



THE MATTHEW EFFECT: A PSYCHOLOGICAL CONCEPT

Jorge Jiménez Rodríguez
University of Granada

This work presents the psychological concept of the Matthew Effect and describes its main characteristics. We first review its origin and its use in the context of scientific production. Furthermore, we discuss equivalent effects in several psychological contexts and other areas, such as education, economics or sociology. The Matthew Effect is conceptualized as an effect that can be controlled, since it involves psychological processes of decision and perception. Finally, the Matthew Effect is presented as a useful idea in different fields that use psychological concepts.

Key words: Matthew Effect, Psychological concept, Decision process, Perceptual process.

En este trabajo se presenta el concepto y las características principales del efecto Mateo como concepto psicológico. En primer lugar, se revisa su origen y utilización en el contexto de la producción científica. Además, se exponen otros efectos equivalentes encontrados en diferentes áreas de la psicología y de otras disciplinas como la educación, la economía, la sociología y otras. El efecto Mateo se conceptualiza como un efecto que puede ser controlado, ya que contiene procesos psicológicos de decisión y perceptivos. Finalmente, el efecto Mateo se presenta como un término útil en diferentes ámbitos donde se usan conceptos psicológicos.

Palabras clave: Efecto Mateo, Concepto psicológico, Proceso de decisión, Proceso perceptivo.

P sychology, in its current form as a discipline, has two basic characteristics. One is the high degree of specialization of its different areas. This is a feature shared with the other sciences, and which contributes to enriching it, though it may also lead to its "falling to pieces" (Leahey, 1994). The second characteristic is its interdisciplinarity, given that many other contexts also use its theories and basic principles, which are applied with greater or lesser rigour.

Following Albert Einstein's idea that science is a construction of reality that serves to make sense of and explain that reality, we take a new look at the Matthew Effect, which has been described in a different context, with the aim of defining it as a psychological concept. We observe the emergence of this effect in a range of contexts, and study how it could be controlled according to its consequences.

Finally, we propose some ideas and research lines for developing subsequent and more detailed work exploring the potential incidence of the Matthew Effect in other theoretical fields. It is considered that this concept may help scientific psychology to deal more appropriately with its processes of *specialization* and *interdisciplinarity*.

Correspondence: Jorge Jiménez Rodríguez. Universidad de Granada. Facultad de Psicología. Campus de Cartuja s/n. 18071 Granada. España. E-mail: jjrodriguez@ugr.es

ORIGIN OF THE MATTHEW EFFECT CONCEPT

The Matthew Effect was originally so called in reference to the Biblical text in Chapter 13, verse 12 of the Gospel of St. Matthew (which is repeated in Matthew 25, 29 and in other gospels, as in many as five times in all) which says:

Qui enim habet, dabitur ei, et abundabit; Qui autem non habet, et quod habet, auferetur ab eo. This is traditionally translated as "For whosoever hath, to him shall be given, and he shall have more abundance; but whosoever hath not, from him shall be taken away even that he hath". Several considerations can be made with regard to this concept.

First of all, the text can be interpreted in two different ways. In this regard, we have ruled out the Biblical interpretation that seeks more a sense of justice as a conclusion to the parables that precede it. Indeed, in new translations of the Bible the "hath" or "have" concept has been changed for that of "produce". The interpretation of the text we have chosen is that used by other authors, such as Merton and Bunge.

Furthermore, we have opted, like other authors, for the more general sense of the verbs "give" and "have", referring indistinctly to material and non-material goods and values. For example, in the economic sphere we shall use "money" or "wealth" as parameters, but in other contexts we shall refer to non-material values such as "trust" or "social prestige", given that, depending on the context in question, we shall study different measurement parameters.



The first author who proposes the "Matthew Effect" is Robert K. Merton in the context of the quality of scientific production. This sociologist of science denounces the fact that the publications of an author with accredited experience are looked on more favourably than those of a young author without experience or who has recently come onto the scene (Merton, 1968).

Continuing in the sphere of the measurement of scientific production, Mario Bunge explains the "St. Matthew Effect", as he calls it, on the basis of two mechanisms. One is "memory-based": the memory retains the name of a more well-known author better than that of a lesser-known one. The other is that of "author selection": more trust is placed in an author according to his/her CV and membership of a "network", "clique" or "scientific stratum". Mario Bunge himself concludes his article with a claim that Merton benefited from the "St. Matthew Effect", because while he produced much of his work in collaboration with other researchers, we tend to recall his name and give him all the merit (Bunge, 2001).

In the pages that follow we present some of the evidence for the existence of the Matthew Effect in different contexts, with a view to delimiting its theoretical definition and considering the possibilities of its control. Finally, we draw some conclusions and look to the future.

EXISTENCE OF THE MATTHEW EFFECT IN DIFFERENT CONTEXTS

Our research begins in the wake of various incidental observations, some related to new technologies and others from different environments. First of all, we observed the differences between the number of hits on the most visited Internet site and the rest. Of some 8 million hits in October 2008 in various search engines in the USA, 61% derived from Google Search, 17% from Yahoo Search and 11.4% from MSN/Windows Live Search (Nielsen, 2008). In different categories, it is found that there is one search engine (Google), e-mail service (Hotmail), video-sharing website (YouTube) and operating system (Microsoft's) that is well ahead of the others, according to any type of digital footprint we might consider. But the distance (in number of hits) between the first and the rest of the Internet websites in a given category does not correspond, in many cases, to better service, performance, images or other features. The same occurs in the percentages of growth in the number of Internet users. A recent study by Spain's *Fundación Telefónica* found that the percentage of Internet users rose

in the period 2004-2006 in the USA (with 68.95% of users) by almost 7 points, while in Europe (32.60% of users) the growth was 2 points, and in African countries (3.31% of users), just 1.7%. The countries with most economic weight in each region of the world are those with the highest levels of Internet use, and those with the greatest potential for growth in the future (*Fundación Telefónica*, 2007).

We now present some observations from the assessment of scientific activity. Although Spanish presence in the Science citation index is "insignificant" (López Piñero & Terrada, 1992), it has been shown that the impact factor used in our country reflects only in a quite primary way its repercussion in the scientific area that uses English as a *lingua franca*, to a level of 90%. It suffices to consider the results of the efforts of a bibliometrics specialist such as Moravcsic (1988) to palliate this shortcoming of the Science citation index. The solution, advocated by Eugene Garfield (1979), would be to publish citation indices based on journals from particular disciplines and geographical zones (see, for example, the work by Agudelo et al., 2003). In any case, the most prestigious Spanish journals still prefer to be indexed in Garfield's ISI (Institute for Scientific Information), even though its quality indicators "have been and will continue to be strongly criticized" (Pérez-Tamayo, 1991). We need only listen to the warnings of Garfield (1979) himself, who has continually repeated that it is a relative indicator, which should not be applied for comparing journals, groups or authors from different disciplines. If the quality criteria of scientific publications present problems in the natural sciences, many more such problems emerge in the social and legal sciences and humanities (Maltrás et al., 1998), the field of education providing a case in point (Fernández Cano, 1997). In many studies on the sociology of science we find that the Matthew Effect is pernicious, and needs to be avoided with a view to achieving the most objective possible assessment of scientific production (Storer, 1966; Mitroff, 1973; Martin, 2003; Núñez, 2008).

In the context of the Psychology of Education, and in specific reference to the concepts of *intelligence* and *IQ*, we observe how they have been considered as fundamental values in school, and the consequences of this for many students. In the 1980s, Michel Tort wrote: "intelligence tests are wreaking havoc. Their principal victims are the children of the working classes: the greatest numbers of mental defectives, cretins, retards and



idiots are detected by such tests among these children (...) their IQ will pursue them, like a criminal record, throughout their school life" (Tort, 1981; p. 1). According to Rosenthal and Jacobson (1992), the use of the "intelligence" concept as a fundamental value in schools has had "devastating" consequences, though other authors argue that for a minority of students it brings many "benefits" and "advantages" (Papalia & Olds, 1992). We should not overlook the fact, in this regard, that the theoretical concept of intelligence is among the "vaguest" (Sternberg, 1990 and 2004). Given that certain cognitive strategies or "mental moulds" are better predictors than IQ (Hernández, 2006), we might consider "multiple intelligences" (Pérez & Beltrán, 2006), rather than IQ or intelligence as sole parameters.

The first review of research on interpersonal expectations was by Rosenthal and Rubin (1978), but it was Rosenthal and Jacobson (1968) who originally described the "Pygmalion effect" in teaching. This effect consists in a student's exceptional progress as a result of the high expectations placed on him or her by the teacher (Bourdieu, 1970), and had been first described by Coleman (1966); in another context it had been called "self-fulfilling prophecy" (Merton, 1948), and it has recently been reviewed in Spain for the case of university lecturers (Pichardo et al., 2007).

There is also other evidence of the Matthew Effect in the educational psychology context. For example, Keith Stanovich found that children who show little progress in the early stages of learning to read are slower in later years, and that those who access vocabulary and knowledge through reading can compensate for differences in intelligence. And on the other hand, lack of "contact with the printed word" generates problems of low motivation and loss of confidence in one's own potential (Stanovich, 1984). Such findings have been corroborated in Spain (Marchesi et al., 2002). Furthermore, Reynolds (1989) found, in a sample of lower-performing secondary-school pupils, that they read 10% fewer words per day than the higher performers. In addition, it has been shown how teachers interact differently with special educational needs (SEN) students. In his analyses, Cooper (1983) found that his sample of teachers provided SEN pupils with less feedback, visited them less frequently and waited less time for them to respond. Studies on the psychology of education by authors such as Wang et al. (2001), Cassasus (2003), Good and Brophy (2003), Marchesi and Hernández

(2003), Woolfolk (2003) or Marqués (2008) throw more light on such undesirable effects in education. These can be related to work on "the certainty of beliefs" and "behavioural confirmation" in the context of social psychology (Morales & Moya, 1996), on "social and person perception", the "Halo effect" and "central and peripheral features" (Asch, 1964), and on "social cognition" (Fiske & Taylor, 1984), "stereotypes and prejudice" (Baron & Byrne, 1998) and "the psychology of groups" (Morales & Huici, 2003). But also of relevance are other areas of psychology that have studied processes of "social inference" (Kahneman & Tversky, 1979), "models of social reasoning", with the work of Peter Wason (see Carretero & García Madruga, 1984), "the development of social judgements" (Nisbett & Ross, 1980), and the search for a "normative theory" that determines specific forms of everyday reasoning (Fernández Dols, 1990).

In all such research it is observed that the "Pygmalion effect" in educational psychology is equivalent to the "Matthew Effect" described by Merton (1968) in the field of the measurement of scientific production.

In the area of developmental psychology it has been found that taking advantage of opportunities for improving children's ability will lead to better performance, more learning and better future opportunities, which will in turn lead to optimal development. The snowball metaphor is used, since it is considered important that the first steps in learning are taken as early and as well as possible, and that all opportunities are taken for growth and the optimization of abilities.

The development of language provides an example of this process, even prior to birth (Bruner, 1986). Also at an early age, and as studied by Basil Bernstein in 1971, there will be an influence of the verbal code of the learning context ("restricted" versus "elaborated"), which will influence the child's thinking ability (Vygotsky, 1973). The importance of early language onset for children's optimal development is well documented (Schieffelin, 1978; Astington & Jenkins, 1999; Carroll, 2006; Padilla, 2007), it having been shown that the more effective stimulation they receive, the better their language development will be.

We also find examples of the Matthew Effect's consequences in the context of Work and Organizational Psychology, in personnel selection interviews (Salgado & Moscoso, 2008). If the psychologist emits an overall



judgement of a candidate that is totally favourable or unfavourable, basing it on a single quality of the candidate, this is also called a *Halo effect* (Pereda & Berrocal, 2001), which constitutes an obstacle to an objective assessment, affecting the selection process.

The *cumulative effects* in educational and developmental psychology and the *Halo effect* in social and work and organizational psychology have an analogous significance to and can be explained by the same principles as the "Matthew Effect" described by Merton and Bunge.

We now move on to look at some data outside the limits of psychology. We shall begin with the world of business and consider other contexts as varied as marketing, economics, electoral processes, social movements and economic policy.

In the corporate sphere we often find references to the concept of the *wealth effect*, and to the idea of the big fish eating the little fish. We hear daily of companies that take over others or invade their markets. We need only consider the story of how Coca-Cola became established in the market (Sculley & Byrne, 1990). We often find that concepts deriving from psychology are used for explaining various economic and corporate aspects, "perception", "thoughts" and "trust" being just a few examples (Quintanilla, 1989). There are numerous instances of the wealth effect in companies, in economics (Schiller, 2002; Chomsky, 2005; Ayala & Sastre, 2007; Robles & Caballero, 2007; VVAA, 2007; Fuenzalida et al., 2008) and in the stock market (Rogers, 2008). According to the mercantilist tradition, the prosperity of nations (and persons) is achieved by accumulating precious metals because this is a "sign of wealth" (Quintanilla & Bonavía, 2005). If we consider today's "networked society" (Castells, 2006), the "money begets money" effect will propagate itself on a global scale thanks to the media, sometimes accompanied by the "public opinion" label (Price, 2002). For Qualter (1994), consumer goods are the "accepted credentials", the "marks of authority" of social elites. People or entities perceived as more wealthy are afforded more benefits and advantages, which is not the case for those perceived as poor or in the process of impoverishment. This widens the "economic divide" (Rodríguez, 2005) and the "digital divide" (Castells, 2006), and affects both political policy (INEM, 2007; INE, 2008) and scientific policy (Acevedo & Núñez, 2008). A review of the Matthew Effect based on classical sociological theory can be made from Ritzer's (2002) perspective.

In a very different context, Taagepera and Shugart (1989) make the distinction between two processes: "mechanical" and "psychological" for explaining the functioning of electoral processes. The mechanical process refers to the tendency of electoral systems to reward majority parties and penalize minority ones, so that the percentage of votes is greater than or smaller than that of seats. It is based on previous political decisions, and affects the percentage of seats for each party or candidate. There are more than 300 different electoral procedures (Girón & Bernardo, 2007; Urdániz, 2006), all of which will influence the mechanical process. The psychological process, on the other hand, depends on each voter, and increases the disproportionate nature of voter/seat percentages (Taagepera & Shugart, 1989).

Special mention should be reserved for prizes, qualifications and honours. In these cases, it is common to find that one person is chosen to receive all the personal, social and psychological honours and benefits, eclipsing the rest. Criticism and disenchantment are often expressed in relation to such processes (see, in relation to Nobel Prizes (Zuckerman, 1977), to sporting prizes (Jodrá, 1992), and to the Oscars (Esparza et al., 2008)).

Not only in the economic and corporate contexts (through the "wealth effect"), but also in those of electoral processes and the awarding of prizes and honours, we find effects equivalent to those previously analyzed in different areas of psychology, and which Merton called the Matthew Effect (Merton, 1968).

THE MATTHEW EFFECT FROM THE PERSPECTIVE OF PSYCHOLOGY

The Matthew Effect, according to what we have seen so far, has two parts:

- a) The contribution of greater quantities of benefits, both material (economic and other resources; awards) and non-material (privileges, recognition, trust, power, fame) by the fact of having a maximum value in a given parameter that is considered relevant. One is situated in the first position in a given classification or category in the local, regional, national or global context. As a consequence of being classed as the best, one received the most benefits, is overvalued, and often eclipses the rest.
- b) In contrast, there is a reduction or annulment of benefits of any kind to the persons or entities with the lowest value in a given parameter that is considered relevant. In many cases, there is marginalization, be-



cause the way such people or entities are considered changes when they are perceived as being at the bottom of the classification. They are frequently observed to be situated well below what would be expected, given the resources they previously possessed. In extreme cases, the person or entity with the least is divested of what they have, which is given, paradoxically, to the one with the most.

In consequence, there is generated what is called, depending on the context, a distance or divide between those affected by the two processes.

The *Matthew Effect* is considered as a theoretical concept that is explained from psychology, since in it we can distinguish two clearly distinct types of process: decision processes in the selection of the measurement parameters in each context, and individual perceptual processes.

We have observed that, according to the context, different terms are used for explaining effects that are analogous. In scientific assessment the concept of the “St. Matthew Effect” emerged; in educational psychology we see references to the “Pygmalion effect”; in social psychology and work and organizational psychology we hear of the “Halo effect”; in developmental psychology the phenomenon is known as the “snowball effect”. In areas outside of psychology, such as those of economics and business, it is called the “wealth effect” and “cumulative effect”, while in electoral processes there is a distinction between “mechanical” and “psychological” effects, and in social policy the term “social elitism” is employed. Our proposal is to consider all of them as a single effect that has been defined from psychology in terms of the “Matthew Effect” concept.

THE POSSIBILITY OF CONTROLLING THE MATTHEW EFFECT

Some cases have been observed in which the consequences of the Matthew Effect are not the desired ones, either for those directly involved or for society in general.

Furthermore, we can find many psychology professionals in the academic field giving grades to students, in the world of work in personnel selection process (Salgado & Moscoso, 2008), in clinical contexts making psychological diagnoses (Fernández Ballesteros, 1983), the majority in the private clinical sector (Santolaya et al., 2002), or determining marginalization criteria in the field of immigration (Blanco, 2006; Moya &

Puertas, 2008). In these types of cases, where assessments and classifications are of great relevance, the consequences of the Matthew Effect are in need of adequate controls. In our view, a reappraisal of such situations would determine the extent to which there is overestimation of the parameter or parameters considered in each case as fundamental; furthermore, and most importantly, it would consider alternative approaches with a view to avoiding the undesirable consequences that may occur in each case.

It is possible to create the conditions for the Matthew Effect to be attenuated or even eliminated. It has been defined as a theoretical psychological concept involving two processes. The first of these is a preliminary one of decision: selection of the parameter to take into account, and whether it is decided to consider just one parameter, several in conjunction, and so on. This decision process is subject to modification according to the context considered. Examples have been documented in which it was possible to substitute the parameter for another, as is the case of IQ. On studying the mechanical effect in electoral processes we mentioned that it could be stated which parameter we were considering a priori as the most highly valued. On analyzing the sphere of awards and honours we might decide whether to award just one, or whether there would also be others (consolation, shared, or for participating). Gordon Allport himself talked about “legislative action” to reduce, a priori, both “public discrimination” and “private prejudice” (Allport, 1977). These are some of the possible actions in relation to the decision process that can lead to the Matthew Effect. In general, if a pyramidal structure is selected, only one person, thing, event, etc. will be classed as *the best*, so that the person or entity in question will receive all the benefits. The rest will be negatively affected by comparison. This is a highly competitive structure, but it may be convenient when we are seeking to form an elite, when we need a person for a position or when we need to know who is the ablest person in a given category. On the other hand, when the aim is to benefit the majority of participants and we are interested in the performance and capacities of all of them, we will seek a system other than the pyramidal one, which attenuates or eliminates the Matthew Effect. The participatory system is the opposite of the pyramidal one, since all are benefited equally.

The second type of process, of a perceptual nature, is individual. It is more difficult to control, at least directly, though it will be influenced by the previous decision



process. If we set up a pyramidal structure in which there is only one beneficiary, and the others' worth is not acknowledged, we are facilitating a situation whereby each observer perceives that person as the best, as the most capable, and even as the only one. In such a case, we help to bring about the Matthew Effect, affecting the individual perceptual process. On the other hand, the Matthew Effect can be attenuated when instead of giving just one prize to the best we give a first and second prize, three medals, several diplomas for different categories, shared prizes and/or consolation prizes. The effect will thus be weakened, since the benefits will be distributed among the best.

In the economic sphere, authors refer to the dichotomy between a better distribution of wealth and the cultural and social recognition of those who are marginalized. For Fraser and Honneth (2006) there are not two mutually exclusive processes; rather, they are complementary: "redistribution" and the "cultural recognition" of marginalized minorities. Similarly, in the present work we have drawn the distinction between the decision process and the individual perceptual process.

Another way of trying to mitigate the Matthew Effect, so that other people or entities are not consigned to the shadows, is to create structures for local recognition, that is, to encourage the recognition of value in a given geographical area. We find two examples of the search for fairer procedures in the assessment of research quality. On the one hand, the creation of the index of local impact of Spanish social science journals, *In-RECS*, which is the equivalent of the international ISI (Ruiz, R. et al., 2006), and on the other, the quest for other products such as Scopus, Google Scholar, SSCI or Psychinfo, even though ISI is still the worldwide referent. Other indices have been sought, reducing the remit of their application to a thematic area, with a view to being able to assess more objectively the research in a given field. A relevant example is the application of Hirsch's *h* index (Hirsch, 2005) in the field of social psychology (Salgado & Páez, 2007), by countries (Prathap, 2006) or by institutions such as universities, departments or research institutes (Rousseau & Rons, 2008). Another example of the improvement of such indices can be found in Buela-Casal (2003).

As regards the review of scientific articles, the best method for eliminating the Matthew Effect continues to be review by expert peers unaware of the author's identity (Peters & Ceci, 1982), though the procedure should be

improved, since in between 20% and 60% of cases the author's anonymity fails to be maintained (Ross et al., 2006).

In the educational context, giving value to other abilities, beyond mere considerations of subjects and grades (Hargreaves et al. 2001), has led to a reduction in the level of competition related to a single measurement parameter (such as the development of reasoning and memory) and made room for other abilities, values and skills that contribute to the adaptation of all to the knowledge society (Hargreaves, 2003).

There are cases in which, despite an attempt to reduce possible benefits to those with the most, the opposite effect is actually found. For example, in the case of Occupational Training for Employment in Spain, "priority should be given to those without qualifications", but there is actually a high percentage of people with higher education qualifications among such trainees, and whose presence is "increasing slowly and constantly" (Fernández Enguita, 2002). Recent updated data reveals that the percentage of trainees with higher education in 2007 was the same as 5 years earlier, at around 20%, while the proportion of those without qualifications who gain access to such courses was less than 10% (INEM, 2007).

On some occasions those with most possibilities may be benefiting from welfare payments, because they have "the information and the need" (Rodríguez, 2005). In Spain, many welfare benefits are accessible only from a certain financial or economic position (García, 1996), since one has to be above the "poverty line" (Ayala, 1998), below which one receives no such goods and services. The main beneficiaries are the middle classes, and inequalities are not reduced (Goodin & Le Grand, 1987); the welfare state is confined to transferring income between citizens of the same social stratum, and there is no redistribution. Indeed, it could be said that social policy "institutionalizes inequalities" of age and ethnicity and of many other types (Arteaga & Solís, 2001). However, the discussion remains open, since there are authors who argue that a redistribution of wealth does occur (Calero & Costa, 2003). In any case, the alternative to the Matthew Effect, if there is one, would be to focus public spending on the most needy, with the rest finding their place in the market with small benefits graded according to their needs. The undesirable consequences of the Matthew Effect can be remedied through its two components, modifying or diversifying the assessment parameter on the basis of which benefits are obtained.

CONCLUSIONS AND FUTURE PERSPECTIVES

The Matthew Effect is equivalent to other effects found in different areas of psychology and in other sciences, but which use the same principles for explaining their findings. Depending on the context and on the bases on which the different entities are constructed, one of these stands out above the others for the fact of accumulating greater quantities of a given value. These entities or persons are awarded first place, are overvalued within their category, and eclipse the rest. This constitutes the Matthew Effect in its positive sense.

On the other hand, entities (persons or others) who do not have or who have accumulated very little value in a given category are consigned to last place, and are marginalized and/or rejected. In some cases they are even stripped of their material resources (economic or others) or non-material resources (psychological, social).

What might be considered as characteristic of the Matthew Effect as a concept is its scope, since, even though it has been proposed as a purely psychological concept, it has theoretical and practical scientific relevance in a wide range of different contexts, not strictly belonging to the psychology field, but in which it can explain numerous phenomena related to education, economics, social policy, business marketing and other cultural activities.

In participatory contexts such as the academic one we might decide on what types of reward could be chosen to improve control of the Matthew Effect. In other, more competitive spheres, its negative consequences could be avoided. Pyramidal structures ensure maximum objectivity and accuracy of the selected parameter in relation to providing the desired benefits. In contrast, participatory and egalitarian structures facilitate cooperation and reduce negative consequences.

In different contexts and disciplines other than that of psychology, psychological principles are used, in cross-sectional fashion, without considering their deeper meaning. The Matthew Effect can help to explain and control the consequences found in such contexts.

The gnoseological and psychological implications of the Matthew Effect and of how psychology explains them in different areas and in other scientific disciplines will be the object of our analyses in future research.

REFERENCES

- Acevedo, E. B. & Núñez, J. (2008). *Apreciación social de la ciencia en la periferia*. Organización de Estados Iberoamericanos: CTS [Social appreciation of science at the periphery. Organization of Ibero-American States: CTS]. Consulted 12th December 2008 at: <http://www.oei.es/salactsi/acevedonunez.pdf>
- Agudelo, D., Buela-Casal G. & Bretón, J. (2003). Análisis bibliométrico de las revistas de Psicología clínica editadas en castellano [Bibliometric analysis of Clinical Psychology journals published in Spanish]. *Psicothema*, 15(4), 507-516.
- Allport, G. W. (1977). *La naturaleza del prejuicio [The nature of prejudice]*. Buenos Aires: Eudema (Orig. 1954).
- Arteaga, C. & Solís, S. (2001). *La política social en la transición [Social policy in the transition]*. México: Plaza y Valdés.
- Asch, S. (1964). *Psicología social [Social psychology]*. Buenos Aires: Eudema (Orig. 1954).
- Astington, J.W. & Jenkins, J. M. (1999). A longitudinal study of the relation between language and theory-of-mind development. *Developmental Psychology*, 35, 1311-1320.
- Ayala, L. (1998). *Las condiciones de vida de la población pobre en España: informe general del Equipo de Investigación Sociológica [Living conditions of the poor population in Spain: general report of the Sociological Research Team]*. Madrid: Cáritas española.
- Ayala, L. & Sastre, M. (2007). Políticas redistributivas y desigualdad [Redistributive policies and inequality]. *Información Comercial Española, Revista de Economía*, 837, 117-138.
- Baron, R. A. & Byrne, D. (1998). *Psicología Social [Social Psychology]*. New York: Prentice-Hall (Orig. 1977).
- Bernstein, B. (1971). *Class, Codes and Control. Vol. 1: Theoretical studies towards a sociology of language*. London: Routledge & Kegan Paul.
- Blanco, C. (2006). *Migraciones: nuevas movilidades en un mundo en movimiento [Migrations: new mobilities in a world in motion]*. Barcelona: Anthropos.
- Bourdieu, P. (1970). *La reproducción [Reproduction]*. París: Editions du Minint.
- Bruner, J. (1986). *El habla del niño [Speech in children]*. Barcelona: Paidós (Orig. 1983).
- Buela-Casal, G. (2003). Evaluación de la calidad de los artículos y de las revistas científicas: Propuesta del factor de impacto ponderado y de un índice de calidad [Assessment of the quality of articles and scientific journals: Proposal of the weighted impact factor and a

- quality index]. *Psicothema*, 15(1), 23-35.
- Bunge, M. (2001). *El efecto San Mateo*. *Polis, Revista de la Universidad Bolivariana*, 1(2), [online] [*The Matthew Effect. Polis, Journal of the Universidad Bolivariana*]. Consulted 9th September 2008 at: <http://redalyc.uaemex.mx/redalyc/src/inicio/ArtPdfRed.jsp?iCve=30500225>
- Calero, J. & Costa, M. (2003). *Análisis y evaluación del gasto social en España [Analysis and assessment of social welfare spending in Spain]*. Madrid: Fundación Alternativas.
- Carretero, M. & García Madruga, A. (comps.) (1984). *Lecturas de Psicología del Pensamiento [Readings in the Psychology of Thought]*. Madrid: Alianza.
- Carroll, D. W. (2006). *Psicología del lenguaje [Psychology of language]*. Madrid: ITES Paraninfo.
- Cassasus, J. (2003). *La escuela y la (des)igualdad [School and inequality]*. Santiago: LOM ediciones.
- Castells, M. (2006). *La sociedad red: una visión global [The networked society: a global view]*. Madrid: Alianza.
- Coleman, J. (1966). Report on the Equality of Educational Opportunity. Washington DC: US Government Printing Office.
- Cooper, A. (1983). Communication of teacher expectations to students. In J. M. Levine & M. C. Wang (Eds), *Teacher and Student perceptions: Implications for learning*. New York: Lawrence Erlbaum Associates.
- Chomsky, N. (2005). Sobre democracia y educación [*On democracy and education*]. Barcelona: Paidós (Orig. 2003).
- Esparza, N., Rossman, G. (2008). *I like to thank the Academy, Complementary productivity and Social Networks*. California Center for Population Research, working paper CCPR-035-06. Consulted 20th December 2008 at http://ccpr.ucla.edu/asp/ccpr_035_06.asp
- Fernández Ballesteros, R. (1983). *Psicodiagnóstico [Psychodiagnosis]*. Madrid: Pirámide.
- Fernández Cano, A. (1997). Evaluación de la investigación educativa española: Una revisión integrativa de realizaciones en 25 años [Assessment of Spanish educational research: An integrative review of work over 25 years]. *Revista española de pedagogía*. 207, 279-301.
- Fernández-Dols, J. M. (1990). *Patrones para el diseño en psicología social [Patterns for design in social psychology]*. Madrid: Morata.
- Fernández Enguita, M. (2002). *Educación, economía y sociedad en España: los desafíos del trabajo en la era global [Education, economy and society in Spain: the challenges of work in the global era]*. Salamanca: Fundación Santillana.
- Fiske, S. T. & Taylor, S. E. (1984). *Social Cognition*. New York: Random House.
- Fraser, N. & Honneth, A. (2006). *¿Redistribución o reconocimiento?: Un debate político-filosófico [Redistribution or recognition?: A political-philosophical debate]*. Madrid: Morata (Orig. 2003).
- Fuenzalida, D. O., Mongrunt, S. M., Nash, M. & Benavides, J. (2008). Estructura propietaria y rendimientos bursátiles en Suramérica [Proprietary structure and stock market performances in South America]. *Cuadernos de Administración*, 21(35), 11-35.
- Fundación Telefónica (2007). *El uso de las TIC por los ciudadanos [Use of TIC by citizens]*. Barcelona: Ariel.
- García, A. (1996). *La pobreza en España [Poverty in Spain]*. Madrid: Encuentro.
- Garfield, E. (1979). *Citation indexing. Its theory and application in science, technology and humanities*. New York: Wiley.
- Girón, F. J. & Bernardo, J. M. (2007). Las matemáticas de los sistemas electorales [The mathematics of electoral systems]. *Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales*, 1, 21-34.
- Good, T. & Brophy, J. (2003). *Looking in classrooms*. Boston: Allyn & Bacon.
- Goodin, R. E. & Le Grand (1987). *Not only the poor: the middle classes and the welfare state*. London: Allen & Unwin.
- Hargreaves, A., Earl, L., Moore, S. & Manning, S. (2001). *Aprender a cambiar: la enseñanza más allá de las materias y los niveles [Learning to change: teaching beyond subjects and levels]*. Barcelona: Octaedro.
- Hargreaves, A. (2003). *Enseñar en la sociedad del conocimiento [Teaching in the knowledge society]*. Barcelona: Octaedro.
- Hernández, P. (2006). Educación intelectual versus emocional: ¿conflicto, limitación o incompetencia? [Intellectual versus emotional education: conflict, limitation or incompetence?] *Papeles del Psicólogo: revista del Colegio Oficial de Psicólogos*, 27(3), 165-170.
- Hirsch, J. E. (2005). An index to quantify an individual's



- scientific research output. *Proceedings of the National Academy of Sciences of USA*, 102, 16.569-16.572.
- INE (2008). *Estadísticas sobre las actividades en Investigación Científica y Desarrollo Tecnológico [Statistics on activities in Scientific Research and Technological Development]*. Consulted 10th December 2008 at: <http://www.ine.es>
- INEM (2007). *Anuario 2007: Información Jurídica, Empleo, Formación Profesional y Prestaciones por Desempleo [Yearbook 2007: Legal Information, Employment, Professional Training and Unemployment Benefits]*. Madrid: Servicio público de Empleo Estatal.
- Jodrá, P. (1992). *Psicología aplicada al deporte: manual práctico [Applied sports psychology: a practical handbook]*. Madrid: Acción Divulgativa, D. L.
- Kahneman, D. & Tversky, A. (1979). Prospect Theory: An analysis of decisions under risk. *Econometrica*, 47, 263-291.
- Leahey, T. H. (1994). *Historia de la psicología [History of psychology]*. Madrid: Debate (Orig. 1982).
- López Piñero, J. M. & Terrada, M. L. (1992). Los indicadores bibliométricos y la evaluación de la actividad médico-científica (III). Los indicadores de producción, circulación y dispersión, consumo de la información y repercusión [Bibliometric indicators and the assessment of medico-scientific activity (III). Indicators of production, circulation and dispersion, consumption of information and repercussion]. *Medicina Clínica*, 98, 142-148.
- Maltrás, B., Quintanilla, M. A. & Vidal, J. (1998). Indicadores bibliométricos en la evaluación de la investigación [Bibliometric indicators in the assessment of research]. *Revista de Educación*, 315, 141-151.
- Marchesi, Á., Coll, C. & Palacios, J. (2002). *Desarrollo Psicológico y Educación. Vol. III. Trastornos del desarrollo y necesidades educativas especiales [Psychological Development and Education. Vol. III. Developmental disorders and special educational needs]*. Madrid: Alianza.
- Marchesi, Á. & Hernández, C. (2003). *El fracaso escolar. Una perspectiva internacional [School failure. An international perspective]*. Madrid: Alianza.
- Marqués, I. (2008). La educación postobligatoria en España y Andalucía [Further and higher education in Spain and Andalusia]. *Actual*, 31, 1-20.
- Martin, O. (2003). *Sociología de las ciencias [Sociology of the sciences]*. Buenos Aires: Nueva Visión.
- Merton, R. K. (1948). The self-fulfilling prophecy. *Antioch Review*, 8, 193-210.
- Merton, R. K. (1968). The Matthew effect in science. *Science*, 159, 56-63.
- Merton, R. K. (1977). *La sociología de la ciencia [The sociology of science]*. Madrid: Alianza.
- Morales, J. F. & Huici, C. (2003). *Estudios de Psicología Social [Studies in Social Psychology]*. Madrid: UNED.
- Morales, J. F. & Moya, M. C. (1996). *Tratado de psicología social [Treatise on social psychology]*. Madrid: Síntesis.
- Moravcsic, M. J. (1988). The coverage of science in the third world: the Philadelphia program. In L. Egghe & R. Rousseau (ed.). *Informetrics 87/88*. Amsterdam: Elsevier.
- Moya, M. C. & Puertas, S. (2008). Estereotipos, inmigración y trabajo [Stereotypes, immigration and work]. *Papeles del psicólogo*, 29(1), 6-15.
- Mitroff, I. A. (1973). *The subjective side of Science*. Amsterdam: Elsevier.
- Nielsen online (2008). *October U. S. Search share rankings*. New York: The Nielsen company. Recovered 12th November 2008 at www.nielsen-online.com.
- Nisbett, R. & Ross, L. (1980). *Human inference*. New York: Prentice-Hall.
- Núñez, J. (2008). *La ciencia y la tecnología como procesos sociales. Lo que la educación científica no debería olvidar*. Org. de Estados Iberoamericanos: CTS [Science and technology as social processes. What scientific education should not forget. Organization of Ibero-American States: CTS]. Consulted 12th November 2008 at: <http://www.oei.es/salactsi/nunez00.htm>
- Padilla, S. (Coord.) (2007). *El laberinto del lenguaje [The language labyrinth]*. Castilla-La Mancha: UCM.
- Papalia, D. E. & Olds, S. W. (1992). *Psicología del desarrollo [Developmental psychology]*. México: McGraw-Hill.
- Pereda, S. & Berrocal, F. (2001). *Técnicas de gestión de recursos humanos por competencias [Techniques of human resources management by competencies]*. Madrid: Ramón Areces editores.
- Pérez, L. & Beltrán, J. (2006). Dos décadas de Inteligencias Múltiples: implicaciones para la psicología de la educación [Two decades of Multiple Intelligences: implications for the psychology of education]. *Papeles del Psicólogo: revista del Colegio Oficial de Psicólogos*, 27(3), 147-164.
- Pérez-Tamayo, R. (1991). *Ciencia, paciencia y*



- conciencia [Science, patience and conscience]. Madrid: S. XXI.
- Peters, D. & Ceci, S. (1982). Peer-reviewed practices of Psychological Journals: the fate of published articles, cited again. *Behavioral and Brain Sciences*, 5, 187-255.
- Pichardo, M. C., García Berbén, A. B., De la Fuente, J. & Justicia, F. (2007). El estudio de las expectativas en la universidad: análisis de trabajos empíricos y futuras líneas de investigación [The study of expectations at university: analysis of empirical studies and future research lines]. *Revista Electrónica de Investigación Educativa*, 9 (1). Consulted 20th Dec. 2008 at: <http://redie.uabc.mx/vol9no1/contenido-pichardo.html>
- Prathap, G. (2006). Time to publish: The scientific efficiency of nations. *Current Science*, 91, 1438.
- Price, V. (1994). *Opinión pública [Public opinion]*. Buenos Aires: Paidós.
- Qualter, T. H. (1994). *Publicidad y democracia en la sociedad de masas [Advertising and democracy in the mass society]*. Barcelona: Paidós comunicación.
- Quintanilla, I. (1989). *Psicología y Marketing: evaluación de la conducta del consumidor y otras extensiones [Psychology and Marketing: assessment of consumer behaviour and other extensions]*. Valencia: Promolibro.
- Quintanilla, I. & Bonavía, T. (2005). *Psicología y Economía [Psychology and Economy]*. Valencia: U. V.
- Reynolds, M. C. (1989). Children with Special needs. In M. C. Reynolds (Ed.), *Knowledge base for the beginning teacher*. Oxford: Pergamon.
- Ritzer, G. (2002). *Teoría sociológica moderna [Modern sociological theory]*. Madrid: McGraw-Hill (Orig. 1977).
- Robles, F. J. & Caballero, V. (2007). Genealogía y sentido de la Psicología económica [Genealogy and the meaning of Economic Psychology]. *Revista de Historia de la Psicología*, 28(2/3), 173-179.
- Rodríguez, G. (Coord.) (2005). *Las entidades voluntarias de acción social en España [Voluntary bodies for social action in Spain]*. Madrid: Fundación FOESSA.
- Rogers, J. (2008). *El boom de las materias primas [The raw materials boom]*. Barcelona: Valor.
- Rosenthal, R. & Jacobson, L. (1968). *Pygmalion in the classroom*. New York: Holt, Rinehart and Winston.
- Rosenthal R. & Jacobson, L. (1992). *Pygmalion in the Classroom: Teacher Expectation and Pupils' Intellectual Development*. New York: Irvington.
- Rosenthal, R. & Rubin, D. B. (1978). Interpersonal expectancy effects: the first 345 studies. *The Behavioral and Brain Sciences*, 3, 377-415.
- Ross, J. S., Gross, C. P., Desai, M. M., Hong, Y., Grant, A. O., Daniels, S. R., Hachinski, V. C., Gibbons, F. J., Gardner, T. J. & Krumholz, H. M. (2006). Effect of blinded peer review on abstract acceptance. *JAMA*, 295(14) 1675-1680.
- Rousseau, R. & Rons, N. (2008). Another h-type index for institutional evaluation. *Current Science*, 95: 1103.
- Ruiz, R., Delgado, E. & Jiménez, E. (2006). Criterios del Institute for Scientific Information para la selección de revistas científicas. Su aplicación a las revistas españolas: metodología e indicadores [Criteria of the Institute for Scientific Information for the selection of scientific journals. Their application to Spanish journals: methodology and indicators]. *International Journal of Clinical and Health Psychology*, 6(2), 401-424.
- Salgado, F. J. & Moscoso, S. (2008). Selección de personal en la empresa y las administraciones públicas: de la visión tradicional a la visión estratégica [Personnel selection in companies and public administration: from the traditional view to the strategic view]. *Papeles del Psicólogo*, 29(1), 16-24.
- Salgado, F. J. & Páez, D. (2007). La productividad científica y el índice h de Hirsch de la psicología social española: convergencia entre indicadores de productividad y comparación con otras áreas [Scientific productivity and Hirsch's h index of Spanish social psychology: convergence between productivity indicators and comparison with other areas]. *Psicothema*, 19(2), 179-189.
- Santolaya, F., Berdullas, M. & Fernández Hermida, J. R. (2002). La década 1989-1998 en la psicología española: análisis del desarrollo profesional en España [The decade 1989-1998 in Spanish psychology: analysis of professional development in Spain]. *Papeles del psicólogo*, 82, 65-82.
- Schieffbusch, R. (1978). *Bases of language intervention*. Baltimore: U. P. P.
- Schiller, B. R. (2002). *Principios esenciales de Economía [Essential principles of Economics]*. Madrid: MacGraw-Hill.
- Sculley, J. & Byrne, J. A. (1990). *De Pepsi a Apple [From Pepsi to Apple]*. Barcelona: Ediciones B.
- Stanovich, K. E. (1984). The interactive-compensatory



- model of reading: A confluence of developmental, experimental and educational psychology. *Remedial and Special Education*, 5(3), 11-19.
- Sternberg, R. J. (1990). *Más allá del C. I. [Beyond IQ]*. Bilbao: Desclée de Brower (Orig. 1985).
- Sternberg, R. J. (2004). *¿Qué es la inteligencia? [What is intelligence?]*. Madrid: Pirámide (Orig. 1988).
- Storer, N. W. (1966). *The social system of Science*. New York: H. R. and Winston.
- Taagepera, R. & Shugart, M. S. (1989). *Seats and Votes: The effects and determinants of electoral systems*. New Haven: Yale University Press.
- Tort, M. (1981). *El Cociente Intelectual [The Intelligence Quotient]*. Madrid: S. XXI (Orig. 1974).
- Urdániz, J. (2006). Medición de la desproporcionalidad electoral: una crítica a los Mínimos Cuadrados [The measurement of electoral disproportionality: a critique of Squared Minima]. *Revista española de investigaciones sociológicas*, 115, 257-296.
- VVAA (2007). *Informe España 2007: Una interpretación de su realidad social [Spain Report 2007: An interpretation of its social reality]*. Madrid: Fundación Encuentro.
- Vygotsky, L. S. (1973). *Pensamiento y lenguaje [Thought and language]*. Buenos Aires: La Pléyade (Orig. 1934).
- Wang, M. C., Gennari, P. A., Maning, J. & Vaughan, E. D. (2001). *Atención a la diversidad del alumnado [Attention to pupil diversity]*. Madrid: Narcea.
- Woolfolk, A. E. (2003). *Psicología Educativa [Educational Psychology]*. México: Prentice Hall (Orig. 1999).
- Zuckerman, H. (1977). *Scientific Elite. Nobel laureates in the United States*. New York: Free Press.

