialization practices of contemporary society. The internet provides a profound opportunity for interaction and communication, particularly for those who may lack the chance to physically convene with others. However, it is crucial to acknowledge that these platforms serve

unique functions for individuals with disabilities. As previously explored in this thesis, encountering individuals with similar experiences and making comparisons can play a vital part of the rehabilitation process. Therefore, it can be argued that forums and social media platforms hold a rehabilitative dimension.

Lastly, in the experience of participation in public space, we shall take into consideration the prosthetic make-up, which this time operates not as a physical but as a representational boundary. Prosthetic make-up means covering the prosthesis with soft tissues and colored fabrics to resemble the other leg. Prosthetic companies often provide this service free of charge. It is a functional method, especially when wearing long clothes or trousers, the respondents stated. Mihm (2002) raises an intriguing point about the evolution of prosthetic cosmetics prior to the Industrial Revolution, noting their lack of modern cosmetic applications. He delves into the sudden shift in the middle of the 19th century and attributes it to the profound changes brought about by urbanization and shifts in social dynamics. He underscores the disruption of existing class structures wrought by the Industrial Revolution, drawing a direct connection between physical appearance and the avenues for social mobility. In an era increasingly fixated on appearances, Mihm argues that individuals from the middle classes felt compelled to conceal their deformities and vulnerabilities, fearing that initial impressions could hinder their prospects in marriage, employment, and social advancement.

However, some of my respondents stated that they did not specifically and consciously choose make-up; and their preference can be considered as a resistance to the other's gaze. When Nuray got his first prosthesis, she thought to prefer a prosthesis instead of a fake leg, and that this robotic appearance was cooler. However, she explained that she was disappointed when she encountered the surprise

of her prosthetic suppliers and the counter-opinions from her family. Caner stated that he especially preferred to wear shorts, that sometimes he responded to the stares he was exposed to for a long time, and that facing these sketches was very empowering in terms of gaining self-confidence. Their expressions serve as an inspiring example of the relationship between self-confidence and the determination to assert their bodily experiences in the face of the public gaze. The scrutiny these individuals face and their struggles in response to this gaze also exemplify the representational and symbolic dimensions of participation in the public sphere, extending beyond spatial inclusion. Indeed, these personal experiences and challenges have contributed to the discourse and studies within disability activism, particularly focusing on the concept of disability pride.

Today, July is celebrated as Disability Pride Month in the United States. In 1990, protestors marched to the Capitol for Congress to pass the Americans with Disabilities Act; and here they crawl on the stairs, abandoning their wheelchairs and other assistive devices, as an example of civil disobedience and to physically demonstrate the inaccessibility of spaces[15]. After the protest, 104 activists were detained. From now on, July, when Bush signed the ADA, is celebrated as Disability Pride Month. Today, the emphasis on pride holds a major pillar in disability activism. Personally, I have always kept my distance from pride activism. But this sub-section now makes me think that I can contextualize the issue of pride as part of participation in public space.

In summary, as expressed by all the respondents throughout my interviews, one of the key dynamics that constitute the prosthetic experiences is the attention they receive in public spaces and their reactions to that gaze. These reactions vary

[15] https://en.wikipedia.org/wiki/Disability_Pride_Month

widely and may include avoiding public spaces altogether, experiencing deep frustration, seeking alternative venues and manners of socialization, or even challenging societal norms. Consequently, the use of prosthetics emerges as a distinct experiential category regarding public life, giving rise to unique practices of public interaction. This category vividly illustrates the intricate interplay between physical space, the social environment, and the formation of one's identity, particularly in cases where social interactions are confined to specific, segregated locations. Moreover, the use of prosthetic make-up underscores that participating in public spaces encompasses not only a physical dimension but also a representational and symbolic one.

4.2 Independent from whom? Independent living and autonomy as contingent envisagements

One of the key dimensions within the literature on assistive technologies pertains to their connection with independent living. Independent living serves as a significant practice that can contribute to discussions on subjectivity, particularly in terms of the positioning of disabled individuals within society. Given the contemporary landscape where identity politics holds sway in the political arena, the implications of discussions on subjectivity are highly pertinent. Hence, believing that it may provide inspiring insights for the discussions over the intricate relations among society, technology, and the individual, in this section, I intend to explore the concept of independent living as a practice of subjectivity, drawing from both existing literature and my field research.

Engin Yılmaz's 2015 thesis, *The Phenomenon of Disability Perception in Blindness*, completed at Boğaziçi University, provides an insightful perspective on

the correlation between independent living, social movements, subjectivity, and the social environment. Through in-depth interviews with 36 visually impaired individuals, Yılmaz classifies them into five distinct groups based on their perceptions of blindness: “affirmers,” “partial affirmers,” “confused perceivers,” “negative perceivers,” and “normalizers.” The “affirmers” view blindness as having certain advantages, while “normalizers” see it as a significant deficiency. The thesis explores the intricate relationship between participants' perceptions of their blindness and their views on independent living. Yılmaz identifies various criteria and expectations regarding independent living, including the ability to make autonomous decisions, physical self-efficacy, and access to information, which participants equate with independence. Furthermore, the study delves into the impact of factors like education, employment, and technological literacy on individuals' experiences with independent living. Notably, the research highlights that individuals classified as “affirmers” and “partial affirmers” are more actively engaged in disability activism (Yılmaz, 2015). This underscores the reciprocal interaction between the individual and society. On one hand, it illustrates how social dynamics influence disabled individuals' self-perceptions and their ability to create conditions for independent living. On the other hand, it reveals how individuals' perceptions of their disabilities motivate their involvement in social movements. With this in mind, I aim to commence this section with a concise introduction to the discourse on Independent Living tracing its history and relevant literature. Subsequently, I will draw upon the findings from my field research to evaluate the viewpoints expressed by my respondents in the context of independent living, autonomy, and self-sufficiency. My attempt involves two main objectives: firstly, I aim to discern the significance of independent living, autonomy, and self-efficacy in shaping my respondents’ sense of

self. Secondly, I seek to elucidate the nuanced interpretations of these concepts as understood by the respondents themselves.

The idea of “Independent Living” gaining prominence within American institutions can be attributed to the pioneering efforts of Ed Roberts. Born in 1939, Ed Roberts faced severe physical limitations after contracting polio at the age of 14, which left him with limited mobility in his fingers and toes. When Roberts was admitted to Berkeley College in 1962, he encountered resistance in securing the necessary accommodations due to his severe disability. Challenges arose, especially in terms of accommodation because he relied on the iron lung day and night. However, a turning point occurred when the Director of Campus Health Services offered to provide Roberts with a room in an unused section of Cowell Hospital. Roberts agreed to this proposal on the condition that his accommodation be considered a dormitory unit rather than a medical ward. This pivotal incident encouraged disabled students to come together at various intervals on campus, ultimately leading to the establishment of the first “Independent Living Center” on Berkeley's campus in 1972. Today, “Independent Living Centers” are organized at various levels, including institutional and national, each operating under different banners. One notable example is the “European Network of Independent Living,” established in Strasbourg in 1989 by more than 80 disabled individuals from 18 countries. ENIL was established following the Independent Living Conference held in the European Parliament in April 1989, which resulted in the publication of the Strasbourg Resolution. The Strasbourg Resolutions stated that disabled people's access to personal assistance is a matter of human rights, that these assistance should be organized in a way that disabled people can choose the service suitable for them, and that the funding authority should ensure that the necessary funds are available for

the training of the user and the service provider[16]. Subsequently, following the formation of ENIL, an “Independent Living” Committee was founded in Britain under the British Council of Organizations of Disabled People (BCODP), which was itself established in 1981. The committee's dedicated efforts culminated in the creation of the National Center of Independent Living in 1996, designed to coordinate policy, advocacy campaigns, and social initiatives on a national scale in Britain[17].

Concurrently with the organizational efforts of disability activism, discussions on “Independent Living” continued to evolve within the field of Disability Studies. Initially, the primary focus of “Independent Living” was on deinstitutionalization, aiming to empower disabled individuals to reside in their own homes with their families, as opposed to receiving social care and treatment in large, segregated institutions like mental hospitals or rehabilitation centers. In the late 1970s, another dimension emerged within 'Independent Living' activism, which embraced a market economy approach. This approach championed the rights of disabled individuals to choose from a range of services and products that best suited their needs. It challenged the traditional model of public welfare as a bureaucratic provider and instead proposed a mediating role for it (Dejong, 1979). However, it has faced criticism for its disregard of class inequalities and its perceived focus on individualism. In contrast to the individualist interpretations of “Independent Living,” Conduce places a strong emphasis on interdependence and considers medical services as a form of social capital (Williams, 1983).

[16] https://enil.eu/about-enil/#briefHistory
[17] Accessed on 15.10.2023
https://en.wikipedia.org/wiki/British_Council_of_Organisations_of_Disabled_People

Certainly, one of the pivotal elements integral to the “Independent Living” journey pertains to the availability of assistive technologies. Nevertheless, as elaborated upon in previous sections of this study, the effectiveness of assistive technology experiences is contingent upon various factors, including financial resources, accessibility to accurate information, and relevant rehabilitation services. Consequently, these factors collectively mold the overall scope of the independent living experience. While I acknowledge that my field research in this specific section is limited and not suited for a comprehensive assessment of the myriad variables that influence the independent living experience, I believe that the testimonials of my participants offer valuable insights worth considering. Before delving into the content of the interviews, I'd like to provide a brief summary of the participant profiles. Among my respondents, there was one wheelchair user, while all others were using lower extremity prosthetics. Two of the participants were living with their families in the same apartment, one was in the same building, and the rest were either living alone or in shared housing arrangements. One of the participants received disability benefits, while the others had regular sources of income.

During the interviews, one of the key aspects associated with independent living, as pointed out by the respondents, is the availability to access suitable products and services from a diverse range of prosthetic options. When comparing their experiences with different prosthetic devices, Faruk emphasized that microprocessor-based prostheses offer increased safety when navigating routes with ramps or stairs. For instance, Caner recalled that the mechanical prostheses he used as a child frequently broke, leading to frustrating memories of falling to the ground. Edis elaborated on how carbon feet allowed him to run at high speeds. Nevertheless, he noted that the range of carbon feet came with varying price points, and the

financial support provided for carbon feet had decreased. Consequently, the motivations behind choosing products from this extensive range include considerations of convenience, durability, and trust. It is evident that the experience of independent living encompasses both physical and psychological dimensions. Additionally, the ability to select not only the product but also the prosthetic workshop plays a crucial role for the respondents. Edis for example, required a specialized prosthesis, and his previous workshop, despite good intentions, was unable to provide the prosthetic he needed, prompting him to choose a different prosthetics workshop in Ankara. Furthermore, Caner mentioned that prosthetics might possess specific expertise in certain types of prostheses, influencing their choice of prosthetics accordingly. Nonetheless, the primary factors influencing the preferences of the respondents, both in terms of product and service selection, revolve around their financial resources. Faruk explained this by stating: "I am aware of seven or eight places in Diyarbakır where I have had prosthetics made before. Thus, if one doesn't meet your satisfaction, you have the option to choose another. What ultimately matters are your financial resources." Moreover, due to the lack of economic resources, some of my respondents have given up on obtaining information and research on prosthetic technologies. Faruk explained that he had previously researched prostheses abroad on the internet, but he lost his desire because of the incredible prices that he could not afford. Edis, a materials engineer, loves doing research in this field and had long conversations with technicians when he went to the workshops before. He stated that he visited a workshop while he was in England for a while, and that there were wide opportunities in terms of materials abroad, but he did not focus on this issue much anymore because the prices were very high.

Another theme that I believe revealed throughout my interviews regarding independent living is the aspect of temporality. In some cases, and for certain types of disabilities, the issue of independent living is a phenomenon that extends over a long duration, permeating every aspect of everyday life. However, for others, it should be considered on an immediate, case-by-case basis. While some individuals may need a personal assistant to continue with their daily routines, prosthetic users often face the challenge of independent living, especially when confronted with spontaneous issues. Another aspect of its temporality is related to the need for organizing daily lives of the users to accommodate the requirements of their prosthetics. This was made evident by the response to my question about the most critical issues encountered during prosthetic use, as exemplified by Faruk: “I don't know of any particular significant problem, it only becomes a problem when an immediate issue arises. Imagine you're at university or at work. In such a situation, I can quickly take a taxi and go to the workshop because it's nearby.” Faruk also emphasized the importance of having a spare prosthetic to avoid stress. Additionally, Caner and Nuray discussed how a microprocessor-controlled prosthetic significantly impacts their daily lives, as they needed to plan their entire day around the possibility of the battery running out.

One of the most important points that I believe emerged from my interviews was that independent living should not be considered as a given ultimate goal shaping the disability perception as a whole, but rather as a contingent category that acquires different aspects through the individual experiences of disabled people, in a dynamic relationship with the perception of disability. People's perceptions of their own disabilities and their relationship with independent living were mostly framed by the inspiration and reasoning they acquired through observation and comparison

varying from case to case. Caner's wheelchair basketball team and Fatma's experiences with disabled summer camps, described in previous chapters, provided the opportunity to meet other people who experienced their own disabilities; It enabled them to develop more peaceful perceptions of themselves by normalizing these experiences that they viewed from the outside and getting rid of the feeling of uniqueness. Gaining a relatively positive perception of their own disability gave them the chance to reconsider their dependent or independent life experiences with a more positive perspective. Fatma's narratives provide good examples of the analogy-based contingency of independent life: “I have met people who use prosthesis, but yesterday we were with a friend, she uses a prosthesis above the knee, although she is 7-8 years older than me, she does some tasks on her own without needing anyone. I have many friends. We were attending disabled summer camps with my husband and we saw a lot of people there. I saw that people using battery powered chairs envied me. In some places, from my own perspective, thank God, I am always grateful for my conditions, I have many physically disabled friends, I have mentally disabled friends, I also have a visually impaired friend, I think orthopedic disability is very superficial.” In her own reasoning, she placed self-sufficiency on a certain scale, and by following examples from both ends, she could place herself somewhere on this scale. Perhaps, above all, this feeling, which I will call life satisfaction, stemmed from her ability to obtain a stable and consistent idea of herself by subjecting herself to various comparisons.

I'd like to share Caner's perspective on his own disability. His experience serves as a compelling example that highlights the multifaceted nature of independent living in the context of disability. Caner believed that had he not been disabled, his life would have followed conventional norms and his family's

expectations would have dictated his life's trajectory, consisting of regular work shifts and a predictable income. However, his injury afforded him the opportunity to break free from these societal expectations. In this context, Caner illustrates how independent living transcends physical mobility and is intertwined with societal norms. In this case, disability can be seen as an advantage rather than a hindrance to achieving independent living.

To summarize, independent living is a concept that is closely linked to the accessibility of facilities that enhance the quality of life for individuals with disabilities. However, it is important to recognize that the nature of independent living varies based on the specific type and severity of a person's disability, as well as their individual daily routines. At its core, independent living revolves around individuals shaping their own understanding of disability and establishing their own sense of identity. This concept is heavily influenced by how disabled individuals react to the external dynamics that surround them and the way they perceive themselves in light of these dynamics. In essence, independent living is primarily concerned with how individuals experience and interpret these external factors in the initial phase. These experiences are undeniably intertwined with institutional arrangements, cultural norms, and economic opportunities. Furthermore, an individual's unique life experiences and personal history play a significant role in shaping their responses to these dynamics. In the subsequent phase, the central question becomes: How does an individual's self-perception evolve within the context of all these factors? How does their understanding of their disability and their sense of selfhood develop? Therefore, independent living is a highly adaptable concept that is influenced by numerous cultural, ideological, and personal factors. The insights and experiences of disabled individuals regarding independent living

offer compelling insights into the interplay between self-perception and social dynamics. Furthermore, in the contemporary context, the examination of self-perception and the process of subjectivities holds political significance in the context of shaping and mobilizing identity-driven social movements. Consequently, exploring how the experience of independent living influences the subjectivities and politicization of disabled individuals represents a promising avenue for in-depth research.

4.3 Gender as a crosscutting theme in the prosthetic experience: Prosthetic masculinities and femininities

Prosthesis adjustment and satisfaction encompass three primary dimensions including physical variables such as pain and functionality, psychological factors related to the body image and self-perception and social dynamics regarding the societal roles and expectations. Suggesting that prosthesis use and abandonment is a complex function of variables defining the contextualized individual, Elaine Biddiss and Tom Chau categorize the factors into three as predisposing characteristics of the individual (gender or level of limb loss), established need (lifestyle- and age-related demands) and enabling resources (clinical and social factors) (Biddiss & Chau, 2007). Such approaches underscore the intricate and intersecting nature of the prosthetic experience. In this section, the spotlight is on gender, a pivotal variable within this complex interplay. A multitude of studies investigating prosthesis satisfaction have consistently underscored the significance of gender as a determinant in the functionality and satisfaction. Some studies have adopted a predetermined gender category, juxtaposing it with other variables that exhibit varying correlations. For example, Linda Resnik and her colleagues conducted a

survey-based study focused on veterans who had experienced significant upper limb amputations. Their objective was to investigate gender-related disparities in prosthesis usage. The study's findings indicated that women predominantly favored cosmetic prosthetic devices over body-powered ones. Furthermore, the study revealed that fatigue and the weight of the prosthesis were primary reasons for women discontinuing their use of such devices (Resnik et al., 2012). On the other hand, Littman and colleagues conducted a comparative study within the population of veterans who have undergone lower limb amputations. Their objective was to assess potential gender-based disparities in prescription practices. Their findings indicate that, in comparison to women, men receive prescriptions at a significantly faster rate (Littman et al., 2023).

Some studies on assistive technologies, however, go beyond this to discuss how these technologies reproduce bodily images and, in the meantime, the bodily representations of gender roles as well. An exemplary illustration of this is found in the studies of Sibel Yardımcı and Dikmen Bezmez, who primarily discuss the role of Lokomats, originally a rehabilitation device, in reproducing bodily normality (2016). They argue that the Lokomat's introduction to the public through a popular health TV program framed it as an extraordinary technology capable of 'curing' disability. Within the hospital setting, discussions about the Lokomat lack clarity regarding its walking benefits, leaving its purpose open to interpretation for patients. The convergence of media representation, in-hospital discourse, and the broader trust in technology to reverse disability reinforces the Lokomat's perception as a miracle-worker, sustaining the idea of the 'normal body' as a walking body. This is a very good example of how perception regarding a disabled body is constructed through public means and the reproducing role of assistive technologies in this context. In

this regard, Sweet's study, examining 19th Century prosthetic product catalogs and literary texts, is enlightening in exploring how texts related to prosthetics may have perpetuated inequalities between women and men in terms of prosthetic usage (2017). Sweet begins by noting that despite literary efforts presenting prosthetics as symbols of masculinity, especially in endeavors to honor veterans, female prosthetic users are much less visible. According to her, women face a more severe form of ableism compared to men and are compelled to conceal their disabilities because disability is deemed incompatible with motherhood and caregiving. She provides examples from texts where prosthetic teeth and wigs are presented as symbols of deception. Continuing her work, Sweet illustrates how prosthetics for women and men are differentiated in terms of design in product catalogs. Accordingly, women are recommended prosthetics that are quieter and more discreetly concealed. As demonstrated by these examples, discourses related to assistive technologies and perceptions of disability, both at the individual and societal levels, have intertwined; and their relationship deserve to be methodically examined.

Keeping those discussions in mind, my research employed qualitative approaches through in-depth interviews with participants, unearthing diverse variables and illuminating their intricate interrelations. When referring to intricate interrelations in this context, I am describing the complex connections between various factors. For instance, the level of satisfaction individuals experience with prosthetics can be influenced by their body image and self-perception. Yet, those seemingly individual aspects are not isolated; rather, they are profoundly shaped by societal expectations and defined social roles. In this regard, it is crucial to adopt an intersectional approach when assessing these interconnected variables; the feminist perspective that pervades this section is paramount, as it enables a nuanced

examination of various social constructs, allowing for in-depth discussions and comprehensive insights. Therefore, feminist approach paves the way for that section on the relation between prosthetic usage and gender both methodically and theoretically.

Indeed, a longstanding and robust interaction exists between the fields of Disability Studies and Gender Studies; and a bundle of inspiring attempts to consider them together has been made within the literature (Garland-Thomson, 2005, 2020). For example, Disability Studies' distinction between impairment and disability finds its inspiration in feminism's differentiation between gender and sex (Thomas, 2013). In this context, as I explore the interplay between prosthetic usage and gender, my intention is to formalize the differentiation between Second and Third Wave feminisms as distinct research domains. For instance, Second Wave feminism's research into the gender-based division of labor between domestic and public spheres can provide valuable insights into understanding the factors contributing to the institutionalization of the prosthetics and orthotics sector, both at the governmental and market levels. On the other hand, delving into the forms of suppression manifesting through sexuality and the body, as emphasized in Third Wave feminism, promises to offer valuable insights into the body perceptions of individuals with amputations and its connections with gender roles. In this regard, in this section, I suggest that gender exerts influence on the prosthesis experience, not only during its utilization but also in the prescription and design phase. In this context, this section primarily relies majorly on three key datasets: the self-perceptions of the respondents regarding their bodies, the prescription conditions outlined in the SUTs, and the promotional content of prosthetic companies. The central argument posits a complex interconnection between the use of prostheses and prevailing gender roles. It

contends that prosthesis regulations can either reinforce established gender norms or disrupt them, and these dynamics are influenced by how prostheses are perceived with regard to the gender roles.

To establish a comprehensive and intersectional context, I find it valuable to commence with a brief introduction regarding the profiles of my respondents and the ways I contacted them. As previously mentioned, I conducted interviews with a total of 8 respondents, with only two being female. Among the female respondents, one had battled bone cancer, while the other had endured amputation resulting from an injury sustained in a bomb explosion. On the other hand, one of the male respondents had undergone multiple surgeries due to a congenital condition, while the remainder had experienced disabilities stemming from various traffic accidents at different stages of their lives. In terms of educational background, one male and one female respondent did not possess university degrees, while all others had successfully completed higher education. Notably, I had pre-existing connections with two respondents – one female and one male – and initiated contact with them to ask for an interview. The arrangement of an interview with a member of parliament was facilitated by a mutual friend. Additionally, my recruitment efforts extended to one female and four male respondents who responded to a call announcement disseminated via email, social media, and a forum site. Despite data limitations, my field research suggests a notable disparity in public visibility among prosthetic users based on gender. Further investigation is needed to determine whether this disparity arises from the unequal distribution of prosthetic usage between genders or if it is influenced by gender-related institutional and social biases in accessing prosthetics. As discussed below, my field research offers valuable insights into the multiple

factors contributing to this inequality, which can serve as a foundation for future research endeavors.

As stated, initial observations reveal a significant gender disparity in the participation of females in the field research. The considerations over the gender distributions among the prosthetics users prompts us to delve into the origins of this divergence considering the causes of amputations today. Dr. Dinçay Uluç, whom I interviewed during my field research, noted that advancements in drug and medical device technologies have reduced amputations due to diseases like diabetes, with the majority now stemming from traumatic incidents such as workplace or traffic accidents, as well as war injuries. When we juxtapose the demographic distribution of the respondents with traumatic amputation experience, my field research appears to corroborate Uluç's assertion. Those trauma-related injuries could offer valuable data on gender-specific risk factors. Earlier sections of this study delved into the historical context of heavy industrial conditions and war injuries paving way to the prosthesis market's evolution and the subsequent development of modern regulations during the 19th century. It is plausible to argue that these historical factors continue to exert influence today as well. Consequently, it is conceivable that males are more at risk than females in terms of trauma-based injuries resulting in amputations.

What's particularly noteworthy in this context is how institutional regulations and market dynamics pertaining to prosthetics contribute to the perpetuation of established gender norms. A prime illustration of this is evident in the regulations surrounding prosthetic prescription, which serve as a significant driver in reinforcing traditional gender roles. In the preceding sections of this study, a comprehensive examination of the social and economic factors influencing the prescription process has been conducted. It has been highlighted the significance of variables such as

working conditions, being employed, age range, physical activity levels, and engagement in social activities, particularly concerning the prescription of high-cost microprocessor prostheses. An important facet of the analysis shall involve considering these variables as dependent variables and exploring their relationship with gender roles. It shall be stated that among the individuals I interviewed during the field research, only two were users of microprocessor prostheses, and both were male. Interestingly, both respondents underscored the importance of their physical activity levels in the prescription process, being employed at the time of prescription and access to the economic resources for the contribution fee to be covered within the scope of General Health Insurance as indicated officially through the SUTs. One of these individuals was actively involved in wheelchair basketball, while the other led an active professional life. Drawing from Second Wave feminism, we can contend that society's division into private and public spheres is experienced as a reflection of gender roles; and expectations regarding both employment and the level of physical activity expected for microprocessor prosthesis prescription are linked to those roles. Further research is needed to thoroughly explore this point though, based on my initial sampling, it appears that gender inequality in employment may lead to disparities in accessing microprocessor prostheses. Furthermore, it is important to note that physical activity and sports, which are prerequisites for the prescription of microprocessor prostheses, offer significant opportunities for social engagement and participation in public life; and there is a stronger societal incentive for men in this regard compared to women.

One of the most important components of gender roles is undoubtedly their representations that reflect social expectations regarding masculinity and femininity; and it consists of a significant component regarding the prosthetic experience. To

further illustrate this point, I'd like to delve into an example provided by one of my female respondents, Nuray, who made a comparative observation regarding her male friends. Nuray recounted the experience of one of her male colleagues who was an athlete but suffered an injury resulted in amputation, which had a significant psychological impact during his adaptation process. She explained that the use of a prosthesis inevitably reduced his level of physical mobility. In contrast, Nuray herself transitioned relatively smoothly, attributing this to her less active lifestyle prior to the amputation. However, she noted that two of her other male friends struggled considerably with this adjustment, which she believed was partly influenced by male pride. Her narration was inspiring as it demonstrated the profound impact of gender based social expectations on individuals' perceptions of their personal experiences. In contrast to her male acquaintances, Nuray highlighted that women face distinct challenges stemming from cosmetic and aesthetic considerations. She expressed that the loss of her physical integrity was particularly challenging initially, leading her to dedicate prolonged periods in front of the mirror. She attributed these struggles to societal expectations regarding women's appearance. Furthermore, Nuray emphasized the profound impact of experiencing such a significant physical transformation, especially during midlife. She elaborated that having a prosthesis allowed her to momentarily alleviate this sense of disappointment, as it enabled her to perceive it as an integral part of her body. However, she also remembered moments of disappointment, such as when taking a shower unhearing her prosthesis.

Fatma's story of meeting her husband can also be insightful to explore the relationship between prosthetic use and gender roles. Her husband uses a below-knee prosthesis unlike her using a hip prosthesis. In 2001, she bought a mobile phone by

selling her handicrafts to the neighbors and saving money. They started to talk on the phone upon a call to wrong number, and continued their conversations for a while without knowing that each other was disabled. At the time her husband lived in Ankara and they were able to meet face to face when she went to Ankara to have her prosthesis repaired after three months. She explained that her husband was worried that she would not accept him upon finding out him being disabled. Finally, they had managed to marry in a short run. I could easily recall similar anxiety related to dating or marriage, both from my own memories and from the accounts of other disabled people around me. It can be asserted that one of the instances where the distinction between abled and disabled bodies becomes a pronounced source of anxiety is when dealing with sexual tension.

Those narratives collectively provide valuable perspectives on how societal gender roles may have influenced the experience of individuals with prostheses. Among the significant domains where gender roles exert a profound impact, the body stands out prominently. Amputation, being a direct bodily experience, naturally intersects with prevailing gender norms. There is substantial potential for further research to broaden our understanding of the intricate connection between prosthesis and gender, offering new avenues for exploration in this field. A significant aspect of this exploration delves into the divergence in prosthetic design based on gender in the prosthetic market. In his thought-provoking article titled *Get the Best Article in the Market: Prostheses for Women in 19th Century Literature and commerce* Ryan Sweet compiles narratives that are imbued with gender-specific connotations by examining various commercial texts and their representation of prosthetics in literature. At the very beginning of his Article, Sweet interprets the novel *John Smith's Funny Adventures on a Crutch*, published by Alonzo Hill in 1869, as a

humorous endeavor to restore dignity to recently amputated Civil War veterans. Here, the mechanical symbolism of prosthetics or crutches is imbued with associations of masculinity. Nevertheless, as Sweet proceeds with his study, he posits that commercial texts, particularly those aimed at women, emphasize polite and silent designs. In contrast, David Turner, who scrutinizes reactions to body technologies and physical deformities in the 18th century, asserts that these responses extend beyond mere functionality, encompassing considerations of graceful aesthetics and cosmetic desirability. In this regard the social expectations and gender roles as well shall be considered as the factors that are influential within the historical development of the prosthetic technologies and their design. Yet, though it is not possible to put forward such a discussion in detail here, there are a bundle of works challenging such approaches towards polite prosthetics by rather examining the seek for polite prosthetic design in relation to aristocratic esthetics.

In conclusion, gender playing a crucial role in the realm of social construction significantly influences the prosthetic experience. Its impact is felt both within institutional structures and through societal expectations. The utilization of prosthetics can either reinforce existing gender norms and disparities or disrupt them, depending on the context. For instance, the regulations governing employment and the prescription of advanced prosthetic technologies under General Health Insurance exemplify how gender is interwoven into the prosthetic experience at an institutional level, perpetuating gender inequality. Moreover, individuals' satisfaction with their prostheses hinges on their interactions with societal constructs like masculinity and femininity, further highlighting the profound connection between gender and the prosthetic journey. Especially in the initial stages, users often perceive the prosthesis as a threat to their gender identity, potentially leading to feelings of disappointment.

Gender should be regarded as a paramount force that significantly shapes the prosthetic experience, signifying its socio-psychological dimensions beyond the technical and physical factors.

4.4 Interconnected factors: Evaluating the age in the use of prosthetics

No doubt that, the age of the prosthesis user is a critical factor in shaping the prosthetic experience. It must be considered within the broader context of both pre-prosthetic phases, such as susceptibility to conditions that may lead to amputations and resistance to them, as well as elements linked to the adaptation process, including social expectations, physical and muscular strength, and levels of physical activity. In this regard, it shall be kept in mind that adaptations is a multidimensional process affected by a bundle of variables of which one is the age. I believe that the range of my respondents in terms of their ages and durée of prosthetic use is diverse as it allows to gain insights; and for this I initiate by briefly introducing them. Only one of my respondents started using a prosthesis after numerous operations due to a congenital bone anomaly. Two respondents were aged 5-10: one between 10-15, and one between 15-20 at the time of amputation. The remaining four respondents began using prostheses following accidents in their 20s. At the time of the field research, one of the users have been using prosthesis for around 5 years. The prosthetic stories of wrest were longer than a decade.

In the literature, the existence of a direct relationship between the age of initiating prosthetic use and functionality is not universally agreed upon. For example, in a study (Huizing et al., 2010) involving five prosthetic users aged between 6 and 21, as well as 15 non-users, it was concluded that starting prosthetic use at an early age is not a significant factor for the functional use in the later ages.

On the other hand, during my interview, Dr. Dinçay Uluç, argued that among the medical doctors, commencing the use of a prosthesis at a young age is widely considered advantageous, as it allows for harmonious development of muscle and bone structures. He also argues that age-related factors, such as delayed or non-healing wounds, are more likely to result in amputations in the older ages. Furthermore, the weakening of muscle mass due to aging, the development of conditions like osteoporosis, and other diseases affecting physical activity levels all significantly impact the physical experience germane the prosthesis usage. In this regard, Dr. Dinçay Uluç, an orthopedist, has pointed out that advancements in technology have resulted in a decline in trauma-related amputations; and amputations due to diabetes are particularly prevalent among older patients. He further emphasized that, in contrast to diabetic Turgut Özal, who continued to lead a remarkably active life despite advancing in age, numerous other individuals with diabetes have faced amputations in their 50s. He underscores the paramount importance of timely access to the appropriate medications and treatments for diabetic patients. On the other hand, in this section, based on some narratives I encountered during my field research, I propose a more complex relationship between age and prosthetic experience, dependent on individuals' experiences that diverge both medically and socio-psychologically suggesting an interconnected relationship among different variables including age.

The case of Fatma who left using prosthetics after a long time serves as a compelling example that highlights the intricate interplay of various factors in the context of prosthetic functionality besides the age. She explained that beside other illnesses, particularly kidney transplantation and diabetes, had greatly reduced her physical resilience, making prosthesis management difficult. Weight gain hindered

her from effectively transferring his body weight to the prosthesis. The significant decrease in her physical activity level contributed her decision to abandon the prosthesis. Examples similar to Fatma's experience, wherein the efficiency of prostheses is compromised by comorbidities, age, and weight gain, are well-documented in the orthopedic literature. In fact, being outside the age limit or having a condition that limits physical or mental abilities may disqualify individuals from social security coverage for microprocessor prostheses in certain healthcare systems as indicated in Turkish Health Practice Notices. Those should be recognized as individual factors at the physical and biological level affecting prosthetic satisfaction.

According to the answers of my respondents about their childhood memories regarding prosthetic use, their age at the time of injury played a significant role in socio-psychological factors that affect adaptation as well; for instance, changes in physical mobility with age can alter one's expectations and satisfaction with a prosthetic device. However, even though they agreed that age is an important factor, their approaches were quite different. One possible explanation for the relation between age and prosthetic satisfaction is the time spent using the prosthesis. Among those I interviewed, especially those who began using prostheses due to congenital or early-age amputations, emphasized that this played a pivotal role in their adaptation. Two respondents who began using prostheses before the age of 10 claimed to possess greater adaptability than those who started using prostheses later in life. They mentioned that growing up with a prosthesis allowed them to develop their own coping mechanisms and trusty self-perception. They learned to handle public stares and found comfort in their own skin. This mirrors my general acceptance of my own blindness, as I believed that growing up with it offered advantages over losing one's sight later in life. Yet, conversely, Nuray believed that her adaptation process was

more manageable because she sustained her injury at a time when she had no childhood traumas, knew herself well, and had made peace with herself easily. She thought that lacking preconceived notions about disabled people prior to her injury facilitated her later adaptation. The narration of Faruk who became an amputee following a car accident at the tender age of 7, proved her assumption over the childhood traumas. He expressed that his understanding of life in his childhood was rather limited, and when he encountered situations where he struggled to perform certain tasks or fell out of sync with his peers that he began to question the world around him. This period of self-discovery was a significant psychological challenge for him.

Their explanations provided me with valuable insights into both my self-perception and my perspective as a researcher conducting field research that might be relevant to my own personal experiences. Previously, I held a somewhat universal assumption that individuals who were blind from birth enjoyed more advantages than those who lost their sight later in life. However, Nuray's explanations were compelling and made me reconsider this belief and my own experience. I do not remember a specific childhood trauma related to my disability; rather, it was something that is not openly discussed in my life. For the first time, I realized that most of the disabled individuals I had personal contact with had experienced their disabilities from an early age or were born with them. I had limited knowledge about those who acquired disabilities later in life, and I hadn't encountered discussions about potential advantages they might have compared to congenital disabilities. Perhaps my perspective was biased. Inevitably my own experiences are influential on my ideas about disability; and if my childhood had been marked by more explicit and deeply distressing traumas, my perspective on the disability experience today might

be different. Additionally, peer bullying is willing to employ a wide range of personal conditions. It became apparent to me that I needed to reflect on this further when Nuray expressed an opinion that challenged my usual beliefs, especially as someone who values her political stance and opinions. This experience underscored the risks associated with self-reflection for a social scientist. On one hand, my shared experiences allowed me to understand my respondents better and ask relevant questions, but there was still the potential for biases to influence my judgment. Nevertheless, it ensured that I developed a deeper respect for those who lead more autonomous lives and their perspectives on disability, as well as their considerations regarding their experiences.

To sum up, age has an impact on different stages of the prosthesis experience, both biologically and socio-psychologically because the rehabilitation to the prosthetics is more of an issue of socio-psychological adaptation, beside the maximization of physiological comfort. Age is a factor that influences both one's self-identity and societal expectations as well as the public gazes about them. Additionally, the duration of prosthesis use is a significant variable affecting psychological and physical adaptation. However, it's important to note that age is interconnected with multiple other variables, all of which play a role in life satisfaction. For instance, Caner and Nuray, who both experienced similar injuries, exhibit varying narratives about their life experiences and overall satisfaction, illustrating the complexity of those factors.

4.5 Conclusion

In summary, the social model, which rejects disability as a medical condition and proposes to consider it as a category related to environmental and institutional

regulations and societal structures, has made several interconnected moves. Firstly, it has paved the way to define it as a separate category from 'illness,' creating a legal foundation for demands related to social security or accessibility. Secondly, it has allowed disabled individuals to become stakeholders in processes related to urban planning, employment, and the design of products and services. Thirdly, it has demonstrated the necessity of considering experiences such as anger, shame, and body perception, which were previously perceived as topics of the private or psychic realm, as an inevitable extension of the organization of disability in the public sphere. Thus, it opens up discussions on disabled individuals' perceptions of themselves and the outside world, their processes of identity formation, and their self-realization as social subjects. This section aimed to frame the seemingly unique experiences of disabled individuals and their reactions in a societal context.

As I attempt to place disability within the interactive dynamics between individual experiences and social dynamics, I believe that this effort can contribute to current research in many disciplines of the social sciences. In contrast to the traditional focus on institutions and structures, many disciplines in the social sciences today seek for the individual’s particular experiences and turn them into research topics. For example, the shift created by micro-historians who attempt to write the history by relying on individual materials from the public can be considered a beautiful example of this. Unlike the conventional approaches within the history that lean on the narrations of the elites or institutions, micro-historians claim to uncover the voice of the unheard recognizing her subjectivity. Such tendencies can be traced among the Disability Studies as well. Social model which originally aimed to frame disability as both an institutional and social phenomenon, primarily emphasizes the examination of the systems and mechanisms responsible for either the inclusion or

exclusion of disabled individuals. Nevertheless, this initial phase within the social model faced criticism from a second wave that emerged in the 1990s for neglecting the actual experiences and hardships associated with disabled bodies. Regarding this distinction, the main issue seems to revolve around what the subject and the private sphere are, and how their limits should be delineated. Feminism provided one of the strongest responses to this question with the principle that 'the personal is political.' In this section, I also attempted to explore the idea that, based on a similar assumption, disabled individuals' experiences, often perceived as highly individual and private, have implications for the public sphere. I endeavored to contextualize themes like public participation, self-representation, body perception and independent living, which are among the fundamental areas of Disability Studies, through the expressions of my respondents.

In the first section of this chapter, I separated public participation and public gaze to show how much one's self-perception is dependent on external perception. However, I avoided positioning disabled individuals as passive recipients in the face of public gaze and tried to demonstrate that their coping mechanisms and strategies are contingent on the relationship between the public and self-gaze. In the second section, while acknowledging the institutional mechanisms that ensure an individual's self-sufficiency and the ability to make autonomous decisions, I also wanted to discuss the independent living related to how a person perceives themselves and the world, along with their ideological baggage. Hence, my objective was to assert that the concept of expectations and perceptions regarding independent living for an individual is a flexible notion that can evolve according to the contextual factors, one's self-perception, and their ideological understanding of the external world. In the third section on gender roles, I aimed to explore the effects of

desire as a social dynamic in the experiences of prosthetic users. The final section, although age-focused, exemplified the interaction of various variables related to prosthetic use.

CHAPTER 5

CONCLUSION

In this research, I aimed to demonstrate that the experiences of people with disabilities regarding assistive technologies in general and the prosthetics and orthotics in particular, are not merely technical but also involve dynamic interactions with social, political, and economic factors. In this context, I conducted interviews with prosthetic users, medical doctors, and prosthetic technicians working in the field. Additionally, I utilized a diverse range of materials such as product catalogs from companies, Health Application Communiqués, and publications from medical congresses in the prosthetics and orthotics field. Two main disciplines that significantly influenced the shaping of my research questions and the development of a theoretical perspective were Science, Technology, and Society Studies and Disability Studies.

I can state that this research has two primary motivations. Firstly, under contemporary capitalism, the labor regime is undergoing a comprehensive transformation due to the impact of technological advancements. In this regard, I aimed to illustrate the role that assistive technologies play or can play in the transformation of disabled labor, thus providing an example for discussions on the broader relationship between labor and technology. Secondly, processes related to access to assistive technologies are crucial dynamics in the formation of disability identity. Therefore, my second motivation was the belief that my research could provide a fruitful empirical ground for understanding the relationship between technology and social groups and movements.

In the first chapter of my study, my objective was to comprehend the fundamental dynamics that contributed to the evolution of the modern prosthetics and orthotics field. I focused my investigation on the specific cases from Britain, the United States, and Turkey. Within this framework, I underscored the influential role played by the Industrial Revolution and major conflicts involving the use of firearms in shaping the development of modern prosthetics and orthotics. Particularly noteworthy is the impact of these historical phenomena from the 19th century onward, leading to a surge in amputations and subsequently presenting societies with the challenge of reintegrating a substantial workforce. A critical phase in this process was the provision of prosthetics to soldiers and workers who had lost limbs. Concurrently, addressing the massive demand necessitated centralized intervention both financially and in terms of production capacity. Consequently, foundational aspects of modern state practices, such as the establishment of social security, took root in the 19th century. By the close of the 19th century, modern prosthetics had largely assumed their final form technically, accompanied by a wealth of professional expertise in the field. Throughout the 20th century, institutional factors, including the formation of social security and the health sector, predominantly dictated the dynamics within the prosthetics and orthotics field.

Within this chapter, I delved into the distinct nuances characterizing the formation of the prosthetics and orthotics field in Britain, the United States, and Turkey, contingent upon their individual experiences with national industrialization and modernization. For instance, Britain's early industrialization fostered the emergence of companies with considerable professional experience and expansive production capacity in the prosthetics and orthotics sector. Conversely, the Ottoman Empire, undergoing industrialization at a later stage, heavily relied on imports for

prosthetics and orthotics, a trend that persists today. Presently in Turkey, the prosthetics and orthotics domain is dominated by medical doctors actively engaged in leading activities such as consultations, organizing international congresses, and publishing. In contrast, in industrially advanced nations, private initiatives, exemplified by entities like Ottobock of German origin, play a substantial role in critical areas such as professional certification and the establishment of production standards.

In the second chapter, I aimed to take a closer look at the parties involved in and the fundamental dynamics surrounding the prosthetics and orthotics field in contemporary Turkey. First and foremost, my objective was to understand the commercial dynamics of prosthetics and orthotics firms in Turkey. Currently, there are workshops of varying scales for prosthetics and orthotics in almost every city in Turkey. These workshops not only produce their own designs but also personalize technologically advanced devices imported from abroad. This dual-level production significantly shapes the fundamental dynamics of the prosthetics and orthotics market. Dependency on foreign sources, primarily due to currency fluctuations, poses a significant sensitivity, and medical devices constitute a major component of Turkey's trade deficit. Personalizing prosthetics and orthotics requires highly labor-intensive efforts and demands optimal organization of relationships between users, medical doctors, and technicians.

The second major research focus in this chapter is the impact of the regulating all medical processes and financial support under the General Health Insurance in Turkey on the prosthetics and orthotics field. While these communiqués serve as a crucial tool for institutionalization in the field, they also harbor various institutional gaps, imposing a substantial bureaucratic burden on users. The

prolonged lack of updates in social security support for prosthetics and orthotics reported through these communiqués, especially in the face of the significant depreciation of the Turkish lira, has resulted in severe hardships for users in recent years.

In this chapter, a second institutional dynamic, deemed at least as important as social security regulations in terms of its role in the prosthetics and orthotics field, is discussed—the transformation undergone by the healthcare sector. Similar to various other fields after the declaration of the 1982 Constitution, the healthcare sector has experienced a wave of liberalization. This wave peaked with the announcement of the "Transformation in Health" program in 2008. This transformation in the healthcare sector inevitably influenced the prosthetics and orthotics field. One of its most significant outcomes is the gradual shift of prosthetics and orthotics workshops, predominantly under public institutions, towards the private sector. This shift signifies the opening of the field to the market and the transformation of prosthetics and orthotics into commodities.

In the final chapter, I focused on individual experiences related to identity formation and subjectification processes, such as the relationship between body perception, public gaze, independent living, and gender roles in the context of prosthetic use. Thus, starting from the principle that 'the personal is political,' I aimed to examine how individuals react to the prosthetics and orthotics field framed by institutions and the market and explore the varying aspects of these reactions within their social contexts. During interviews, I identified several themes commonly expressed by participants. All interviewees mentioned that the curious or pitying looks of others posed challenges for them. Some coped with this by using prosthetic makeup, others reduced their presence in public spaces, and some preferred

socializing in relatively isolated places. Building on this, I argued that the use of prosthetics constitutes a category related to the public domain both in terms of representation and spatial aspects. Another significant theme I opened for discussion in this section was how individuals perceive and experience the concept of 'independent living,' which is a key agenda item for disability activism and has become a sort of ultimate goal. By examining the statements of respondents, I asserted that perceptions of independent living are culturally, economically, and socially shaped by norms, and they undergo variations, suggesting that independent living is a nuanced phenomenon.

In shaping the overall framework of my research, I attempted to transform diverse approaches in Disability Studies literature into methodological diversities. In chapters where I particularly focused on the historical development and current situation of the prosthetics and orthotics field, scholars like Mike Oliver, who conceptualize disability as a category related to production and institutional regulations, were a primary source for me in a theoretical sense. On the other hand, criticisms of the social model in the '90s, suggesting that it disregards the unique experience of the disabled body, and efforts to construct a bottom-up understanding of disability, contributed to shaping my final chapter. Thus, by developing both a top-down and a bottom-up perspective on the prosthetics and orthotics field, I believe I had the opportunity to demonstrate the dynamism of the field in more detail.

APPENDIX A

ETHICS COMMITTEE APPROVAL

Evrak Tarih ve Sayısı: 10.06.2022-70223

T.C.
BOĞAZİÇİ ÜNİVERSİTESİ
SOSYAL VE BEŞERİ BİLİMLER YÜKSEK LİSANS VE DOKTORA TEZLERİ ETİK İNCELEME KOMİSYONU
TOPLANTI KARAR TUTANAĞI

Toplantı Sayısı	:	33
Toplantı Tarihi	:	09.06.2022
Toplantı Saati	:	10:00
Toplantı Yeri	:	Zoom Sanal Toplantı
Bulunanlar	:	Prof. Dr. Ebru Kaya, Prof. Dr. Feyza Çorapçı, Doç. Dr. Arhan S. Ertan, Doç. Dr. Senem Yıldız, Dr. Öğr. Üyesi Yasemin Sohtorik İlkmen
Bulunmayanlar	:	

Elif Nur Aybaş
Sosyoloji

Sayın Araştırmacı,

"Yardımcı Teknolojilere İlişkin Bir İnceleme: Sosyo-teknik Bir Deneyim Olarak Sakatlık" başlıklı projeniz ile ilgili olarak yaptığınız SBB-EAK 2022/52 sayılı başvuru komisyonumuz tarafından 9 Haziran 2022 tarihli toplantıda incelenmiş ve uygun bulunmuştur.

Bu karar tüm üyelerin toplantıya çevrimiçi olarak katılımı ve oybirliği ile alınmıştır. COVID-19 önlemleri kapsamında kurul üyelerinden ıslak imza alınamadığı için bu onay mektubu üye ve raportör olarak Yasemin Sohtorik İlkmen tarafından bütün üyeler adına e-imzalanmıştır.

Saygılarımızla, bilgilerinizi rica ederiz.

Dr. Öğr. Üyesi Yasemin
SOHTORİK İLKMEN
ÜYE

e-imzalıdır
Dr. Öğr. ÜyesiYasemin Sohtorik İlkmen
Öğretim Üyesi
Raportör

SOBETİK 33 09.06.2022

Bu belge, güvenli elektronik imza ile imzalanmıştır.

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