

Psychotechnics at the start (1903-1914): Stern's and Münsterberg's definitions and professional practice

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ABSTRACT


This article provides a second introduction to the monograph. It starts presenting an overview of the rise and fall in the popularity of the term “psychotechnics” and compare it with the development of the field that bears this name. My aim is to emphasize the need to distinguish between the history of the use of the concept and the history of the profession. After that, I outline the social context, characterized by industrialization and a new style of business management, which enabled the development of psychotechnics as a professional psychology and an “applied” science. In two further sections, I briefly present Stern’s differential approach and Münsterberg’s definition and laboratory-based psychotechnical practice. This leads me to conclude that we are dealing with two distinct projects which demonstrate that the field of psychotechnics was never unified.

El inicio de la psicotécnica (1903-1914): Las definiciones y la práctica profesional de Stern y Münsterberg

RESUMEN

Este artículo proporciona una segunda introducción al monográfico. Comienza con una visión general acerca del auge y declive de la popularidad del término “psicotécnica” y lo comparamos con el desarrollo del campo que lleva este nombre. Mi objetivo es enfatizar la necesidad de separar la historia del uso del concepto de la historia de la profesión. Acto seguido muestro el contexto social caracterizado por la industrialización y un nuevo estilo de gestión de empresa que permitió el desarrollo de la psicotécnica como una psicología profesional y una ciencia “aplicada”. En dos secciones adicionales expongo brevemente la psicología diferencial de Stern y la práctica psicotécnica de Münsterberg, basada en las mediciones de laboratorio. Esto me lleva a concluir que estamos ante dos proyectos distintos que demuestran que la psicotécnica nunca había sido unitaria.

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Introduction

The term “Psychotechnik” (“psychotechnics”) was coined at the beginning of the twentieth century when it was introduced by two German psychologists, namely Stern and Münsterberg. It was understood as designating a new science that formed a sub-field of “applied psychology”. Historically, the emergence of psychotechnics is linked to a growing desire, especially noticeable within the industrial sector, to optimize human work power, with the term becoming widely used in Europe during the 1920s and 1930s. Nowadays, other expressions, such as applied psychology and work psychology or industrial (I-O) psychology are used instead. Their meanings partially overlap, as this research will show.

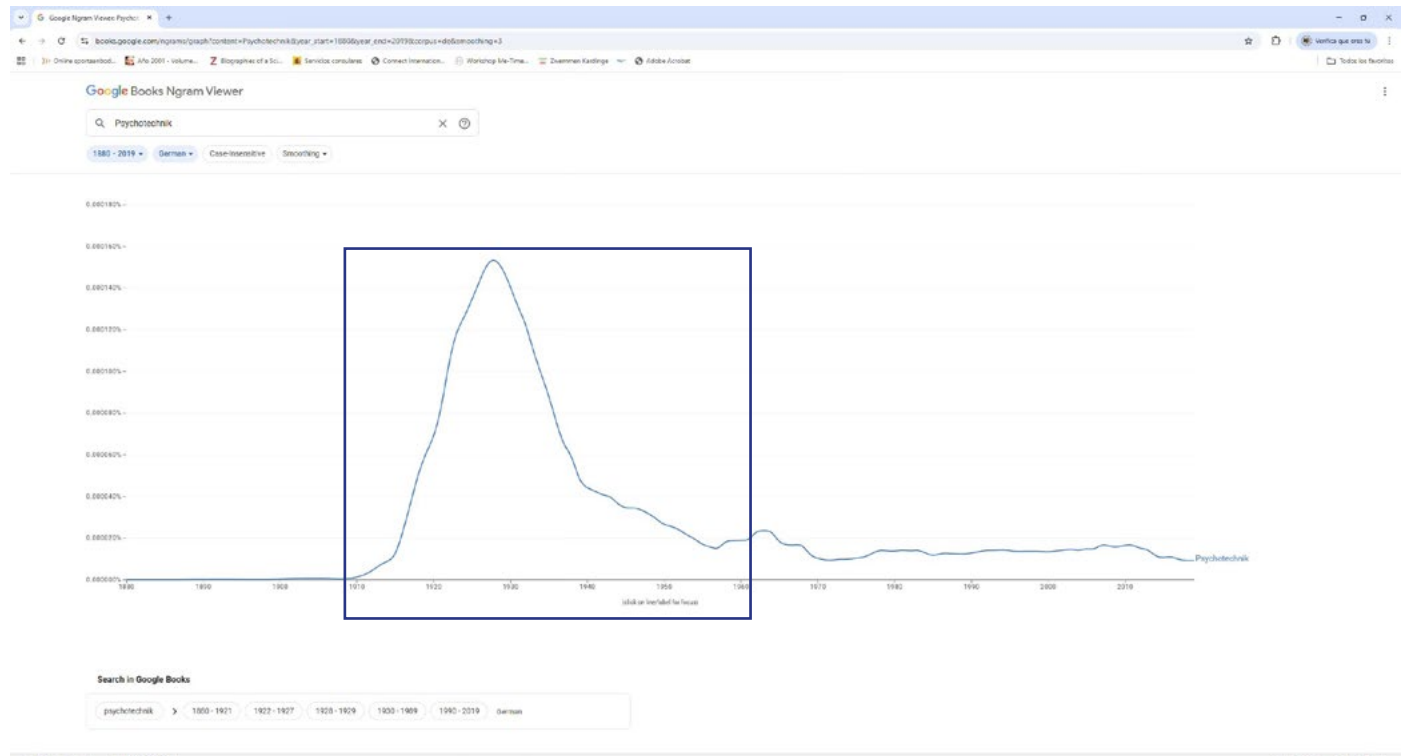
In the previous article (by Mülberger & Vermeij) we have seen that an impressive amount of research on the history of psychotechnics has been produced to date. Yet historians generally avoid tackling the complex issue of the early definitions. Comment on the emergence of psychotechnics is usually limited to citing Münsterberg’s famous statement that psychotechnics is “the science dealing with Psychology’s practical applications” (1914, p. 1; I will come back to this definition and complete it below). The meaning of Münsterberg’s phrase is rarely explained, nor are any competing projects from the time under consideration. The resulting simplification invites anachronistic interpretations that silence the diverse meanings the term “psychotechnics” had back in those days.

This is precisely why I would like to take a closer look at this subject. For the sake of brevity, I will limit my contribution to a schematic overview of the programmatic ideas published before World War I by the two leading psychotechnicians, Stern and Münsterberg. Yet, my interest is neither to contribute to a “great men” history, nor to offer an institutional history of how psychotechnics arose as a new science (for such histories see Blatter, 2014; Bryan & Vinchur, 2012; Carpintero, 2023; Goldman, 1918; Proietto, 2015 and the bibliography cited in the first article of this monographic issue). My focus rather lies on exploring what Stern and Münsterberg understood by “psychotechnics”, and on critically assessing how they both promoted this new science in their foundational texts and through their practices at the time when they were writing those texts. This exercise seems relevant because their work constituted a reference point for subsequent generations of psychotechnicians whose works are explored in this monographic issue.

Rough timeline and context

Before we dive into its meaning, let’s first take a look at the timeline of the use of the term. When I searched for the frequency with which “Psychotechnik” (psychotechnics in German) appeared in Google Books online, I obtained the following Google N-gram curve (see Figure 1). The new name “psychotechnics” started to become widely used after 1910, reaching its peak around 1930.

Figure 1. Google N-gram graph of the frequency with which “Psychotechnik” shows up in Google Books (1880-2019) (in German)*



Source: https://books.google.com/ngrams/graph?content=Psychotechnik&year_start=1880&year_end=2019&corpus=de&smoothing=3 (retrieved on March 18, 2026).

* Interestingly, a very similar Google N-gram curve is obtained via a search for “applied psychology” (in English).

Due to the biased selection of the bibliography used for the Google N-gram, the amounts reflected in the graph are not to be considered accurate. Yet, interestingly, the overall trend of the curve seems roughly to reflect the historical development of the field. Historians such as Rabinbach (1990) observe a quick rise of psychotechnics during and shortly after the First World War. This can be seen, for example, in the amount of journals that started to appear around that time, dealing with applied psychology and psychotechnics¹. Yet, within experimental psychology, psychotechnics met with resistance. By the end of the nineteenth century and during the first decades of the twentieth, Wundt (1909) in Leipzig (Germany) and Titchener (1898) (at the University of Cornell repeatedly warned against turning the field into a useful service to society, be this within a clinical, educational, juridical or industrial context (Thomas, 2022). Their reason for this was that by so doing, practitioners would need to leave the “safe” surrounding of the laboratory. In other words, the objective search for natural laws and truths should not be given up in favor of a problematic and dangerous semi-science, governed by questionable social and political (ethical) goals (see also the similar trend in historiography presented in the first article of this issue).

While Wundt and Titchener remained firm to their conviction, with the arrival of the twentieth century, most of their colleagues decided to move with the times. One was Münsterberg, who reversed his former position. As a reason for his and other psychologists' sudden interest in applied psychology, historians refer to the possibility of earning a substantial (extra) income (Hale, 1980). Also some institutional and social developments taking place around that time certainly also facilitated this trend. These included the limited possibilities for psychologists to obtain an academic position (not only in Germany but also in other European countries and the United States) and the outbreak of the First World War, which spurred many psychologists to step out of their laboratories. Psychotechnicians such as Otto Lipmann and Charles S. Myers collaborated with their governments and armies to contribute to their nation's victory (for more information on the psychologists' involvement in the First World War, see for example Carson, 1993; Gundlach, 1996; Kevles, 1968; Monacis, 2007; von Hohenthal, 2021). The rise of intelligence testing, which became known through the mass testing led by Yerkes in 1917 in the US army, stimulated the interest of managers and public administrations in psychotechnical service, as well as the willingness of many psychologists to specialize in the field (Reed, 1987).

This was due to recent developments in industry and business. Among the business community, industrial efficiency had become key. The “rationalization” of companies was seen as a way to increase their profits. This implied the incorporation not only of recent technology into the production process, but also of new accounting procedures, standardization of materials and the production process and, above all, regulation of labor. In this setting, labor management came to be considered a pressing necessity, especially because the growing industrialization and the introduction of machinery increased the

demand for highly specialized work (Jaeger, 1985). Moreover, in the 1910s, managers complained about high rates of labor turnover and industrial accidents, as well as widespread truancy and malingering (Hale, 1980). Such diagnoses facilitated the intervention of scientists. Equipped with time cards, psychological testing, and job clocks, management engineers, physiologists and psychotechnicians styled themselves as experts in the “rationalization” of work. With slogans such as “the right man for the right place”, they promised improvements, for the sake of both the workers and management.

So, “the time also seemed ripe”, Münsterberg explained in his autobiography (1917, p. 46 cit. in Blatter, 2015, p. 60). It was not rare for psychologists (such as Münsterberg, Stern, Brugman and Marbe) to be contacted by court, schools, administration and companies asking them for advice (Mülberger, 1996; Lamiell, 2021; see also the article by Vermeij in this monographic issue). By the end of World War I, psychotechnics had become an international phenomenon, closely intertwined with work science (more precisely, Taylorism), capitalism, industrialization, modernization, and national governance. Due to these links, the professionals working in the field would be drawn into the growing political antagonism between capitalism and communism; and, more generally, the conflicting interests between management and workers. Worker unions would soon distrust and resist the scientific monitoring of work. Thus, psychotechnics was, right from its inception, a tricky undertaking: praised by some, but heavily criticized by others. It would spread not only in capitalist countries (in the URSS it was soon be banned, see Carpintero, 2019, and Almonaitiené's contribution to this issue).

The previous article has already exposed the difference in the historians' appreciations of the historical development of psychotechnics in the 1920s and 1930s. During that period, the psychotechnicians' professional activities such as psychodiagnostics, professional orientation and personnel selection, were received with increasing skepticism and critique by workers' unions and the public.

Despite the quick rise of “psychotechnics”, the word enjoyed only short-lived success as Figure 1 shows: after 1930, its popularity dropped and by the 1950s, the term had nearly vanished. Citing some source from the 1930s, Lück (2004, p. 36-37) explains that the term fell out of vogue because the combination of “psyche” with “technics” sounded very much like a “mechanisation of the soul” and that was no longer a nice idea when assessing persons. Whether also the field was declining or even disappearing is not that clear. We saw in the previous article that historians such as Dorsch (1963), Rabinbach (1990) and others maintained that the field entered into a deep crisis, while Metraux (1985) and Geuter (1992) showed that only the term “psychotechnics” disappeared. Despite all the criticisms and problems, the field as such continued to exist in the 1930s until today (with “industrial psychology” and “work psychology” becoming more and more used to refer to this branch of applied psychology).

The historians' contrasting view is probably due to the tendency of the first to uncritically go with what psychotechnicians write about the state of their field, without considering the professional activity in new fields of application such as the military. Secondly, it might also be an effect of a confusion between the history of the concept and the history of the professional field. Therefore, a historiographical comment is in place, before looking at Stern's and Münsterberg's

¹ For example: “Journal of Applied Psychology”, “International Review of Applied Psychology”, “Psychotechnische Rundschau”, “Industrielle Psychotechnik” (1924-1944), “Psychotechnische Zeitschrift”, and many other similar journals in French, Dutch, Spanish and other languages would appear in the following decade.

works. In the previous paragraphs we have seen that historians offer several reasons for why, in the 1910s and 1920s, psychologists became interested in the field of applied psychology and psychotechnics; a time when the expression “psychotechnics” became more widely known and used. This parallelism between the popularity of the word and the psychologists entering the field, can make us erroneously think that we are dealing with the same thing (see also Smith, 2005, 2022 and Gundlach, 2006 for similar warnings when dealing with the history of psychology).

Yet, before the name “psychotechnics” was coined, similar work was conducted by managers, work scientists, physiologists and physicians: work including professional tasks that overlapped with those the psychotechnicians set themselves, such as selecting the right candidates for a job, monitoring monotony on the shop floor, and assessing work tasks and workers’ productivity. As examples, let us recall here the pioneering work on human differences (studies conducted by Galton starting in the 1860s) or on body movement by Étienne Jules Marey (1830 - 1904) (Rabinbach, 1990); Parsons’ contribution to the “vocational guidance movement” in 1898 in the United States (Blatter, 2014); and Taylor’s scientific management (O’Neill, 2017; Rabinbach, 1990).

The first psychotechnicians we are concerned with in the following part of this article were well aware of such previous initiatives and we will see how they put much effort in marginalizing rivaling works in the field (on this, see also the third article by Mülberger in this monographic issue). Given these circumstances, we have reasons to believe that the then “futuristic” sounding name of “psychotechnics” was employed in an attempt to demarcate a “new science”. The first part of the compound (“psycho”) acted as a place holder for psychologists’ ambitions. In other words, as historians we need to be skeptical and question the story about the origin and decline of psychotechnics because the two histories (the history of the name and the history of the professional field) do not completely fit together. Neither its beginning nor the time when the term was dropped is aligned with the historical development of psychotechnics as professional practice.

Stern’s psychotechnics (1903a) as technique to optimize school education and court interrogations

The 1903 text by William Louis Stern (1871-1938) on “Applied Psychology²” can be considered the first definition and programmatic text on psychotechnics. At the time he wrote the text, the author was at the beginning of his successful career as a psychologist and a philosopher. His “personalism” was still a philosophical project to be developed³.

Stern employed the expression “psychotechnics” together with “psycho-gnostic”, to refer to two complementary approaches to “applied psychology”. Fechner’s aesthetics, recent psychological work within psychiatry, and the “national economy”⁴, together with child psychology and criminology represent examples of fields in which psychology is “applied”. The sub-field of psycho-gnostics has the task of developing tools and techniques to study a person’s capacities⁵ (such as memory, attention, etc.) and personality, which enable the applied psychologist to arrive at a prognosis, predicting a person’s ability to perform well at a certain job or study.

The task of psychotechnics is to intervene, using psychodiagnostics tools (“Technik” in both senses, as technique and technology⁶) to assess and influence human beings. Thus, Stern writes: “While applied psychology provides, with the help of psychognostic the tools to **assess** personal values, through psychotechnics it provides **tools to promote valuable purposes through appropriate actions**” (Stern, 1903a, p. 28, highlighted in the original). He hoped, thereby, to arrive at new “knowledge of the variations of intellectual existence”⁷, “including [people’s] talents, interests, temperaments, physical and mental abilities, character traits, differentiations of memory, imagination, willpower, cognitive acuity, and so on” (Stern, 1903a, p. 27).

Yet, neither applied psychology, nor psychotechnics is to be considered an autonomous field. They are just “auxiliar sciences” (“Hilfswissenschaften”), offering “service” to a certain “practical culture”. With these last two words Stern was referring to problems and situations in society and real life. The purposes and values psychotechnics serves are given by normative oriented disciplines such as ethics. This means that the psychotechnician does not decide, he only develops and employs the right tools and techniques to optimize—in terms of efficiency—the work of other professionals such as teachers and judges. In Stern’s words, psychotechnics “teaches how to utilize and design resources in such a way that, on the one hand, they are used in the most economical way possible, and on the other hand, they get us closer to the desired goal” (Stern, 1903a, p. 28-29).

Stern (1903) further subdivides both approaches (psycho-gnostics and psychotechnics), into “general” and “differential” areas (see Figure 2). While the former is busy transferring the useful knowledge acquired in the area of experimental psychology about the “normal” human mind to the practical arena (to solve problems), differential psychotechnics works with types of individuals in an attempt to understand them as unique beings and to influence them. An example of a “general” psychotechnical intervention would be to design a timetable for schoolchildren, taking into account research findings on tiredness. Examples of differential psychotechnics would include the

(see Stern & Stern, 1999; Deutsch, 2011; Lamiell, 2012).

⁴ With this expression he was referring to the management of workers in industry and the rising scientific management movement.

⁵ He talks about the need for an assessment of competence (*ein Befähigungsnachweis*) (see Stern, 1903, p. 26).

⁶ Erdély (1933) rightly criticized the ambiguity of the term “Technik” because it can mean the art of learning to do something (like a technique for mental calculus) or refer to the totality of all machine-based mass production possibilities (p. 5).

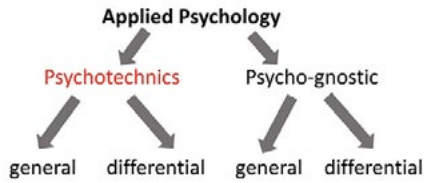
⁷ He talks about “Varietätenbildungen des geistigen Daseins”.

² The title of the text and all following citations from non-English texts have been translated by the author.

³ After his “habilitation” in Berlin under the guidance of Hermann Ebbinghaus (1897), he had followed his master to the University of Breslau where he gave lectures over the following years (from 1897 to 1916). At the private level, he had recently (1899) married Clara Joseephy, with whom he had three children between 1900 and 1904. The parents would observe and closely monitor the children’s development, especially through Clara’s intensive recording of their daily progresses

Figure 2. Stern's subdivisions of "applied psychology"

Stern's subdivision of "applied psychology" (1903):



Source: The diagram was created by the author, based on Stern's text (1903a).

identification of the child's developmental stages and the psychology of (personality) types (for more information on personality typologies see the third and fourth articles of this issue).

Once the area and sub-fields were defined, Stern demarcated applied psychology from rival fields. He wanted to see applied psychologists fighting against any intuitive common-sense psychology⁸, on the one hand, as well as against psychologism⁹, on the other (more information on this topic see Kusch, 2005). With regard to the latter, he positioned himself close to Dilthey, Münsterberg and Rickert, rejecting Wundt's idea of turning psychology into the foundational discipline of all the human sciences (*Geisteswissenschaften*). This seemed to him to be a wrong idea and an ambition the "science of psychical life" could not live up to.

Stern's call for further development would turn out to be successful. In 1906, he founded, together with his collaborator Otto Lipmann (1880–1933), the "Institute for Applied Psychology and Psychological Research" (*Institut für angewandte Psychologie und psychologische Sammelforschung*) in Berlin (Sprung & Brandt, 1992). A year later, the first issue of the "Journal of Applied Psychology" appeared, which would act as a platform for the research and services offered by the institute and other similar institutions.

So far, we have laid out Stern's project for an applied psychology and psychotechnics. It is interesting to note that his text reads like a defense against the resistance and the contempt he encountered at the time. Professionals (outside psychology) would ask: why do we need psychotechnics? In order to teach students certain content or to ask witnesses about what they saw, no special theory or science is necessary. Stern agrees that such tasks can be done without psychotechnical intervention, just as people have—through the ages—been able to arrive at one place from another, by walking or using a horse; but now we have trains that greatly facilitate long-distance travel. In the same way, he argues, "psychotechnics" as "technology" (*Technik*) aims at "the achievement of an optimum in the relation between medium and purpose (*Zweck*)" (Stern, 1903a, p. 28). Full of optimism, he assured his contemporaries that instead of the blind experimenting of the non-expert, psychotechnics (based on scientific findings) can offer secure guidance and ensure the best possible result.

With regard to the scientific underpinning of psychotechnics, Stern

noted two differences between normal laboratory experimentation (in psychology) and the work of an applied psychologist. Firstly, the psychotechnician, while still working experimentally, does not need to aim for the same level of exactness and control of variables as the laboratory scientist; while complying with the demands of scientific work¹⁰, the observations should be done naturally, closer to daily life. One of the tests that, according to Stern, would fulfil these criteria of being experimental and "natural", was Ebbinghaus's combination method (also called a "completion test") (Gioioso & Aderman, 1969).

Secondly, as we have seen above, the psychotechnician has to deal with human differences and a person's unique individuality. This can only be achieved by focusing on "a limited sphere of psychological generality", namely by studying human "types" and development states. At the time, Stern was heavily involved in the development of a "psychology of testimonies" (Stern 1903b; Stern, 1939): an area linked to forensic (juridical) psychology. There he used casuistic to study a suspect's or a witness's perception, memory, fantasy, suggestibility and tendency to lie. In this way, he connected psychotechnics with experimental psychology. At the same time, he warned his followers to stay away from any non-scientific characterology, graphology, phrenology, physiognomy and the like.

To conclude, we can observe that Stern's proposal was still relatively modest: he saw applied psychology as just starting and conferred it a role as an auxiliary sub-science. Psychotechnics was meant to be used in practical situations in which it was necessary to monitor human beings, namely in school and in court. The psychologist, who in the laboratory works with generalizable theories, now needed to deal with the specific and unique individual. Stern clarifies the difference, when he says: "While theoretical knowledge provides only a system of fixed, immutable concepts and laws, the practical task is always different in each case. The teacher is not meant to educate the child's soul in general, but rather this child's individuality *A* and that child's individuality *B*; the judge is not meant to deal with criminal mental life in general, but rather with this individual criminal *C* and that individual criminal *D*" (Stern, 1903a, p. 18; the letters are also highlighted in the original). Therefore, also the psychotechnician has to work with individual people, not generalizations.

From such emphasis, we can infer Stern's motivation for working in the field of applied psychology to be linked to his personalistic stance. His differential psychotechnics was meant to remedy what he saw as the main lacunae of the psychological science of his time: the lack of interest in individual human differences.

Münsterberg's psychotechnics (1912, 1914) as technology for human engineering

When, seven years later, Stern's colleague, the German experimentalist and controversial Harvard psychologist¹¹ Hugo

⁸ He was referring to "lay" or "folk" psychology.

⁹ He called it "intellectualistic psychology".

¹⁰ He was referring to the need to isolate certain phenomena, to make the observations repeatable, and to offer results that can be statistically analyzed.

¹¹ Münsterberg presented himself as a representative of German science and national interests in the United States, a role that became especially polemic during the First World War. Moreover, his contentious style led to disputes and alienated

Münsterberg (1863–1916), approached psychotechnics, he was well aware of Stern's differential approach. But with his characteristic arrogance, Münsterberg questioned the status of Stern's work and those of others¹², stating that although they have contributed to scientific advancement: "The study of individual differences in itself certainly does not yet constitute an applied psychology" (Münsterberg, 1912, p. 7). So, we may ask: What then was, according to Münsterberg, "applied psychology" and "psychotechnics"?

In 1910, Münsterberg gave in Berlin a four-hour guest lecture on the topic. According to his biographer, M. Hale (1980), he had quickly become tired of the experimental studies for which he had been hired in the United States, moving toward more lucrative areas of work, such as psychotherapy and psychotechnics. The revised content of this lecture was published two years later and presented in the author's preface as the first attempt to offer an overview of this "new scientific area" of psychotechnics (Münsterberg, 1912; see also 1913¹³). What he wrote in that book would receive a clearer shape and become further developed when he published his famous textbook (1914) entitled "Foundations of Psychotechnics" (*Grundzüge der Psychotechnik*). There, he defined "psychotechnics", as we have already seen above, but now with the full phrase as, "the science dealing with Psychology's practical applications in the service of cultural tasks" (Münsterberg, 1914, p. 1).

Again, the definition talks about "service" towards "culture" in an attempt to emphasize the usefulness of psychotechnics for a variety of societal problems. According to Münsterberg's view, psychotechnics constituted a part of the broader field of "applied psychology", whose general aim is to help professionals such as teachers, lawyers, pastors, physicians, managers, politicians and artists to perform their job better. In this list we see that, compared to Stern, Münsterberg had ambitiously expanded the area of intervention of the psychotechnician.

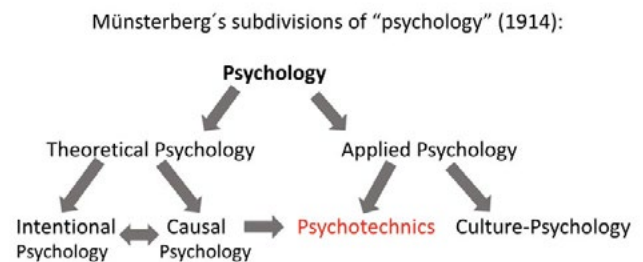
With regard to the kind of work conducted by the psychotechnician, Münsterberg explains that "(...) within these various areas we can see some final aims to be completely or partially achieved via psychological processes; and it is the task of psychotechnics to define which processes are relevant here and what kind of influences are needed to obtain the desired final result" (Münsterberg, 1914/1928, p. 6–7; see also his earlier definition of 1907–08 cited in Blatter, 2014, p. 69). At the same time, Münsterberg (1914/1928) reminds the practical psychologists that their field of intervention is subordinate to external ethical values and political goals. That is why the psychotechnician should "(...) never forget that all his psychology can only give him an insight into the tools which can be employed to achieve a certain goal, but never determine the final goal as such" (p. 39; see also Blatter, 2014, p. 81).

Such a statement about his science being ethically "pliable" is surprising; not only because Münsterberg himself used bold

qualifications in his publications (as we will see in a moment). He, also, openly defended conservative ideas (Hale, 1980) and aligned himself with German idealism (see, for example Münsterberg's book on values, 1908), a position that earned him a lot of criticism. While Stern mentioned some general, ethical norms, Münsterberg clearly leaves the door open for psychotechnicians to subordinate their work to whatever values and rules are pursued by the people paying them.

The differences between Stern and Münsterberg are also apparent when we look into their alliances and their divisions of psychotechnics as a field (see Figures 2 and 3). While Stern integrated psychotechnics, together with the psycho-gnostic, into "applied psychology", Münsterberg views psychotechnics as an autonomous field, springing from "theoretical psychology"; more specifically, from its experimental-objective branch, also called "descriptive and causal psychology" (I will return to this). Thanks to this link, Münsterberg argued, psychotechnics constitute an experimental science (see p. 21 in Münsterberg, 1914/1928 and p. 9 in Münsterberg, 1912).

Figure 3. Münsterberg's subdivisions of (empirical) psychology*



Source: The diagram was created by the author, based on Münsterberg's text (1914/1928)

* See also Hale's more general diagram of Münsterberg's classification of "Wissenschaften" (including psychology) (1980, p. 78).

The reason for this subdivision of applied psychology is Münsterberg's aim of separating psychotechnics from the historians' use of psychology. Historians make use of psychology, when, for example, they are writing a biography or seeking a psychological explanation of historical events such as the French Revolution. In such a case we would be dealing with "culture-psychology", not with "psychotechnics". The difference lies within the time scale: psychology is used to explain things that happened in the past; contrary to the task of "psychotechnics", which is exclusively directed towards achieving (not yet realized) future goals.

In order to achieve such a practical goal, knowledge about how the human psyche works and how to influence or guide an individual is needed. Thus, Münsterberg explains that:

It is of decisive significance for a great number of practical tasks in daily life, for the work of the teacher, the physician, the lawyer, the salesman, the politician, for all social and personal relations, to base these tasks on knowledge about the psychical constitution (*seelische Beschaffenheit*) of the other [person]. Not only do we need to know how to achieve changes, but we also need to realize which character, which temperament, which [kind of] intelligence, energy, education

colleagues (Hale, 1980). Blatter explains that Münsterberg had already experienced several confrontations in the 1890s with vocational counselors, before he published his psychotechnics textbooks (see Blatter, 2014, p. 95; see also Spillmann & Spillmann, 1993 and Stoffers, 2003).

¹² Together with Stern, he also cites Galton, Binet, Cattell, Hall, Kraepelin, Heymans and Whipple.

¹³ Following Hale (1980 p. 148), his book "Psychology and industrial efficiency" became a best seller.

(*Bildung*) and capacities we find in each case in the person standing in front of us (Münsterberg, 1914/1928, p. 8).

Such knowledge requires, first of all, a thorough training in (theoretical scientific) psychology.

Now we may ask: According to Münsterberg, what kind of “technology” (Technik) do psychotechnicians need to conduct their professional tasks? While Stern conflated both meanings, Münsterberg (1914/1928) clarified that he wanted to see psychotechnics not as a “practical mastery of a technique” (M., 1914/1928, p. 23), but as experimental science, employing technical instruments. Furthermore, he offers a reason for the combination of both terms (psychology and technology in “psychotechnics”). “Because”, he argues, “sciences aiming at a practical task are generally designated technical”¹⁴ (Münsterberg, 1914/1928, p. 6).

Let us take a look at the sciences Münsterberg had in mind as models to follow. From his comparisons in his textbook (1914/1928) we can deduce that these were engineering (*Ingenieurwissenschaft*), which he explains consists of the practical (technical) application of the laws discovered in physics. Beside such alliances, Münsterberg was also eager to demarcate the limits of psychotechnics towards undesirable praxis. As Stern before him, he was aware that the psychotechnician was not the first to use psychology to deal with practical (societal) aims related to psychology. But instead of considering earlier attempts as valuable, he disqualifies them using juicy language; accusing them of “psychological dilettantism” built on the “marshy ground of pseudoscience” (Münsterberg, 1914/1928, see pages 24, 26, 27)¹⁵.

However, psychology as science was also in trouble. Münsterberg mentioned its “internal fights” (Münsterberg, 1914/1928, p. 15). One deep division was the opposition between Brentano’s intentional (subjective) empirical psychology and the Wundtian experimental-causal (objective) psychology¹⁶ (see Figure 3). His excitement about psychotechnics seems to be rooted, at least partially, in the freedom that applied psychologists have. Following him, they can use any theoretical positions because their aim is not to find the truth but to study a real (human) experience. Thus, he concluded: “As far as we are dealing with the practical use of [scientific] facts, it is irrelevant whether we embrace one or the other fundamental philosophy

(*Grundauffassung*)” (p. 30). He really seemed troubled by the dispute and hoped that the “epistemological tolerance” of applied psychology would lead to a “general ceasefire” and a synthesis between objective and subjective psychology (Münsterberg, 1914/1928, p. 45).

From what I have explained, it can be deduced that, apart from any extra earnings, one of Münsterberg’s motivations to work in the field of applied psychology and psychotechnics was to try to circumvent the clash between the two psychological schools. However, by grounding psychotechnics on experimental (causal, objective) psychology, he actually inhibited synthesis between objective and subjective psychology. As a consequence, his psychotechnics was incapable of addressing the *lacunae* Stern had detected. Münsterberg seems to have at least realized the problem, when he stated: “The meaning of the unified personality remains a problem that cannot be solved by mere experimental-psychological analysis of the individual and the description and explanation of its characteristic features”¹⁷ (Münsterberg, 1912, p. 6).

How, then, did he try to solve this problem in his daily practice? Using Blatter’s research (2014), I will now briefly present an intervention Münsterberg conducted in 1914. It is an example that will also provide us with an impression of how he worked and how his work was perceived by the public (i.e. by journalists) at the time. Under the heading “Salesmen wanted”, an advertisement appeared in *The Boston Herald*, asking “ambitious young men” to apply. About a hundred candidates applied for several traveling salesman positions at the American Tobacco Company. Through initial screening, a selection was made, based on professional experience, appearance, and special skills (Blatter, 2014).

After that, the 28 finalists had to go through Münsterberg’s psychotechnical assessment. This consisted of a physical exam and extensive psychological testing to determine the accuracy of the senses (especially vision and hearing), as well as assessing the candidate’s memory and attention. Attention was measured with the help of the cancellation test in which the candidate had to read the front page of that day’s newspaper and cross out as many “r”s as possible, within a limited time span. In another test, the men watched some pattern of interwoven shapes upon a screen for a short time. Afterwards, they had to recall each geometric form and its correct orientation. Yet another test examined the men’s emotional reactions and their ability to keep a straight face in a stressful situation.

While all these tests must have been intimidating, tiring, and stressful, the most puzzling moment arrived when they were confronted with Münsterberg’s upfront question asking: “What kind of man are you?” This question was Münsterberg’s clumsy way of dealing with the problem of personality. According to the newspaper report, the question seemed to have baffled most of the candidates, “at which point the professor would elaborate its meaning in terms of temperament, interests, etc., followed by inquiry into habits such as drinking and smoking” (Blatter, 2014, p. 103).

After nine hours of questioning, measuring and testing, a ranking

¹⁴ Here comes his full explanation as it stands in the original text: “Nun werden die der praktischen Aufgabenerfüllung zugewandten Wissenschaften allgemein als technische bezeichnet; wir wollen diesen Teil der angewandten Psychologie deshalb Psychotechnik nennen”.

¹⁵ Yet, when it comes to judging mental testing, Münsterberg considers the new “tests” to be useful for the practical tasks of psychotechnics and applied psychology. Despite their superficiality, which makes them unfit for theoretical analysis, they constitute short test experiment (*Prüfexperiment*), which often makes them more valuable than refined and complex laboratory methods (Münsterberg, 1914/1928, p. 22). Stern was not against testing *per se*, but he used his programmatic text to denounce the way surveys were conducted in the United States as “pseudo-statistics” (probably referring to Hall and the child study movement) (see Stern, 1903, p. 42).

¹⁶ Münsterberg uses several names to distinguish the two groups of psychologists (1928, p. 14): for the first he uses content psychology (*Inhaltspsychologie*), causal psychology, descriptive-explanatory psychology, psychology of consciousness and objective psychology. This psychology was opposed to a second type of psychology for which he used the following descriptors: intention(al) psychology (*Absichtspsychologie*), teleological psychology, understanding psychology and spiritual psychology (*Geistespsychologie*).

¹⁷ Here comes the full citation from the original Text: Der Sinn der einheitlichen Persönlichkeit steht nach wie vor als ein Problem vor uns, das durch die bloße experimental-psychologische Analyse des Einzelmenschen und die Beschreibung und Erklärung seiner charakteristischen Merkmale unmöglich gelöst werden kann”.

Figure 4. The image by Tejaren A. Hiller represents Münsterberg's psychotechnical assessment of the candidates for becoming a salesman at the American Tobacco Company



This is the upper part of an image of public domain and has been digitized by Google. Original source: "The Cosmopolitan Magazine" (v.58 Dec.-May 1914/15; May, 1915, page 647) <https://babel.hathitrust.org/cgi/pt?id=iau.31858055203727&seq=665> <https://hdl.handle.net/2027/iau.31858055203727>

was obtained which identified the most suitable candidate(s). This was certainly a "mill", as one journalist described it; but the outcome was appreciated as being "truly scientific", i.e. objective and fair. In this vein, the daily press informed that the tests offer facts "caught by impersonal instruments... carefully recorded in a strictly scientific way" (see *The Boston Journal*, Nov. 1914, p. 12; cit. in Blattner, 2014, p. 103).

Furthermore, it is worthwhile looking at the way Münsterberg's "man-screen" was viewed in *The Cosmopolitan* magazine to understand why it was deemed such a success, being celebrated as the first scientific attempt to ascertain the fitness of men for a position in the business world: "The results have been so gratifying that it is not difficult to predict the wider substitution of (...) the present wasteful method of selection by guesswork or the estimates of department heads. Therefore, the new idea will possess high interest for every employer, because it suggests a promising means of the elimination of business waste, and for every employee, because it will help to bar the dreaded way to his becoming one of life's misfits" (R. Washburn, 1915, p. 647, cit. in Blatter, 2014, p. 106).

Despite such praise, Blatter (2015) thinks that the psychological instruments used by Münsterberg and other psychologists for professional orientation and personnel selection resulted threatening to the public. Yet, from the example, it seems important to distinguish between kinds of public. The candidates going through the screening certainly felt intimidated and exhausted but this does not hold for the clients paying for the psychotechnical service. Within Western (American) society in which social Darwinism and meritocratic ideals were highly influential, psychologists seemed to walk on a paved way with their new psychotechnical practice.

Conclusion

The previous pages have explored the circumstances when psychologists started to promote "psychotechnics". It was a new

term that was introduced at the beginning of the twentieth century by Stern (1903a) and Münsterberg (1912, 1914) with the goal of demarcating their scientific and professional ambitions. Using psychological theories, tests and laboratory apparatus they tried to deal with problems such as whether a testimony given in court can be trusted, or who would be the best worker out of a list of candidates for a salesman job. Moreover, they both tried to disqualify rival efforts as outdated, dangerous (unscientific) quackery.

Münsterberg's display of scientific measurement brass instruments, mental tests and laboratory simulations when he assessed job candidates in 1914 is a good example of how, with the help of technology, experimental psychology was supposed to be converted into an applied science. It suggested an exact and objective scientific service. In practice they consisted of an intervention that would optimize the work of other professionals, such as teachers, judges and managers, making them more efficient when trying to guide and influence other people. The developments in the first decades of the twentieth century in education, courts and industry, clearly facilitated such a rational (i.e. scientific) intervention.

Despite its resonance, psychotechnics was never unproblematic or unitary. Situated within "applied psychology", it was already "multiple" right from the beginning (see also Bösel and Weber, 2025, who make the same claim). Stern's psychotechnics consisted of an as yet immature "auxiliar science", subordinate to psychology, ethics and society. Its main task was to assess a person's capacity and personality. Stern's project, as we have seen, was closely linked to his interest in differential (personalistic) psychology and his involvement in educational and forensic psychology.

Münsterberg, in contrast, approached psychotechnics from his interest in personnel selection and industrial psychology. He announced the birth of a new, autonomous science, dealing with prognosis (prediction). Therefore, it needed to be firmly connected to experimental-causal (objective) psychology. Precisely this grounding led to a serious limitation, because such an experimental approach could never achieve his much-desired synthesis between causal and intentional psychology, nor could it thoroughly address individual personality¹⁸.

In sum, both psychotechnical projects were rather optimistic, at a time when psychologists felt a certain lack of resources, tools and experience when entering the shopfloor. Despite its internal flaws and contradiction, it was Münsterberg's more ambitious and elaborated textbook (accessible in German and English) that became highly influential: a book that is still cited today, although rarely presented in the context of his psychology and his time. He certainly managed to sell his project in a way that appealed to other psychologists, being more in line with the functional and behaviorist psychology that would soon gain traction. Nevertheless, the international influence of Münsterberg's work could not stop the name "psychotechnics" from disappearing towards the mid twentieth century. But this didn't lead to a disappearance of the profession which could be introduced as professional specializations within the psychology curriculum,

¹⁸ Hale (1980) also diagnoses this contradiction. The biographer even goes so far as to assume that Münsterberg was not only incoherent in his work but also similarly incoherent in his private life.

sailing under names such as forensic, industrial and educational psychology.

References

- Blatter, J. T. (2014). *The Psychotechnics of Everyday Life: Hugo Münsterberg and the Politics of Applied Psychology, 1887-1917* (Doctoral Thesis). Harvard University.
- Blatter, J. (2015). Screening the Psychological Laboratory: Hugo Münsterberg, Psychotechnics, and the Cinema, 1892–1916. *Science in Context* 28(1), 53–76 doi: <https://doi.org/10.1017/S0269889714000325>
- Bösel, B. (2025). Das weite Feld des Psychotechnischen – eine systematische Einführung. In J. Weber & B. Bösel (Eds.). *Die Macht des Psychotechnischen (Band I: Zur Erschließung eines transdisziplinären Forschungsfeldes)* (pp. 19-86). Frankfurt: Campus.
- Bryan, L. L. K. & Vinchur, A. J. (2012). A history of industrial and organizational psychology. In *The Oxford handbook of organizational psychology* (vol. 1), (pp. 22-75).
- Carpintero, H (2019). La psicotecnia en la URSS: Isaac Spielrein y el VII Congreso Internacional de Psicotecnia de Moscú (1931). *Revista de Historia de la Psicología*, 40(3), 45-49. Doi: <https://doi.org/10.5093/rhp2019a14>
- Carpintero, H. (2023). Roberto Cuñat, pieza clave en la Psicología aplicada en España. *Revista de Historia de la Psicología*, 44(4), 23-29. Doi: 10.5093/rhp2023a15.
- Carson, J. (1993). Army alpha, army brass, and the search for army intelligence. *Isis*, 84(2), 278-309.
- Deutsch, W. (2011). Clara Stern: Als Frau und Mutter für die Wissenschaft leben. In S. Volkmann-Raue & H. Lück, *Bedeutende Psychologinnen des 20. Jahrhunderts* (pp. 101-115). Wiesbaden: VS Verlag für Sozialwissenschaften.
- Gioioso, J. V. & Aderman, M. (1969). The combination test as a quick screening device to differentiate levels of retardation. *Psychological Reports*, 25(3), 843-848.
- Goldman, H. (1918). Applied psychology of Hugo Munsterberg. *Journal of Applied Psychology*, 2(2), 116-129.
- Gundlach, H. (1996). Faktor Mensch im Krieg: Der Eintritt der Psychologie und Psychotechnik in den Krieg, *Berichte zur Wissenschaftsgeschichte* 19, 131-143.
- Gundlach, H. (2006). Psychology as science and as discipline: the case of Germany. *Physis (Rivista internazionale di storia della scienza)*, 43, 61-89.
- Gundlach, H. (2007). The two kinds of applied psychology - The example of Germany. *Revista de Historia de la Psicología*, 28 (2/3), 143-150.
- Hale, M. (1980). *Human Science and social order. H. Münsterberg and the origins of applied psychology*. Temple Univ. Press
- Jaeger, S. & Staebule, I. (1981). Die Psychotechnik in ihre gesellschaftlichen Entwicklungsbedingungen. In F. Stoll, *Anwendungen im Berufsleben* (Serie: Die Psychologie des 20. Jahrhunderts, vol. 8) (pp. 53-95). Zürich: Kindler.
- Jaeger, S. (1985). Zur Herausbildung von Praxiefeldern der Psychologie bis 1933. In M. Ash & U. Geuter (Eds.). *Geschichte der deutschen Psychologie im 20. Jahrhundert: Ein Überblick* (pp. 83-112). Opladen: Westdeutscher Verlag (Studium).
- Kevles, D. J. (1968). Testing the Army's intelligence: Psychologists and the military in World War I. *The Journal of American History*, 55(3), 565-581.
- Killen, A. (2007). Weimar psychotechnics between Americanism and fascism. *Osiris*, 22(1), 48-71.
- Kusch, M. (2005). *Psychologism: The sociology of philosophical knowledge*. Routledge.
- Lamiell, J. T. (2012). Introducing William Stern (1871–1938). *History of Psychology*, 15(4), 379-384.
- Lamiell, J. (2021). *Uncovering critical personalism: Readings from William Stern's contributions to scientific psychology*. Palgrave/Mc Millan.
- Lück, H. (2004). Geschichte der Organisationspsychologie. In H. Schuler: *Enzyklopädie der Psychologie (vol. 3) Organisationspsychologie* (first part), (pp. 17-72). Göttingen: Hogrefe.
- Métraux, A. (1985). Die angewandte Psychologie vor und nach 1933 in Deutschland. In C. F. Graumann, *Psychologie im Nationalsozialismus* (pp. 221-262). Berlin: Springer.
- Monacis, L. (2007). Psychology and the armed forces. *Revista de Historia de la Psicología*, 28(2), 167-172.
- Mülberger, A. (1996). Der Weg Karl Marbes zur Angewandten Psychologie. In: H. Gundlach, (Ed.). *Untersuchungen zur Geschichte der Psychologie und der Psychotechnik* (pp. 117-126). Munich: Profil Verlag.
- Münsterberg, H. (1908). *Philosophie der Werte*. Leipzig: J. A. Barth; trans. in English: *The Eternal Values*. Boston: Houghton Mifflin Company, 1909.
- Münsterberg, H. (1912). *Psychologie und Wirtschaftsleben: Ein Beitrag zur angewandten Experimental-Psychologie*. Leipzig: J. A. Barth.
- Münsterberg, H. (1913). *Psychology and Industrial Efficiency*. Boston: Houghton Mifflin Company.
- Münsterberg, H. (1914). *Grundzüge der Psychotechnik*. Leipzig: Verlag von J. A. Barth.
- O'Neill, C. (2017). Taylorism, the European Science of work, and the quantified self at work. *Science, Technology, & Human Values*, 42(4), 600-621.
- Proietto, M. (2015). La psicotécnica de Mallart: entre ciencia, cultura y sociedad. *Revista de Historia de la Psicología*, 36(4), 57-78
- Rabinbach, A. (1990). *The Human Motor: Energy, Fatigue and the Origins of Modernity*. Berkley: University of California Press, 1992 (first paperback edition).
- Reed, J. (1987). Robert M. Yerkes and the mental testing movement. In: M. Sokal, *Psychological testing and American society, 1890-1930* (pp. 75-94). Rutgers University Press.
- Smith, R. (2005). The history of psychological categories. *Studies in the History and Philosophy of Biological and Biomedical Sciences*, 36, 55-94.
- Smith, R. (2022). Psychologies: Their diverse histories. In: McCallum (Ed.), *The Palgrave Handbook of the History of the Human Sciences* (pp. 1-28). Palgrave. https://doi.org/10.1007/978-981-15-4106-3_77-2
- Sprung, L. & Brandt, R. (1992). Otto Lipmann (1880-1933). und die Anfänge der angewandten Psychologie in Berlin. In L. Sprung & W. Schönplflug, *Geschichte der Psychologie in Berlin* (pp. 139-159). Frankfurt: Lang.
- Stern, W. (1903a). Angewandte Psychologie. *Beiträge zur Psychologie der Aussage*, 1(1), 4-45.
- Stern, W. (1903b). Aussagestudium. *Beiträge zur Psychologie der Aussage*, 1(1), 46-78.
- Stern, W. (1939). The psychology of testimony. *The Journal of Abnormal and Social Psychology*, 34(1), 3-20.
- Stern, C. & Stern, W. (1999). *Recollection, testimony, and lying in early childhood*. American Psychological Association.
- Spillmann, J. & Spillmann, L. (1993) The rise and fall of Hugo Münsterberg. *Journal of the History of the Behavioral Sciences*, 29(4), 322-338.
- Stoffers, M. (2003). Münsterberg's nightmare: Psychology and history in fin-de-siècle Germany and America. *Journal of the History of the Behavioral Sciences*, 39(2), 163-182.
- Titchener, E. B. (1898). The postulates of a structural psychology. *The Philosophical Review*, 7, 449–465. <https://www.jstor.org/stable/2177110>
- Thomas, R.K. (2022). 'Pure' versus 'Applied' Psychology: An Historical Conflict between Edward B. Titchener (Pure) and Ludwig R. Geissler (Applied). *Psychological Record*, 72, 131–143 <https://doi.org/10.1007/s40732-021-00460-3>
- Von Hohenthal, A.G. (2021). *Griff nach der Psyche? Psychologie im Ersten Weltkrieg in Grossbritannien und Deutschland*. Brill/ Schöningh
- Wundt, W. (1909). Über reine und angewandte Psychologie. *Psychologische Studien*, 5, 1-47.