

#### Personality Psychology

# Two Persistent Myths About Binet and the Beginnings of Intelligence Tests in Psychology Textbooks

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Alfred Binet is widely recognized as the father of the intelligence test, but many textbooks on psychology and intelligence testing contain inaccuracies about his work. This article corrects two common errors. First, the French government did not ask Binet to develop the test. Binet was part of a group of people trying to prevent special education from becoming part of psychiatric institutions and thus became motivated to develop an objective measure of intelligence. Secondly, Binet did not develop the test alone. He worked closely with Théodore Simon. We also look at the best reference for the first intelligence test and propose the Binet and Simon 1908 article. Hopefully, this article will help put an end to the spread of inaccuracies about the intelligence test.

This opinion piece was written after reading the book "The Science of Human Intelligence" (Haier et al., 2024). The book was needed according to the authors because "Misunderstandings and mistaken ideas abound, especially in the popular media, about what intelligence is, where it comes from, its importance in everyday life ... This book is intended to inoculate you against erroneous information and to enable you to think and converse about complex topics with facts" (p. xiii).

Given the authors' admirable goals and the book's ambition to be a core textbook in intelligence research, it is painful to see that the first chapter (A Brief Voyage to the Past) contains three errors about the origins of IQ tests.<sup>1</sup> They concern the role of Alfred Binet in creating the first intelligence test.

The story of Haier et al. (2024, pp. 4–5) goes as follows:

From a different but related perspective, a French experimental psychologist, Alfred Binet (1857-1911), developed the first intelligence test to be used in schools. In 1903, he published a book, *The Experimental Study of Intelligence*, summarizing his work on intelligence, mainly based on the systematic observation of his two daughters. ...

French educators needed an objective method to evaluate students' potential to learn so the goal of universal education could be achieved. ... To meet this challenge, the Education Ministry hired Alfred Binet.

The Education Ministry accepted Binet's approach, and the modern era of intelligence testing had begun. This is the story found in virtually every introductory psychology book these days (see below for examples). Yet almost all the information is wrong or passes only the friendliest historical test.

We will organize our arguments around three inaccuracies in the text:

- 1. Binet was asked by the French Ministry of Education to evaluate the intelligence of children at risk of failing in compulsory education.
- 2. Binet was the sole mastermind of the IQ test.
- 3. The first IQ test was published in 1903.

#### Binet was not invited by the French Ministry of Education

Binet (1857-1911) was a member of a wealthy family, which allowed him to pursue his interests without having to worry about money and with the ability to finance some of the costs associated with these interests (e.g., printing a journal). At the age of 34, he joined the Laboratory of Physiological Psychology at the Sorbonne University in Paris as a volunteer, while he was doing a PhD entitled "Contribution à L'Étude du Système Nerveux Sous-Intestinal des Insectes" (Contribution to the Study of the Insect Sub-Intestinal Nervous System) in the biological laboratory of his father-in-law. The thesis was successfully defended in 1894 and shortly after Binet became the director of the Laboratory of Physiological Psychology, succeeding the first director, Beaunis (see Brysbaert & Rastle, 2021; Nicolas

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<sup>1</sup> For the record, we did appreciate the rest of the book.

& Sanitioso, 2012). His research mainly involved memory processes.

In 1899 Binet joined a group of educators and politicians, initiated by Ferdinand Buisson, a socially-engaged scholar who had shortly before co-founded the Human Rights League and had been director of primary education in France from 1879 to 1896. During Buisson's time as director, compulsory education was introduced in France (in 1882). Primary school became obligatory for children aged six to 13. Because of Buisson's many other activities, Binet took on the role of chair of the Société libre pour l'étude psychologique de l'enfant (SLEPE; Free Society for the Psychological Study of Children) in 1902.

One of the reasons Buisson founded SLEPE was that a French psychiatrist, Bourneville, lobbied politically for the creation of special classes in psychiatric institutions for children who were "unfit" for regular education (Nicolas et al., 2013). Children who had difficulty understanding subject matter were not a problem in voluntary education (they did not attend school or dropped out), but became a problem once every child was legally obliged to attend school. Bourneville had already established special classes at Bicêtre Hospital in 1879-1880 for the most affected children and wanted to expand them. The classes would become boarding schools attached to psychiatric institutions, where not only children with obvious intellectual handicaps would be cared for, but also the "invisible" children with inferior states of intelligence who burdened mainstream primary schools. Decisions about the intellectual level would be made by psychiatrists based on a medical examination.

Other politicians joined Bourneville in complaining about the presence of "unfit" children in elementary schools, which led to the creation of a ministerial commission to deal with the issue in 1904. Binet succeeded in joining the commission, alongside Bourneville. Even though Binet volunteered to serve as secretary, he was unable to prevent the committee from recommending in 1906 that jurisdiction over referrals to special schools be assigned to a board consisting of an elementary school inspector, a medical doctor and a special school director (psychiatrist), who would conduct the medical and educational examinations themselves. A motion was then introduced in Parliament for the introduction of special education classes in asylums, but discussion was suspended before a resolution was passed. Opponents emphasized the costs of the program, and the debate went on for nearly two years. SLEPE was active as a lobbying group, and Binet was encouraged to come up with better assessment alternatives. In 1909, Bourneville's opponents won and a law was passed that led to the universal establishment of special classes for "slow" children, attached to public elementary schools (Nicolas et al., 2013).

Binet was never invited by the French ministry, let alone paid. All activities took place in Parliament and Senate between politicians and lobby groups (with Binet belonging to one of the lobby groups).

#### In all likelihood Binet would not have published an intelligence test without Théodore Simon

Binet was interested in the development of faculties and in individual differences. As a result, he was in contact with some institutes for intellectually disabled children (the institutes Bourneville wanted to expand from the most severe cases to all children "unfit" for regular education). Through his contacts with Buisson, Binet could also run some studies in primary schools.

Things took an important turn when Binet was contacted in 1898 by 25-year-old Théodore Simon (1873-1961). Simon had finished studying medicine and was beginning a PhD as an assistant to doctor Blin at the Perray-Vaucluse psychiatric hospital. Blin was a psychiatrist who was unhappy with the haphazard assessments of children sent to him by his fellow psychiatrists (and thus not at all in line with Bourneville). Simon was given the task of finding better assessments and, in line with contemporary research, he looked at relationships between physical characteristics and mental ability. He was one of the brightest students of his year and in a short time had written articles on the skull circumference of children in Vaucluse, their ability to copy a drawing or a series of numbers, and their sense of touch. Binet was an interesting person to contact, not only because of his knowledge, but also because he was editor of a journal he had founded: l'Année psychologique (Nicolas et al., 2000). Simon published his first three articles in the journal in 1900.<sup>2</sup> He also successfully defended his PhD in 1900. Binet was acknowledged in the thesis, but could not be an official supervisor, because he did not have an official position at the medical faculty.

Binet and Simon got along well and began working together. Simon was asked to join SLEPE in 1901, where he was an asset given his medical studies and the fact that he quickly became a key figure in the running of asylums (Binet had a degree in law, a doctorate in biology and a position as non-professor at a university, which made him an outsider to the medical establishment). As a result, Simon got caught up in Bourneville's attempts to expand psychiatric institutions and the psychiatrist's exclusive right to decide on mental ability. Binet and Simon began publishing together in 1905, again in L'Année psychologique.

Meanwhile, Blin had not been idle either (Nicolas & Andrieu, 2005). Simon was succeeded by Damaye as Blin's assistant, and this time Blin asked his assistant to evaluate a system that Blin himself had developed (probably with input from Simon). He had begun asking the children simple questions, such as their name, their age, whether they

<sup>2</sup> The fact that Simon published these studies alone indicates that he conducted them without input from Binet. It was unlike Binet to supervise a study and not be the lead author of the resulting publication.

could close their eyes, do simple calculations, knew their nationality, and so on (Blin, 1902). Damaye's task was to evaluate if Blin's list of 20 sets of questions differentiated between the three degrees of intellectual disability made at the time (which implied different rights and obligations for the children involved). The thesis was defended in 1903 (Damaye, 1903a) and reported a clear difference between the most severe group (score: 16/100), the middle group (39/100) and the mild group (82/100). Binet had given Damaye advice for the study, but again was not officially involved in the thesis.

Chased by the ministerial commission, in 1905 Binet and Simon published a series of four articles.<sup>3</sup> The first summarized the fate of 120 children taken care of in a special school in Salpêtrière (one of the major asylums in Paris). The second article advocated "un diagnostic scientifique des états inférieurs de l'intelligence" [a scientific diagnosis of lower intelligence states], referring specifically to the ministerial commission started in 1904. It included a historical overview of categorization attempts (including a system of six categories proposed by Bourneville) and the list of 20 sets of questions developed by Blin.

The third article proposed an improved questionnaire with 30 sets of questions and tasks for use in assessment of lower intelligence. It included many items from Blin and Damaye plus other items that could be used with less intelligent children, intended to distinguish between the three levels of disability and between disability and the normal range. An English summary of the 30 items can be found in Nicolas et al. (2013).

Finally, in the fourth article, Binet and Simon presented their data collected so far with children from regular classes. They called the data preliminary because the findings were based on small numbers (about 10 per group) and the age groups were two years apart. The full version of the test would not be published until three years later, in 1908, after many more tests.

Some of the tasks were based on Binet's previous work or on ideas picked up by Binet. One idea was to use a task in which a sequence of digits must be repeated (now known as a short-term memory task). Binet got this idea from Jacobs (1887) who reported that children seen as intelligent by their teachers could repeat longer sequences of digits than children seen as less intelligent. Binet repeated these tests in the 1890s and extended them with Victor Henri to words (Binet & Henri, 1895a) and sentences (Binet & Henri, 1895b), referring to Jacobs (1887) and Bolton (1892).<sup>4</sup>

However, all indications are that Binet and Simon worked closely together on building the intelligence tasks, usually administering the tests together to figure out how best to ask the questions and how to respond to children who remained silent, agreed with everything the test leader said or pointed randomly at displayed objects. Given the articles' focus on disability, it is inevitable that Simon had major input, even though Binet was first author, probably because he wrote the articles (Binet was a prolific writer, producing dozens of articles a year<sup>5</sup>). The joint development of tasks is emphasized several times in Binet and Simon's articles (Wolf, 1961).

#### The best reference to the first intelligence test is Binet & Simon (1908)

Binet did not publish the first intelligence test in 1903. In that year he published a book in which he summarized his views on how intelligence could be tested and illustrated them with some old research with his daughters. This is the book referred to by Haier et al. (2024), but nowhere in the book is an intelligence test discussed (see the original sources below). In 1903, Binet also published a book review of Damaye's dissertation in L'Année psychologique. In this review, Binet mentioned the data of the three groups of children with intellectual disabilities that we referred to above. This book review has occasionally been mistaken as a sign that Binet had an independent publication on intelligence testing as early as 1903. However, it is more correct to refer to the article as Damaye (1903b), even though the book review was written by Binet.

The reference mostly given for the first intelligence test in textbooks is Binet and Simon's third article from 1905 (Méthodes nouvelles pour le diagnostic du niveau intellectuel des anormaux) or its English translation published in 1916 (New methods for the diagnosis of the intellectual level of subnormals). A good reason for doing so is that Binet and Simon there introduced the idea of an "échelle métrique de l'intelligence" [metric scale of intelligence]. Another reason is that the 1905 articles and conference talks created much interest and excitement, with colleagues at several universities trying out the tasks proposed. However, as we have seen, the third 1905 article is just a proposal on how to assess mental disability, referring to the earlier work of Blin and Damaye on why it would work. So, this is not the best reference, as it is likely to disappoint the reader making the effort to look it up.

A slightly better reference is the fourth article of Binet and Simon in 1905 (Application des méthodes nouvelles au diagnostic du niveau intellectuel des enfants normaux et anormaux d'hospice et d'école primaire) or its 1916 English translation (Application of the new methods to the diagnosis of the intellectual level among normal and subnormal children in institutions and in primary schools). Here, Binet and Simon discussed the performance of children in institutions and children attending regular schools on the tasks

<sup>3</sup> They also gave two talks at major conferences, which were summarized in the proceedings of those conferences.

<sup>4</sup> Surprisingly, no reference to Jacobs or Bolton is made in the publications directly related to the intelligence test.

<sup>&</sup>lt;sup>5</sup> Binet published 16 books and 478 articles between 1880 and 1911 (Andrieu & Nicolas, 2015), in addition to an incessant stream of letters, only a few of which survived.

they developed. At the same time, the article very much gives the impression of what currently would be called a review of pilot studies with initial findings (remember that Binet and Simon were under time pressure from the ongoing commission). For example, the all-important question of whether the test could identify the "invisible" subnormal children in mainstream education was only addressed by providing three short case studies of 11-12-year-old boys, who performed less well than their peers on some tests (in particular, answering what the authors called abstract questions, such as "When one is lazy and does not wish to work, what happens?").

Whereas the fourth 1905 article of Binet and Simon feels like a summary of pilot studies, Binet and Simon (1908) contains the full-fledged intelligence test usually described in psychology textbooks. The authors described in detail four to eight tasks that children should be able to do at 11 different ages, starting at 3 and ending at 13. They also presented evidence that the sequencing of tasks was linear and that test results were consistent with school performance. Finally, they indicated that a lag of two years was a warning signal of inferior intelligence, requiring special attention, starting with remedial teaching. This is a text that readers will easily recognize as a manual of an intelligence test.

Binet (1911; now sole author) published a final article on the intelligence test shortly before his untimely death. No new tests were introduced, but some changes were made to the order of the tests so that they better followed progress over the years. The number of tests was streamlined to five per age group and the most difficult tests were assigned to new categories of 15-year-olds and adults. Most of the article consisted of clarifications, presentation of new data collected in a few schools and responses to comments from teachers and researchers.

All in all, Binet and Simon (1908) is the most informative citation if textbook writers want to limit their references to one. If they want to add a second reference, the fourth 1905 article of Binet & Simon (Binet & Simon, 1905) is interesting as a precursor to the 1908 test. Further referencing can include Binet (1911). In English textbooks, additional reference can be made to the 1916 book with English translations, as this is available to students on the internet (see original sources below).

# Why has Théodore Simon's contribution been downplayed?

Irrespective of which article is the best citation to the first intelligence test, there is no escape that it is a joint article by Alfred Binet and Théodore Simon. So why is Simon not mentioned in Haier et al. (2024)? Why is Simon mentioned in other textbooks but presented as Binet's apprentice or helper, with no significant input?

Here are some examples of the role given to Simon in textbooks:

 Gazzaniga (1973, p. 206): "Galton's analytic approach was to measure abilities of sensory discrimination, reaction time, and dexterity, which are skills presently not at all associated with intelligence testing. Binet was audacious enough to attack the problem directly and use questions that dealt with intellectual skills as a means of measuring intelligence. In 1905, he published the first metrical scale of intelligence. His questions tested memory, judgment, and decision making abilities." [Simon is only mentioned as co-author of a quote from the Binet & Simon (1905) article.]

- Hersen & Gross (2008, p. 481): "In 1904, Binet was commissioned by the French government to develop an instrument that identified mentally retarded children in need of alternative education. In collaboration with his student, Theodore Simon, Binet created an intelligence test..."
- Feldman (2016, p. 257): "The first real intelligence tests were developed by the French psychologist Alfred Binet (1857-1911). ... In the end he came up with a test that distinguished between the bright and dull groups, and with further work one that distinguished among children in different age groups (Binet & Simon, 1916)."
- Banyard et al. (2019, p. 545): "At the request of the French government to investigate the provision of education for less able children, Binet and his student Theodore Simon set about creating a test of various items designed to measure how well a child could perform on these tasks compared to their agematched peers."
- Warne (2020, pp. 21–22): "A Frenchman named Alfred Binet, who was trained in law but preferred to conduct research in the nascent science of psychology, was hired by the Parisian school system to create a method of identifying children who were struggling in school and not receiving any benefits from instruction in typical classrooms. ... Binet had been conducting research on cognitive development in children since the early 1890s ... and he used what he had learned over the previous decade and a half to create a series of tasks for a child to perform... Binet published his first scale in 1905, with revisions in 1908 and 1911 (Binet & Simon, 1905/1916, 1908/1916; Binet, 1911/1916)".

In other textbooks Simon is given a vague role of Binet's colleague. Examples are:

- Ciccarelli & Meyer (2006, p. 306): "A French psychologist named Alfred Binet was asked by the French Ministry of Education to design a formal test of intelligence that would help identify children who were unable to learn as quickly or as well as others, so they could be given remedial education. Eventually, he and colleague Théodore Simon came up with a test that not only distinguished between fast and slow learners but also between children of different age groups as well (Binet & Simon, 1916)."
- Bernstein et al., (2020, p. 154): "The earliest (1905) form of Binet's test - called the Binet-Simon scale in recognition of the contributions of his colleague Théodore Simon - consisted of ... Beginning with a

1908 revision, the tasks in Binet's test were age graded."

The best Simon can hope for is an essential but still minor contribution to the development of the intelligence test, as in:

- Martin et al. (2006, p. 475): "To identify children who were unable to profit from normal classroom instruction and needed special attention, Binet and Theodore Simon assembled a collection of tests, many of which had been developed by other investigators, and published the Binet-Simon Scale in 1905.
  ... Binet and Simon also provided a detailed description of the testing procedure... Binet revised the 1905 test in order to assess the intellectual abilities of both normal children and those with learning problems. The revised version provided a procedure for estimating a child's mental age ... Binet did not develop the concept of IQ (intelligence quotient)."
- Cianciolo & Sternberg (2004, p. 34): "French psychologist Alfred Binet's interest in intelligence testing arose from the more practical concern of discriminating between people who could succeed academically and who could not. He and his colleague, Theodore Simon, were part of a commission named by the minister of public instruction in Paris to develop tests that would identify children who did not have the mental capability to benefit from standard educational practices. ... Binet and Simon (1916) believed that the foundation of intelligence rested on ... To assess these judgment skills, Binet and Simon tested higher level cognitive functioning ... Binet and Simon's test was administered to children individually."

To add insult to injury, Simon is sometimes erroneously given the first name Théophile or Theophile (e.g., Deary, 2001; but also see Deary, 2020, for a correction). The origin of this misunderstanding most likely is that the first name of Simon was not included in the 1916 English translation, as can be seen in Figure 1.

Still, it is strange that work prominently done by two people in close collaboration ends up being attributed to only one person. How is that possible?

Three factors are likely to have contributed. The first is the English translation of Binet and Simon's papers. This translation was commissioned and published by Henry Goddard, who was keen to use Binet and Simon's tasks in the USA (Brysbaert & Rastle, 2021). Goddard wrote an introduction to the volume, in which he described how he got to know the test and started using it with children in his training school. Although he speaks of the "contribution of Drs. Binet and Simon", "the 1908 Binet-Simon article" and "the Binet-Simon Scale", there are also sentences like "Bi-



Figure 1. First page of the 1916 English translation of Binet and Simon's articles in L'Année psychologique.

net's work in this line was never brought to my attention", "Later I obtained Binet's article", "yet in all this time no complete translation of Binet's work on the Scale has appeared", "By many persons the Measuring Scale of Intelligence is supposed to be a mere incidental chapter in Binet's work", and "Nowhere does Binet more clearly show his genius." Clearly, Goddard saw Binet as the main player. This was further accentuated by including in the book a photo of Binet (and not of Simon) and including the first name of Binet (and not of Simon<sup>6</sup>).

The bias was further strengthened by Lewis Terman, when he transposed Binet and Simon's test to America. The first edition of the American test (Lewis, 1916) rightly calls the American test "The Stanford revision of the Binet-Simon Intelligence Scale". The phrase is used 47 times, although Terman also writes about the Binet scale 25 times. Terman's (1916) book was further dedicated to the memory of Alfred Binet, who died of cerebral infarction in 1911 at the age of 54 (Simon would live another 50 years and become one of France's most famous advocates of proper education for nurses in psychiatric institutions; Klein, 2018).

However, a very different picture is painted in the revised edition of the American test (Terman & Merrill, 1937). Now the test is called the Stanford-Binet Test of Intelligence, and Simon is all but erased. He is mentioned only in the book's preface, where reference is made to the original Stanford revision of the Binet-Simon intelligence scale, and

<sup>&</sup>lt;sup>6</sup> It is possible that Simon preferred his initial over his first name as author, as in other publications he also signed as Th. Simon, including in his 1911 book (Klein, 2018).

in a footnote on p. 346 to the article by Binet & Simon (1908). Terman and Merrill (1937) now consistently refer to the original test as the Binet scale.

Until proven otherwise, it looks like the publications of Goddard and Terman were the source of information used in American textbooks on intelligence testing and spread from there around the world, with one textbook author copying from another and further embellishing Binet's contribution to psychology at the expense of Simon's, in what Merton (1968) called the Matthew effect, a tendency to attribute discoveries to the smallest possible number of actors (the rich get richer and the poor get poorer) in a desire to simplify the past. Only in French-speaking parts of the world was Simon's role remembered.

It also did not help that Simon never claimed his share, in part because he thought the test was being misused for purposes other than helping children with problems (Wolf, 1961). Together with Binet, after 1908 he became more interested in the intellectual functioning of psychiatric patients (including various forms of dementia) and in 1908 moved to Northern France, where he was in charge of caring for 500 patients at the Saint-Yon asylum (Gutierrez, 2017). In 1911 he published a book "L'Aliéné, l'Asile, l'Infirmier" [The alienated, the asylum, the nurse] with information for nursing staff on how to interact humanely with patients in institutions (Simon, 1911). Because of these developments, Simon did not co-author Binet's (1911) final article on the intelligence test.<sup>7</sup> In 1920, Simon returned to Paris, first to the Perray-Vaucluse psychiatric hospital and then to l'hôpital Sainte-Anne.

#### Time for improvement

Our opinion piece is intended as feedback, to correct the memory of our history. Authors of textbooks have a demanding job. They must consult thousands of texts to distill the most interesting information for their readers. The earnings are rarely enough to make it a full-time enterprise, and many textbook writers also have interesting careers as researchers. In such a world, not everything can be fully researched. This is especially true of the distant past, which is seen as settled and not exciting enough to spend time on. Historical passages are often copied and pasted from earlier versions with a little editing to streamline (shorten) the text.

However, if the origins of the intelligence test are considered important enough to be discussed in introductory textbooks, it is our duty to tell them correctly. Triggered by Haier et al (2024) we decided it was time to put together what we think happened at the time. We have summarized the evidence for why the new version is closer to the facts than the version currently taught, and just as interesting. At the same time, we invite other historians to provide more nuance if they arrive at different interpretations after reading the texts from that time.

#### **Conflict of Interest**

The authors have no conflict of interest to declare.

#### **Original sources**

All articles of l'Année psychologique from the early 20<sup>th</sup> century can be consulted freely at <u>https://www.persee.fr/</u><u>collection/psy</u>. An unfortunate aspect of this website is that the volumes are wrongly dated by a year. For instance, it looks as if Binet and Simon published their articles in 1904 instead of 1905.

The English translation of Binet and Simon's papers can be found on the following site: <u>https://archive.org/download/developmentofint00bineuoft/develop-</u> mentofint00bineuoft.pdf.

Binet's (1903) book on intelligence testing with his daughters can be read freely at <u>https://pure.mpg.de/rest/</u> items/item\_2281728/component/file\_2281727/content

Terman's (1916) book on the Stanford Revision of the Binet-Simon scale can be read freely at <u>https://archive.org/</u> <u>details/stanfordrevision00term</u>

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<sup>7</sup> The fact that Binet (1911) and Simon (1911) were single-authored texts is further evidence that neither man took co-authorship lightly. Co-authorship had to be earned.

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# **Supplementary Materials**

# **Peer Review Communication**

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