



The research method of conceptual frameworks. The case of Pygmalion effect: A leadership style or self-fulfilling prophecy?

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Abstract

Conceptual frameworks are conjectural/hypothetical research tools that are particularly important and widely used in the disciplined inquiry, including educational (technology) research. However, there is a lack of guidance on how to construct them. Hence, the objective of the current research was to provide a methodological perspective through a case study on how to develop such a framework for deductive research with a complex research subject. To this end, a five-step technique was constructed and implemented: text database, research panorama, authors' network and thread, location, and definition. The case of Pygmalion effect was actual and significant as a recent meta-analysis found it to have an outstanding impact, among other leadership interventions, and relevant to educational research as it was first experimented in educational context. The conclusion found the five steps to be intertwined as they were built upon each other, carried the thread forward and opened it up deeper and closer to the research subject by each section. The errors and limitations involved uniqueness, availability, less is more, meaningfulness, approach, and space. Hence, the recommendations were defined as the regard for the complexity of the research subject and the approach to which the defined steps were delegated, the preliminary search on the most up-to-date academic papers on the subject, the only necessary number of collected sources and classes, the sense-making in implementing the steps, and the adaptation to longer essays, theses, or to prepare the foundation of research proposals.

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Recommended citation format: Almadi, S. (2019). The research method of conceptual frameworks. The case of Pygmalion effect: A leadership style or self-fulfilling prophecy?. *Hungarian Educational Research Journal*, 9(3), 487–510. DOI:[10.1556/063.9.2019.3.41](https://doi.org/10.1556/063.9.2019.3.41)

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Keywords: conceptual framework, deductive approach, disciplined inquiry, Pygmalion effect, research method

Introduction

The research methods are the means for obtaining and analyzing data (Saunders, Lewis, & Thornhill, 2016, pp. xiv–74), where the conceptual framework “*is a critically important component of disciplined inquiry*” (Antonenko, 2015, p. 53). Yet, there is a disagreement on its exact definition and use. Bermana and Smythb (2015) highlight that the term “conceptual framework” is sometimes used interchangeably with “theoretical framework,” which I also experienced in the preparation for this article (e.g., Connelly, 2014). Shields and Tajalli (2006, p. 315) neither separate them and cite Kaplan (1964, p. 46) in saying that concepts and theories have a role in inquiry as “*prescriptions for organizing the materials of experience so as to be able to go about our business.*” They regard them as tools to solve problems, while they transform the world. Although the authors see theory to “*conform to the facts and it is a way of looking at the facts,*” they see conceptual frameworks to be “out in the open” and be “still conjectural or hypothetical,” simply to be “not truth,” and rather a “systematic way (still subject to reason) to organize inquiry.”

Similarly, Caffrey (2018) defines the conceptual framework as a research tool applied to “*establish the fundamental structure, focus, and rules of a project*” and as a “*theoretical outline of principles, assumptions, and guidelines that is supported within a broader concept,*” with the aim of examining former research and using existing concepts/theories and strategies to guide this study. It can be viewed “*in terms of the examined theory itself*” or as “*an interconnecting web comprising all elements of the research process*” e.g., goals, contexts, theory, and methods. It can be narratively or graphically prepared. However, narrative frameworks (despite being more common) are more difficult to navigate. Therefore, researchers are suggested to employ imagery like charts and illustrations, or bulleted points, bold, and italicized texts. By employing these, the framework should take into account “*all existing theories, findings, and contexts related to*” a research subject. It is further important that “*researchers review multiple disciplines to properly frame their work,*” which may help to identify research gaps, problems, and biases in the existing literature and the current research plans – which can lead to propositions and new perspectives on the subject.

In most research, “*conceptual framework acts as an argument to explain why the topic being studied matters,*” and as a consequence, it may appear “*in almost any area of theoretical development*” (Caffrey, 2018). However, Bermana and Smythb (2015) found it particularly meaningful in educational and educational technology research. Nevertheless,

Antonenko (2015, p. 54) highlights that “*with the exception of few publications on designing qualitative research, little instructional guidance exists on how to construct a conceptual framework.*”

Therefore, the objective of the current research is to provide a methodological perspective on how to develop a conceptual framework step-by-step through a case study. I choose the Pygmalion effect (PE) as the case based on the attributes of a good research topic (Almadi, 2019): it is actual and significant because among other leadership interventions, it showed the greatest impact on leadership improvement and such organizational outcomes as follower job performance, in a recent meta-analysis (Avolio, Reichard, Hannah, Walumbwa, & Chan, 2009); it is relevant because it was tested successfully first in an educational context (Rosenthal & Jacobson, 1968) and had been widely examined since then; it offers new insights and serves theory or methodology development: it is a complex phenomenon, a self-fulfilling prophecy (SFP), and a leadership style (LS) at the same time.

I determine the aims of the current framework development based on the former characteristics of the conceptual framework and the research subject:

- to be mainly narratively prepared but with imagery;
- to show why the subject under study matters;
- to reveal and interconnect former theories, findings, contexts on the subject;
- to identify research gaps, problems, and biases toward propositions or new perspectives;
- to define the subject and place it into its broader concept;
- to review multiple disciplines to properly frame their work; and
- to gradually narrow the facet (deduction).

Regarding the definition, use, and aim of a conceptual framework, as well as the lack of existing concrete techniques, I borrow narrative ideas from the experts of literature reviews: Jesson (2011), Redman (2011), and Fink (2014), and graphical ideas from Servantie (2010) and Saunders et al. (2016). It also has to be noted that regarding the wide examination and large literature gathered on the subject, a deductive approach has to be undertaken, which refers to the identification of theories and ideas to be tested using data (Saunders et al., 2016).

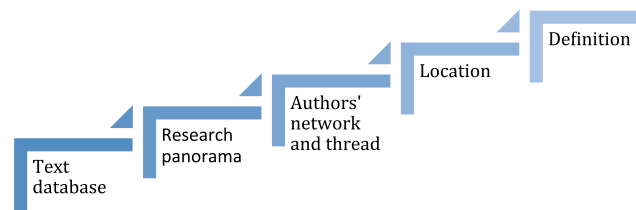


Figure 1. Five steps to develop a conceptual framework

Based on the former considerations, a five-step technique is constructed and implemented:

- (1)–(2) Creating a text database and research panorama.
- (3) Building the authors' network and thread.
- (4) Locating origins and conceptual framework.
- (5) Defining the research subject (Figure 1).

Creation of Text Database and Research Panorama on PE

The creation of text database as the first implemented step for developing the conceptual framework grounds the entire process. It refers to the collection, categorization, and classification of sources on the research subject. That ultimately leads to the research panorama where brief descriptive statistics help to overview the major facts on it. Hence, this process is prevented by the choice on the subject, herein the PE, and its justification.

Creation of text database

The creation of the text database may start with initial peeks, then by targeted electronic and manual search on the keywords. In case, these do not yield enough results; the bibliography of the retrieved sources may lead to the core researchers as well as to more references. For this study, PE, SFP, leadership, expectancy, Galatea effect (GE) as keywords and Eden and Rosenthal as researchers are searched for in BABORD+ and EBSCO (Business Source Premier) databases, the Library of Corvinus University of Budapest, and online bookstores (e.g., SAGE, Routledge, etc.).

The collected sources first need to be cleared from irrelevant materials; then, they need to be categorized and classified. Herein, upon clearing, the text database is composed of 102 sources. The categorization is carried out in Excel where the references of the sources are broken down to the authors' name, the year of publishing, the title of the sources, the publishers' name and the discipline in which they are involved, the volume–number–page, and the type of the sources.

The classification divides the categorized sources into primary or gray and secondary sources. Traditionally, the primary sources are the governmental, academic, business, and industry items in print and electronic format, including reports and conference proceedings, which are not controlled by commercial publishers; whereas the secondary sources are the formally published items such as journals and books, which are controlled by commercial publishers (Saunders et al., 2016). The abstracts of the sources reflected the complexity of the research subject and suggested to add a different meaning to these classes. Therefore, instead of the traditional labeling, the primary sources herein refer to the sources focusing on the research subject, and the secondary sources refer to the sources focusing on its conceptual framework. Hence, the text database is composed of 56 primary and 46 secondary sources. Due to the new principle of classification, these steps were not implemented for useless purposes but to support the development of the conceptual framework (Figure 2).

Research Panorama

The research panorama applies descriptive statistics on the text database that is generated from the tables of categorization and classification. It needs to support the development of the conceptual framework; hence, its scopes are (a) the types of the sources, (b) the authors' range, (c) the years of publishing, (d) the publishers' range, and

Author(s)	Year	Title	Publisher	Discipline	Vol., no., pages	Type
Avolio, B. J., Reichard, R. J., Hannah, S. T., Walumbwa, F., & Chan A.	2009	A meta-analytic review of leadership impact research: Experimental and quasi-experimental studies.	The Leadership Quarterly	Leadership	20: 764-784	Article
Babad, E. Y., Inbar, J., & Rosenthal, R.	1982	Pygmalion, Galatea, and the Golem: Investigations of biased and unbiased teachers.	Journal of Educational Psychology	Psychology	74: 459-474	Article
Baxter, G. D., & Bowers, J. K.	1985	Beyond self-actualization: The persuasion of Pygmalion.	Training and Development Journal	Training and development	39(8): 69-71	Article
Bezuijen, X. M., van den Berg, P. T., van Dam, K., & Thierry, H.	2009	Pygmalion and employee learning: The role of leader behaviors.	Journal of Management	Management	35: 1248-1267	Article
Bezuijen, X. M., van den Berg, P. T., van Dam, K., & Thierry, H.	2009	The Pygmalion effect and employee development: 43.	Academy of Management Proceedings	Human Resource Management	-	Proceeding
Collins, M. H., Hair Jr., J. F., & Rocco, T. S.	2009	The older-worker-younger-supervisor dyad: A test of the reverse Pygmalion effect.	Human Resource Development Quarterly	Human Resource Management	20(1): 21-41	Article
Cooper, H. M.	1979	Pygmalion grows up: A model for teacher expectation communication and performance influence.	Review of Educational Research	Educational Research	49(3): 389-410	Article
Crawford, K. S., Thomas, E. D., & Fink, J. J.	1980	Pygmalion at sea: Improving the work effectiveness of low performers.	Journal of Applied Behavioral Science	Applied Behavioral Science	16: 482-505	Article
Davidson, O. B., & Eden, D.	1997	Golem effects among underprivileged women: Mediating role of leadership, subordinate expectations, and motivation.	Academy of Management, Organizational Behavior Division	Organizational Behavior	-	Conference paper/Poster
Davidson, O. B., & Eden, D.	2000	Remedial self-fulfilling prophecy: Two field experiments to prevent Golem effects among disadvantaged women.	Journal of Applied Psychology	Psychology	85: 386-398	Article

Figure 2. The categorization of classified primary sources

(e) the publishers' involved disciplines. The results are presented in diagrams such as bar charts and a trend line.

Figure 3 identifies seven types of sources, among which the vast majority is either printed book (20) or article that is available in print format as well (75). All the sources are scientific with the exception of Ovid's *Metamorphoses* (Figure 3).

Figure 4 shows the authors' range, so how many researches an author carried out on the subject. The range consists of 88 different authors at the primary and 93 authors at the secondary sources. Eden, D. (18) and Rosenthal, R. (7) carried out the most researches on the subject – the latter author was also involved in its framework, and Locke, E. A. (4) carried out the most on the field that was related to the framework (Figure 4).

Figure 5 shows that the years of publishing range from 8 AD to 2016 at the primary and from 1964 to 2017 at the secondary sources. At the primary sources, the literature mainly grew from 1982, and dropped between 2003 and 2010, after which it grew again. At the

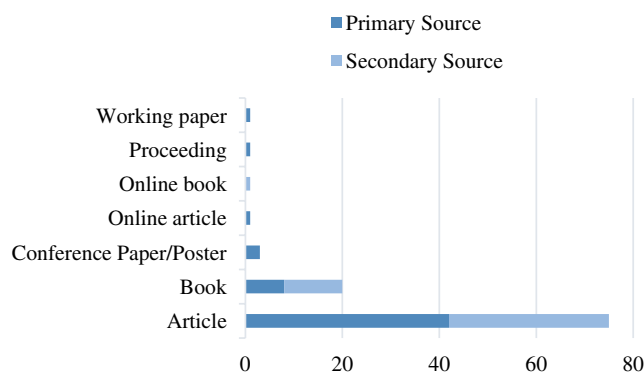


Figure 3. The types of the sources (n)

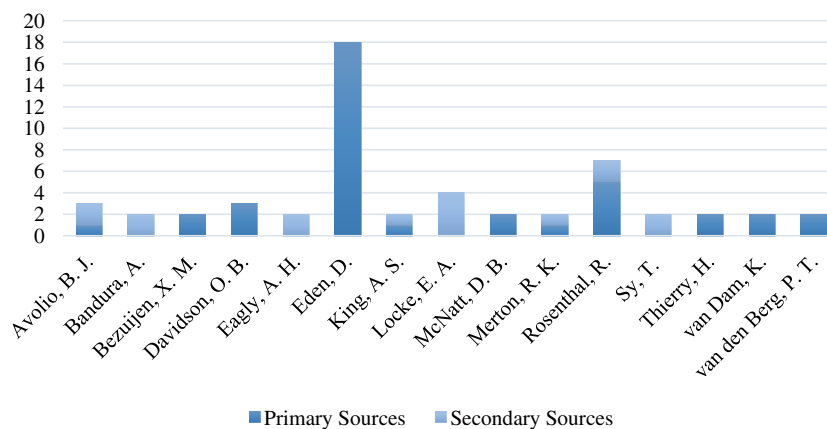


Figure 4. The authors' range (n)

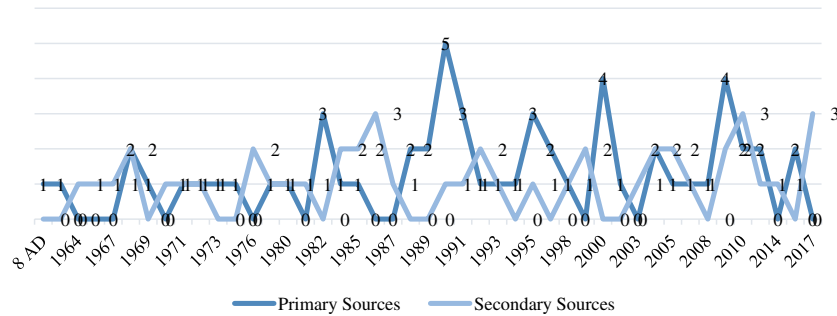


Figure 5. The years of publishing (n)

secondary sources, the collected literature – therefore, not the entire literature on those fields, shows no outlier – mainly ranged between 0–3 sources per year; however, it also shows a little growth from the middle of the 80s (Figure 5).

Figure 6 shows the 63 publishers of the primary and secondary sources, in overall. At the primary sources, the Journal of Applied Psychology (11) and The Leadership Quarterly (5) published the most sources on PE. At the secondary sources, the Psychological Bulletin (4), and the aforementioned two journals published the most (3–3) on the conceptual framework (Figure 6).

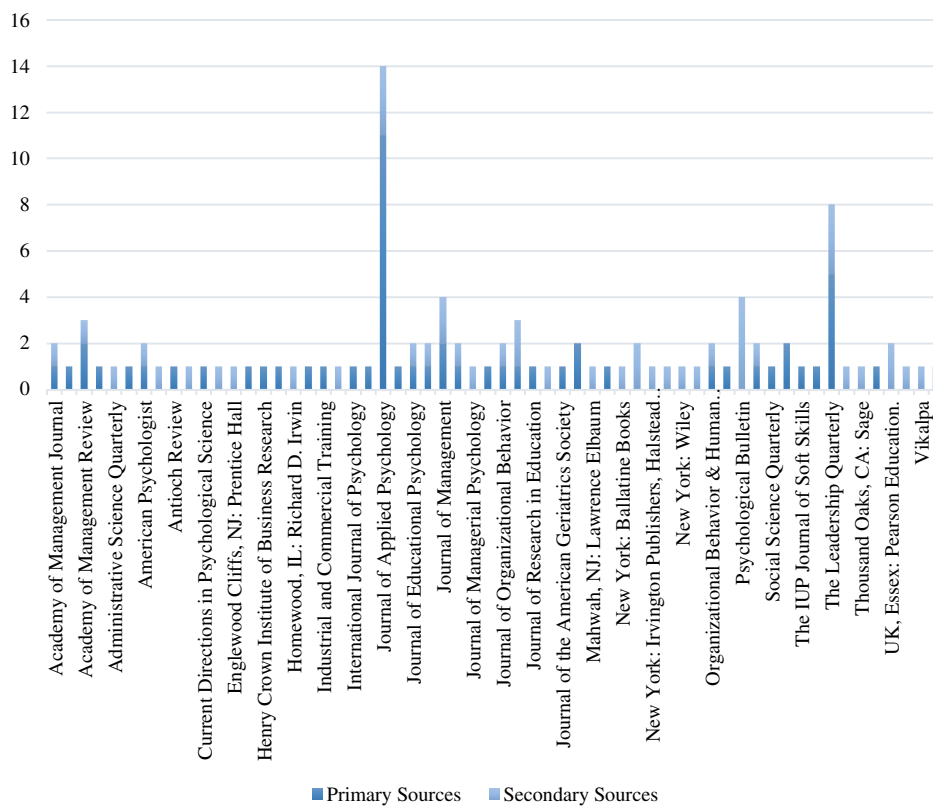


Figure 6. The publishers' range (n)

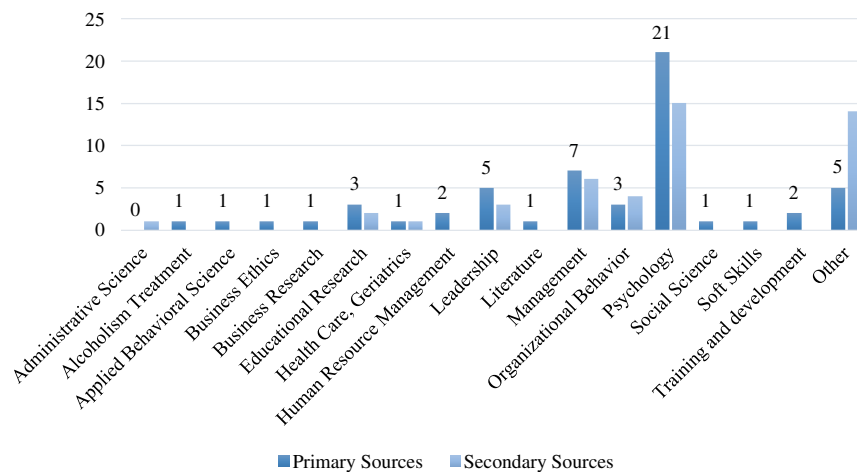


Figure 7. The publishers' involved disciplines (n)

Figure 7 shows the 16 disciplines in which the publishers² were identified after their names. The greatest accumulation appears at psychology, somewhat less at leadership, then management, then organizational behavior (OB) and educational research. The share between the primary and secondary sources are close; hence, they show the same pattern. Therefore, the PE can be found at the intersection of these disciplines (Figure 7).

Building Authors' Network and Thread

Building an authors' network and thread refers to the presentation of main authors and their assumptions, findings, conclusions, or future research suggestions on the research subject in a timely manner. In its logic and figurative presentation, it is somewhat similar to Saunders et al.'s (2016) relevance trees, but those keep themselves to a hierarchy without the necessary intercorrelations among the different headings' subheadings. In contrast, the network does not keep a hierarchy but dedicates itself to following the thread and the emerging patterns among the works. It is based on the findings of the research panorama that herein showed the literature of PE embracing a relatively long timescale (8 AD–2016) by a great number of authors (88). Therefore, the aim of the section is to extract the essence of the literature by emphasizing the most important findings, their linkages, and emerging patterns.

Since it is built up along the results of the panorama, its starting point is located by the graph on the year range. The final network is broken down to subnetworks on eras defined along the intensity or extensity of the research. Herein, three subnetworks are

² That mainly concerns the publishers of academic journals since academic book publishers usually do not contain the name of a discipline in their title.

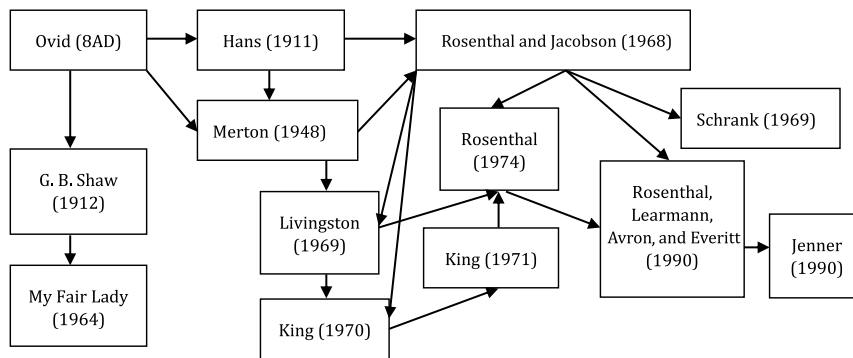


Figure 8. First subnetwork: Origins of Pygmalion effect and the self-fulfilling prophecies

being drawn up: (a) the origins of PE and SFPs, (b) an intense era of experiments on PE, and (c) the latest findings and reflections on PE research.

The first subnetwork (Figure 8) starts with the origins of the research subject (Ovid 8 AD), which influenced literature – G. B. Shaw’s *Pygmalion* Play (1912), later filmed as *My Fair Lady* (1964) – and science–animal–human psychological experiments like the horse, Hans in 1911 (Poornima & Chakraborty, 2010; Rosenthal, 2002). These motivated Merton (1948) to define SFPs, and Rosenthal and Jacobson (1968) to carry out the first confirmed experiment on humans (elementary-school students), the “Pygmalion in the classroom.” Its success launched a series of experiments (Figure 8).

Schrank (1968) successfully tested the PE at USAF Academy Preparatory School, and Livingston established it in management via the example of bank workers – however, his empirical data were not reliable (Eden, 1984). King (1970) tested the PE in industry, which better fits the expectations of a typical work organization than educational contexts; King (1971) continued the tests. His data were reanalyzed by Rosenthal in 1974 and found gender effects among the participants. In 1990, the PE was experimented in rehabilitation non-confirmedly by Jenner, and Rosenthal, Learmann, Avorn and Everitt.

The second subnetwork (Figure 9) follows the experiments in mainly military–navy contexts and by the contribution of Eden. Crawford, Thomas, and Fink (1980) launched the “Pygmalion at sea” project successfully but questioned whether there was gender-effect among the participants (Figure 9).

Then, Eden launched researches. His first successful test in military was with Shani (1982). His own researches were on PE as a managerial tool (1984); expectancy and goal-setting that could induce it (1988); PE’s relation to other SFPs (1992); PE’s relations to productivity, contrast effect, and industrialization (1990b).

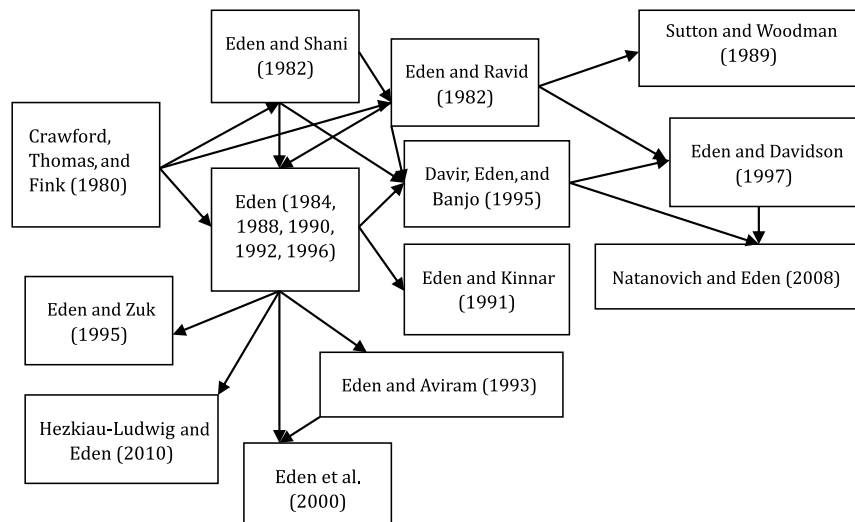


Figure 9. Second subnetwork: An intense era of experiments on Pygmalion effect

Eden's researches with Ravid (1982), and Dvir, Eden, and Banjo (1995) questioned the PE's generalizability toward genders, similarly to Rosenthal's (1974) and Crawford et al.'s (1980). Sutton and Woodman's (1989) also found gender-effect among the participants. Eden and Davidson (1997) in two experiments revealed that the PE could operate with a somewhat weaker result among female participants. Natanovich and Eden (2008) concluded that the PE could be generated without regard for genders.

Eden (1996) defined the Pygmalion Leadership Style (PLS) after his cowork with Aviram (1993) on self-efficacy training to enhance reemployment. In 2000, he and his co-researchers implemented a series of seven experiments for training ability on PLS.

Eden's other cooperations involved Kinnar (1991) with whom he tested the possible increase in volunteering; Eden and Zuk (1995) with whom he tested seasickness and performance at sea, which could be linked to the rehabilitation tests in the first network figure (Jenner, 1990; Learman, Avorn, Everitt, & Rosenthal, 1990); or Hezkiau-Ludwig and Eden (2010) with whom he tested the reversibility of the PE's mechanism.

The third subnetwork grabs the thread of leadership behaviors or styles as studied by Avolio and Bass (1988); Avolio and Gibbons (1988) conducted researches on them. That led Avolio et al. (2009) to carry out a meta-analysis on leadership interventions, which found the PE to have the greatest impact on leadership improvement and organizational outcomes such as follower performance. That inspired Whiteley, Sy, and Johnson (2012) to hypothesize the PE's natural occurrence related to Leaders' Implicit Followership Theories (Figure 10).

The dashed lines identify the emerging patterns in the recent PE researches, even though no evidence was found in the works for a direct relationship among them. McNatt (2000)

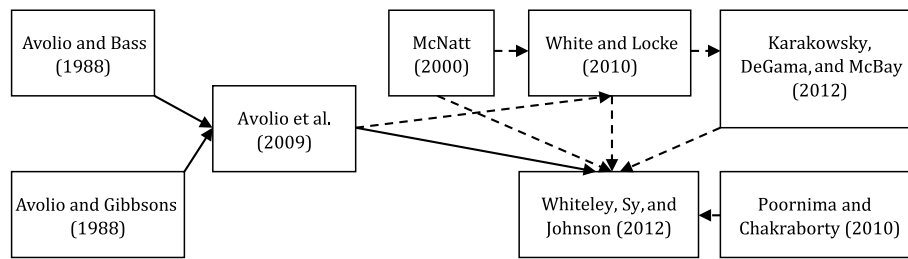


Figure 10. Third subnetwork: The latest findings and reflections on Pygmalion effect

carried out a meta-analysis and proposed more on-going research on PE among adults (vs. adult-children dyads); in for-profit work contexts (vs. military), White and Locke extended that to several practical recommendations. Karakowsky, DeGama, and McBey (2012) criticized mainly the manipulations among other unfavorable experimental conditions. Poornima and Chakraborty (2010) measured the dynamics of PE in an organization without referring to manipulations in the research design.

Overall, the PE has been found mostly in psychological experiments within different work or organizational contexts. The critics concerned the scopes of the experiments (deceptions, atypical work context, and leader-focus) and the limitations of the mechanism (non-generalizability toward genders, older participants and established work-groups, non-trainability, and irreversibility). These critics outline the main research problems and may propose the lately hypothesized naturally occurring PE (Whiteley et al., 2012) to be the new perspective of the future researches.

Locating the Origins and Conceptual Framework of PE

The origins and the conceptual framework of a research subject are located in the authors' network: herein, the PE originates in Ovid's *Metamorphoses* (8 AD) – literary, and in Pfungst' Hans (1911), Merton (1948), and Rosenthal and Jacobson (1968) – scientifically; it is mainly involved in psychological experiments within different work or organizational contexts. These can specify and locate the subject in the conceptual framework of OB, in which the PE has emerged from two concepts: SFPs and LSs. That is supported by the findings of the research panorama, where the PE was mostly quoted by psychology, management, including OB and leadership journals, as well as a little by educational research. By all means, at developing a conceptual framework, that section should receive the most attention and explanation.

Literary and Scientific Origins of PE

The PE originates in Ovid's *Metamorphoses* (first published in 8 AD), where Book X described Pygmalion as a Cypriote prince and/or sculptor, and Galatea as the ivory statue he had carved. As that statue represented the ideal woman for the prince, he made

offerings at Aphrodite's altar, the goddess of love, for a bride who was Galatea's living likeness. The goddess granted the wish, and when Pygmalion kissed the statue, it came to life (Poornima & Chakraborty, 2010).

Scientifically, the PE was first associated with Pfungst's attempt on Clever Hans (1911/1965), which was a question-answer intelligence test set up between the instructor and his horse, when the instructor's mild body language clues assured the horse in stepping on the true answers (Poornima & Chakraborty, 2010; Rosenthal, 2002). Later on, Merton (1948) defined the SFPs, from which the PE emerged as an interpersonal (between persons) expectancy effect, after which the successful tests on the human-animal dyads led Rosenthal and Jacobson (1968) to carry out the first successful experiment on human-human dyads in an elementary school.

These first literary and scientific briefings reveal an initial understanding of PE. There are two participants: a leader or supervisor (such as the prince or the instructor) and a subordinate or follower (such as Galatea, the ivory statue or Hans, and the horse). The leader wanted or expected a certain performance from the subordinate, and to have these expectations come true, he showed a supportive behavior (the prince made offerings for the goddess and kissed the statue, the instructor unwittingly helped with body language clues). The subordinate met the expectations by reaching the expected performance (Galatea became alive and Hans stepped on the true answers).

OB as a Conceptual Framework

The OB is identified as the research subject's conceptual framework from the author's network and the four fields structured along with the publishers in the research panorama. The reason is that it is although sometimes incorrectly simplified as the synonym for management, the latter one has broader facets, and the OB is "*accurately described in the narrower interpretation of providing behavioral approach to management*" (Mullins, 2010, p. 3) – where behavioral refers to the discipline of psychology, its approach, and research methods involved in management. Hence, the OB may be found in the common set of psychology and management – however, OB in general gains from sociology, anthropology, economics, political, and medical sciences (Bauer & Erdogan, 2012; Miner, 2005; Mullins, 2010) or from such research fields as the educational research found in the panorama as well. While leadership, the field also tracked down in the panorama, is a concept within OB.

The OB originates from the mid-20th century at the intellectual home of business schools. As described previously, its exact boundaries are "*somewhat fuzzy*" (Miner, 2005, p. 3); it is also intertwined with organization theory, organization(al) science, and organization studies (Miner, 2005). It is a social science discipline utilizing a scientific method to establish the truth and to validate its theories. It focuses on the organizations: the people's

behavior and nature within organizations, and the behavior and nature of organizations within their environments (Miner, 2005). Its definition is “the systematic study and application of knowledge about how individuals and groups act within the organizations where they work” (Bauer & Erdogan, 2012, p.17).

Bauer and Erdogan (2012) identify three key levels of analysis in the OB: the individual, the group, and the organization; which are further extended to the environment by Mullins (2010). At these levels, different topics are examined (Bauer & Erdogan, 2012; Mullins, 2010): (a) at individual level: individual differences and diversity, perception and communication, attitudes and behavior, work motivation and job satisfaction, management of stress, emotions, conflict, negotiations, and decision-making; (b) at group level: management of groups and teams, leadership, and motivation; (c) at organization level: organizational structure, change and culture, organizational performance and effectiveness, control, power, and politics; (d) at environment level: motivating work environment, corporate responsibility, and ethics. Hence, the PE is examined in relevance to perceptions and leadership at two levels: individual and group.

- (1) Perception can be defined as the process in which individuals detect and interpret environmental stimuli (Bauer & Erdogan, 2012). They do not solely respond to the stimuli in the environment, rather go beyond the information that is present in it. The individuals pay selective attention to some aspects of the environment and ignore other elements that may be immediately apparent to other people. The perception of the environment is not entirely rational and is biased by stereotypes, which are “generalizations based on group characteristics” (Bauer & Erdogan, 2012, p. 133), and often create a situation called SFP.

SFP occurs when people automatically behave as if an established stereotype is accurate, which leads to reactive behavior from the other party that confirms the stereotype. This happens when an established stereotype causes one to behave in a certain way, which leads the other party to behave in a way that makes the stereotype come true (p. 134). The PE is a special case of SFPs (Field, 1989).

- (2) Leadership can be defined as “the act of influencing others to work toward a goal” (Bauer & Erdogan, 2012, p. 562). That influential power is utilized by the leader without force or punishment, whose goals are willingly adopted by the people. Leadership has categories of behaviors, styles, and interventions, which are used incorrectly as synonyms (Anderson & Sun, 2017; Avolio et al., 2009; Bauer & Erdogan, 2012; Eden et al., 2000; Mullins, 2010).

Leadership behavior refers to the kinds of behavior people hold in leadership situations. The LS refers to the way in which the functions of leadership are carried out. The leadership intervention refers to the manipulations of leaders in the experiments, who in

return impact organizational outcomes. The leader involved in PE can be delegated to all these categories.

PE among SFPs

The concept of SFPs was coined by Merton (1948) as “a false definition of the situation evoking a new behavior which makes the originally false conception come true” (Merton, 1968, p. 447). These can involve intrapersonal (happening with/in a person) and interpersonal (between persons) expectancy effects – such as the PE. The interpersonal expectancy effect refers to when a person’s expectation for another person’s behavior comes to serve as a self-fulfilling theory (Rosenthal, 2002). That, in case of PE, refers particularly when a person’s expectations for another person’s performance (unwittingly) induce such a behavior from the expecter, which impacts the expectee’s achievement to meet the original expectation. When the first PE experiment was carried out in the “classroom” (Rosenthal & Jacobson, 1968), there was already a considerable evidence for the existence of interpersonal SFPs [such as Clever Hans (1911/1965), Pavlov’s work on dogs, or Rosenthal’s tests on in 1963], and yet upon the confirmation, “the reactions to Pygmalion were extreme” (Rosenthal, 2002, p. 5).

That first successful experiment was conducted in a California elementary school (Rosenthal & Jacobson, 1968), and was named as “Pygmalion in the classroom.” The teachers’ expectations for their students’ performance were manipulated and increased through deception. They were told that the IQ test took from the beginning of the school year identified certain students as late bloomers, so to be capable of performing better than their counterparts later. Despite not being aware of it, the teachers became more helpful, patient, and supportive toward the “late bloomers” to achieve the desired better results. And by the end of the year, the new IQ test revealed the experimental group (identified as late bloomers) to indeed have higher average scores than the control group (other students), even though, in reality, they were chosen randomly.

A year later, the PE was delegated from psychology to management by Livingston (2003) along its work aspect and later found its place in the OB. Hence, in OB, it refers specifically to the supervisor–subordinate or leader–follower dyads at work, where the increase in the supervisory expectations for the subordinate’s performance improves unwittingly the leadership behavior and the subordinate self-expectations, which finally increases the subordinate’s job performance. It is a positive SFP; hence, it indicates only the improved expectations, leadership behavior, and job performance, which should not be confused with expectations for reward or a better life (Eden, 1990c).

Other SFPs, that are defined and/or measured in relevance to the PE, are the Galatea, Golem, and Metharme effects. GE defines the increased subordinate self-expectations as a

result of PE or direct manipulations on subordinates (Eden, 1990c). Golem effect is the reversed PE when the subordinates underachieve at work as a result of low supervisory expectations (Oz & Eden, 1994). Finally, Metharme effect determines a possible change in group members' behavior targeting the creation of new and energized organizational climate and culture through positive subordinate and high supervisory expectations (Field, 1989).

PE among LSs

The leadership research origins in the 30s, 40s, and 50s of United State's universities, where systematic investigations were conducted. As time progressed, the number of leadership theories and models had dramatically grown. By the end of the 20th century, there were attempts to integrate these into a broader more integrative framework called a "full range theory of leadership" (Avolio, 1999).

In the wide range of leadership research, the borderline between leadership behavior, style and intervention are somewhat blurred (Anderson & Sun, 2017; Avolio et al., 2009; Bauer & Erdogan, 2012; Eden et al., 2000; Mullins, 2010). In a typical typology, leader behaviors are preferably clustered into evident types of LSs. Hence, as the leadership behavior is the kind of behavior people hold in leadership situations, the LS is more the way in which the functions of leadership are carried out. In addition, the leadership intervention is the manipulations of leaders who in return impact specific intermediate process variables or outcomes. Therefore, when the leader's expectations are raised, so manipulated in the PE experiments, it is called a leadership intervention. When the impact of that intervention is manifested in the leader's behavior toward the subordinates, it is called leadership behavior. When the increased subordinate performance is achieved through the set of supportive behaviors, which is a special characteristic of leaders in the PE, it is called PLS (Eden, 1996).

Anderson and Sun (2017) have lately identified 9 + 1 main and several altered LSs. The main types are the charismatic and transformational, transactional, authentic, ethical, initiating structure and consideration, integrative public, spiritual, pragmatic or ideological, shared or distributed, and servant. The altered types, such as empowering, responsible, directive, self-sacrificial, Pygmalion, paternalistic, heroic, despotic, egotistical, altruistic, relational, leadership, and functional, are found unclear whether they indeed describe LSs or they just merely refer to contexts where leadership is required.

The PE emerged from these ambiguous concepts when Eden defined the PLS in 1996 as "a set of behaviors that managers use when they have high performance expectations" (Eden et al., 2000, p. 5). Eden et al. (2000) hypothesized that these leader behaviors conveyed high expectations to subordinates, and aroused high

motivation and intensification of effort, and added that unawareness of leaders possibly played a significant role in a successful PLS. Not surprising that Eden's definition of LS was also questioned by Avolio et al. (2009). Despite that question, their meta-analysis on leadership interventions found the PE to have the largest impact on leadership improvement and organizational outcomes (i.e., follower job performance).

Definition of PE

Although the former section somewhat described the research subject while locating it, the precise definition should be further given. Herein, the PE's mechanism and mediators are being briefly explained, since the scientific theory of PE is grounded by its empirical investigations.

Mechanism of PE: A Model at Work

The mechanism of PE was drawn up by the support of different contexts (e.g. Braun, 1976; Brophy & Good, 1970; Darley & Fazio, 1980), where the "Model at Work" (Eden, 1990a) reveals the mechanism of such experimentally manipulated SFPs at work as PEs and GEs. In the model, the PE appears in the leader-subordinate, and the GE appears in the subordinate self-expectations triangle (Figure 11). Hence, both in Ovid's *Metamorphoses* and in the scientific demonstration, the story of Pygmalion and Galatea is intertwined.

The mechanism is the following: (a) the manipulation of managerial expectations leads to an improvement in leadership behavior, (b) which further leads to higher



Figure 11. A model of the self-fulfilling prophecy at work (Eden, 1990a, p. 70)

subordinate self-expectations. (c) These impact positively the subordinate motivation, where (d) greater efforts are placed into action, which finally lead to a higher level of performance. That achievement impacts (e) managerial expectations and (f) subordinate self-expectations via self-evaluation and attribution. (g) The managerial work facilitation also impacts subordinate performance.

Mediators of PE at Work

The variables³ in the PE mechanism can be delegated into four main categories: independent, dependent, moderator, and mediator variables of expectancy effects. The independent (causal) variable is presumed to cause changes to occur in another variable; the dependent (effect or outcome) variable changes because of another variable (Christensen, Johnson, & Turner, 2015). Moderator variables are preexisting variables, such as sex, age, and personality, which are associated with the magnitude of interpersonal expectancy effects; mediating variables are the behaviors by which expectations are communicated (Rosenthal, 2002).

Herein, the leadership behavior and subordinate self-expectations were identified as the mediators of PE mechanism (White & Locke, 2000), between the managerial expectations as independent, and the subordinate achievement as dependent variables. Leadership behavior transmitted the supervisory expectations, and subordinate self-expectations were the direct result of the leadership behavior (Eden, 1990a).

The leadership behavior in PE operates with unawareness or subconsciousness (Eden et al., 2000); hence, the leaders' actions happen without will or intention (Karakowsky et al., 2012, Kester & Letchworth, 1972; McNatt, 2000; Rosenthal, 1974; Rubovits & Maehr, 1973).

The self-expectations in the model reveal how expectations are central to social situations (Weaver, Moses, & Snyder, 2016), in which not only the managers' but the subordinates' own expectations toward themselves play a crucial role in creating a SFP.

Conclusions

The conceptual framework, as a conjectural/hypothetical research tool, is particularly important in the disciplined inquiry, including educational (technology) research. Herein, the aims of its development were based on the presented characteristics of the conceptual framework and the research subject. Thus, I borrowed narrative and graphical

³ "A characteristic or phenomenon that can vary across or within organisms, situations, or environment" (Christensen et al., 2015).

ideas from experts and I decided to undertake a deductive approach. Finally, I determined five steps:

- (1) The text database collected, categorized, and classified the references, which had been retrieved electronically and manually on the research subject.
- (2) The research panorama provided descriptive statistics on the content of the text database to support the development of the conceptual framework by bar charts and a trend line on the types of sources, authors' range, years of publishing, publishers' range, and involved disciplines.
- (3) The authors' network and thread drew up subnetworks by the main researchers and works on the research subject in a timely manner. These may identify the origins, trends, and emerging patterns in the researches and deduce propositions for future researches or new perspectives from them.
- (4) The location of the origins and the conceptual framework of the research subject were grounded by the former sections, whereas that section was suggested to receive the most attention and explanation among the five steps.
- (5) The definition of the research subject involved its mechanism and mediators, since its scientific theory has been constructed upon its empirical investigations.

In the current case, the text database on PE involved 102 sources in two classes (primary and secondary). Its panorama revealed that the psychology, management, OB, and leadership journals cited it the most and educational research a little. Not surprising that OB was found to be its wider conceptual framework, and LSs and SFPs as its narrower frameworks. Herein, the significance of the research subject also appeared: among other leadership interventions, the PE showed the greatest impact on leadership improvement and such organizational outcomes as follower job performance, in a recent meta-analysis ([Avolio et al., 2009](#)). Its authors' network and thread showed that PE was written in Ovid's *Metamorphoses*, which led to both literary and scientific interests, whereas its emerging patterns revealed critics pushing the research toward a new perspective. The PE's mechanism was explained through "A Model at Work," between manager and subordinate, the mediators were the leadership behavior and the subordinate self-expectations.

Nevertheless, by following these five steps and the case study, still a few errors and limitations a researcher can come across in developing an own conceptual framework, such as the uniqueness, availability, less is more, meaningfulness, approach, and space.

- *Uniqueness* refers to the dimensions of research subjects; some are simpler and some (like PE) are more complex. The dimensions of a subject influence the technique and its demonstrated steps to be implemented. Hence, the case study is suggested to be treated carefully.
- *Availability* should be a question prior to the final decision on the research subject, at deductive researches. A preliminary search should prevent in-depth research, where enough information is gained on the subject. Certainly, that does not exclude the possibility of meeting “dead-end” cases or subjects. To avoid that, the most up-to-date academic papers should be reviewed first.
- The *less is more*, meaning that only the necessary number of sources, should be included; hence, clearing should not be forgotten and only the necessary number of classes should be defined; the traditionally known primary–secondary division is often adequate and no additional classes are needed.
- *Meaningfulness* refers to applying the steps in a way they help sense-making and they reflect the uniqueness of the research subject. Hence, research panorama should show information that carries the thread toward the authors’ network or the location.
- *Approach matters*. The current steps were determined for deductive research, where from thick literature, a narrow-flow could get deeper and closer to the subject. In case of an inductive approach, the conceptual framework should be developed upon the findings of the analysis that are linked to meaningful concepts, and by different steps.
- *Space* refers to that developing such a detailed conceptual framework is recommended mainly for longer essays, master theses, and doctorate dissertations. However, these five steps help to ground any deductive researches, even short essays, conference and student papers. Moreover, they can be applied as a tool for building up rigorous research proposals.

Acknowledgements

No additional acknowledgements were reported by the author and no funding was received to produce this article. There is no conflict of interest.

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Ethics

The study procedures were carried out in accordance with the Declaration of Helsinki. No ethics issues were involved because the study was based on a literature review.

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