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CONCISE HISTORY OF PSYCHOLOGICAL MEASUREMENT INSTRUMENTS

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ABSTRACT: *This paper presents a concise history of psychometrics. It is an important field of Psychology concerned with the psychological measurement. Psychometrics can help, practitioners, students, managers, and other professionals in general, stimulating the reflection on their social and workplace behaviors, in order to deepen their self-awareness and thus provide an opportunity self-learning, behavior changes and development. It encompasses also intelligence, achievement, aptitudes, and the personality traits test. This research addressed the history of such tests, such as social value orientation tests, IQ, 16-PF, Big Five personality traits tests, among others. This literature review is part of my doctoral thesis, and is helpful to managers, practitioners, educators, among others. Discussion and future research recommendations complete the present article.*

KEYWORDS: Psychological Instruments, Psychometrics

INTRODUCTION

The present research investigated the history of the psychometric instruments. It is a concise literature review on the history of Psychometrics. Tests also evolve troughout time. This is the case of the social value orientation tests that evolved significantly troughout time.

This singe case study (Yin, 2009), features an extensive literature review, part of Dias (2016) doctoral thesis.

Psychology is the "systematic study of the behavior and experience" (Kalat, 2011, p. 315). The word comes from Greek psychos meaning "mind" or "soul" and logos meaning "word" (Online Etymology Dictionary, 2015).

Psychometrics is the field of Psychology concerned with the psychological measurement. Psychometrics can help professionals "to reflect on their behaviors, preferences, and styles, and by so doing deepen their self-awareness and thus provide an opportunity for coaches to change or develop their styles" (Passmore, 2012, p.7). It encompasses intelligence, achievement, aptitudes, and the personality traits, among others.

Psychometric tests are very important tools to job recruitment. It facilitates psychological asssessments and helps recruitment decisions.

Achievement is related to the individual's knowledge based on past learning. A*ptitude* is, in opposition, related to the individual's capacity for learning or acquiring a new skill in the future. For instance, if the intelligence is investigated in conjunction with achievement and aptitude, therefore, it is called human ability (Kaplan & Saccuzzo, 2009).

The psychological assessments are standardized measures of a given amount of psychological factors. These attributes on individual behaviors can include personality, career interests, values, motivational needs, and cognitive ability (Passmore, 2012).

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Background: Psychometrics

Psychology and psychometrics are not new studies on human behavior. Early Aristotle's works (384-322 B.C.), questioned the individual behavior. Ancient Greeks mention differences among people, like introversion and extraversion (Kalat, 2011). The most accepted offspring of the Psychology dates back to the nineteenth century, with the research of Wilhelm Wundt (1832-1920), who created the first Psychology laboratory in Leipzig, Germany (Kalat, 2011). Wundt (1874) has studied cultural differences in the behavior, voluntary control, cognitive processes and sensory physiology.

Wundt's student, Edward Titchener (1867-1927), a Psychology professor at University of Cornell, continued Wundt's (1874) research by following the same path. His approach was called Structuralism, or the attempt to make descriptions of figures, textures, feelings, and images. For instance, how an Apple is recognized regarding its colors, texture, aroma, sensation, and so on (Titchener, 1909).

William James (1842-1910), however, is considered the father of the North American Psychology. His main publication, *The Principles of Psychology* (James, 1890) defined many of the trends and questions posed to the modern psychologists (James, 1890). Instead of focusing his research on the mind's structure, or what it *is*, he decided to study what mind truthfully *does* (Kalat, 2011). His approach, called Functionalism, was more concerned with the individual's behavior, such as healthy habits that drive persons into action (James, 1890).

Binet & Simon (1916) studied children's intelligence, and created the Stanford-Binet Intelligence scale, under the name "Intelligence Quotient" (IQ), based on two factors, mental and chronological age. Binet & Simon (1916) investigated judgment, attention, and reasoning.

Another Binet & Simon's (1916) contribution regards the general mental ability. Instead of measuring each aspect of the intelligence, such as reading and mathematical skills, Binet & Simon (1916) decided to study what could be considered the final product of the intelligence, therefore investigating the correlations between the diverse tasks an individual performed.

The British psychologist Charles Spearman (1843-1945), studied in 1904 how the intelligence was correlated with the performance across different tasks, using the psychometric approach, classifying mental ability as *general* and *specific*. He is considered the father of the Psychometry (Kalat, 2011).

According to Spearman (1924), people have several types of intelligence that correlate with each other. For instance, high and long jumping correlate with each other, regarding the same leg muscles. One of Spearman's (1924) major contribution includes the establishment of the factors *g* (general intelligence) and *s* (specific intelligence). He posited that *g* is an underlying factor related to mental energy (Spearman, 1924).

David Wechsler (1896-1981) devised an intelligence assessment instrument, called WAIS-IV - Wechsler Adult Intelligence Scale (Wechsler, 1939).

In 1904, the Russian physiologist Ivan Pavlov (1849-1936), awarded a Nobel Prize due to dogs' digestion studies, started his research on dogs' salivation, or the conditioned responses to stimulus, such as secreting digestive liquids (Pavlov, 1929). The research is known as the classical conditioning or Pavlovian conditioning (Pavlov, 1929). Thus, the Behaviorism is concerned with the observable, and measurable behaviors.

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John Watson (1878-1958) is considered one of the founders of the Behaviorism (Watson, 1913). Psychology, according to Watson (1913), "is a purely an objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior" (Watson, 1913, p.158).

Early twentieth-century, the experiments with animals became very popular. Thorndike (1970) trained some cats in a basement and then investigated the animal's intelligence. For instance, the cat observed had to escape from a puzzle box with a device to open the door. If a pole were pressed in a certain way, the door would open. Based on trial and error, Thorndike (1970) observed that the cat improved its escape. He concluded, based on empirical observation, that the animal behavior once reinforced, increased the cat's chances of success in accomplishing the task gradually. By plotting in a graphic, escape time (*y*-axis) versus the amount of the escape trials (*x*-axis), he developed his cat's learning curve (Thorndike, 1970).

The reinforcement "is the process of increasing the future probability of the most-recent response" (Kalat, 2011, p. 210). Thorndike later summarized his research in the Law of Effect (Thorndike, 1970), which encompassed the notion of the operant conditioning, or the process of the behavior control by reinforcing after a response (Kalat, 2011). The difference between the classical conditioning and the operant conditioning can be distinguished in the following way: while the classical conditioning responses are visceral (e.g. salivation), in the operant conditioning responses are skeletal (movement of the animal body). Thorndike (1970) also observed that a punishment, on the other hand, could decrease the probability of the correct response.

Burrhus Frederic Skinner (1904-1990) investigated the operant conditioning with rats, and then with pigeons. He discovered that punishment produced only some short-term effects in the rat's obedience (Skinner, 1953).

While Thorndike waited for a cat's response, Skinner (1953) trained cats and pigeons to push levers, or peck keys to receive food. In other words, for every correct answer, positive reinforcement was applied (Skinner, 1953). The applications in education became notorious, especially whether the task is less difficult in the experiment's beginning, becoming gradually more complex at the end of it.

The dogs could be trained, for instance, to help blind people based on Skinner's operant conditioning actions (Kalat, 2011; Skinner, 1953).

Differently from Skinner (1953) and Thorndike (1970) who studied animals, the Austrian physician Sigmund Freud (1856-1939), has accomplished his studies in human subjects. Freud (1935), created the terms *id, ego,* and *superego,* inseparable parts of the personality structure, where the *id* consists of instant gratification as a sexual drive, for instance. The *ego* represents the rational aspect of the personality; the *superego* contains all the memories of rules learned in early stages of development. According to Freud, the ego defends itself 'pushing' anxieties to the superego, i.e. the unconscious, as a defense mechanism (Kalat, 2011).

Among Freud's contributions (1935), are the psychosexual stages of the individual's development. For instance, during infancy, the psychosexual energy (called *libido,* the Latin word for "desire" (Online Etymology Dictionary, 2015)), is concentrated in the mouth and called the oral stage. Psychodynamic theory encompassed Freud's observations (Kalat, 2011).

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Carl Gustav Jung (1875-1961), Swiss physician and former Freud's associate, investigated the spiritual meaning of life, and how the collective unconscious, which knowledge on preceding generations influenced the human experience in the present, such as the archetypes, or the images found in the human experience. According to the Jung's psychological type theory (Jung, 1921[1971]), people had preferences, and they could manifest as extrovert or introvert, for example.

Alfred Adler (1870-1937), Jung's colleague and also a former Freud's disciple, investigated the complex of inferiority regarding the public interest, a sense of integration with people and social cooperation, instead of competitive destruction (Adler, 2009).

Carl Rogers (1902-1987), a North American psychologist, studied the self-actualization. Rogers is a humanistic psychologist. According to his observations, human nature is good (Rogers, 1980). Rogers was the first to record psychotherapy sessions for further investigation. Abraham Maslow (1908-1970), also investigated self-actualization and the hierarchy of necessities (Maslow, 1954).

Raymond Cattell (1905-1998) created the 16-PF (Personality Factors) psychological test using factor analysis. Cattell (1966), used in his research, adjectives related to human beings, destined to determine and to measure the personality. Then, he identified 171 terms, reduced later to 36 personality traits, called "surface traits," regrouping in 16 personality factors, called "source traits" (Cattel, 1966). Cattell's (1966) study evolved to the Big Five personality traits: *neuroticism, extraversion, agreeableness, conscientiousness, and openness to new experience* (Cattel, 1966).

Standardized instruments, such as the NEO PI-R (Personality Inventory-Revised), MMPI (Minnesota Multiphasic Personality Inventory), and CPI (California Psychological Inventory) have their roots in the Big Five Personality traits. Others, like the MBTI (Myer-Briggs Type Indicator), are based on Carl Jung's psychological type theory (Jung, 1921[1971]).

Psychological Traits, Environment, And Behavior

Previous studies on the behavior, relate an integral relationship between *nurture* and *nature* (Lewin, 1936 [2013]). Kurt Lewin, the Prussian psychologist, known as the "founder of Social Psychology," coined his theory of group dynamics, derived from the equation, in which a given behavior is directly proportional to a person and the environment that he or she lives:

$$B = f(P,E)$$

The behavior *(B)* is the result from the interaction between the Person *(P)* and the Environment *(E)*. On *Principles of Topological Psychology,* Lewin (1936), who invented the group dynamics to rehabilitate traumatized soldiers after the World War II, described how the environment affected the person: "the environment is closely connected to the state of the person. Fatigue seems to produce an instability not only of the person but also of the psychological environment" (Lewin, 1936, p. 254).

Another significant contribution of Cattell's (1965 [2007]) is related to the behavioral response to personality traits and stimulus. *Personality traits* "tells what a man will do when placed in a given situation" (Cattell, 1965 [2007], p. 25). According to Cattell, the magnitude of a behavioral response (R) varies directly proportional in function with two factors: stimulus (S) and personality (P), or

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$$R = f(S, P)$$

In other words, if a personality trait is known, a behavioral response is known too (Cattell, 1965[2007], p.25). Kassin (2003) defined personal traits as the habitual patterns of behavior, emotion and thoughts.

According to McLelland (1961), a personality trait is a way a person responds to stimuli. It is important to observe that identical stimuli to different personality traits produce distinct behaviors. Therefore, the object of the present research is to investigate the importance of Social Value Orientation as a personality trait. Other examples of personality traits are, not limited to: (a) extraversion; (b) openness to experience; (c) conscientiousness; (d) agreeableness; (e) neuroticism; (f) self-esteem; (g) harm avoidance; (h) novelty seeking; (i) perfectionism; (j) alexithymia, or inability to express emotions; (k) rigidity; (l) impulsivity; (m) disinhibition; (n) psychoticism, or aggressiveness and interpersonal hostility, and (o) obsessionality.

Gordon Allport (1897-1967) was the researcher who gave birth to *Trait or Dispositional Theory*, which identified three types of personal traits, also called dispositions: (a) *cardinal traits*, dominant traits that respond mostly to the individual's behavior; (b) *central traits*, characteristics common to every person, such as honesty/dishonesty, for instance, and (c) *secondary traits*, characteristics found in some special circumstances only, such as a preference for one type of coffee, or a color, for example. He described genotypes as individual's internal forces, and phenotypes as the external forces that drive the personality traits, indicating how an individual retains information and how the external factors influence the individuals, respectively (Allport, 1954).

Allport (1954) also studied prejudice, and his legacy includes the *Allport Scale of Prejudice and Discrimination*, a five-point scale that covers from mocking a determined minority group (scale one) until its extinction (scale five).

The Austrian psychologist Fritz Heider (1896-1988), elaborated the *Attribution Theory*, which emphasizes internal and external attributes, as explanations for success or the failure. While the internal attributions (also known as the dispositional attributions) are restricted to personality traits, such as honesty, the external attributions (also known as the situational attributions), are based on situational events (Heider, 1958).

Some individuals tend to ascribe success to internal, the dispositional factors while the failures are justified by external, situational factors (Ross, 1977). For example, if a student passes in a given exam, then the student will explain that his success is based on his effort, hard work, diligence, ability (internal, the dispositional factor). If the same student fails the exam, then the causes cited by him are difficult or unfair questions (external, situational factor).

The fundamental attribution error is called *correspondence* or *self-serving bias*, occurs when the individuals place emphasis on internal attributions to a given behavior, even when there is clear evidence of the external influence on such behavior (Campbell & Sedikides, 1999; Ross, 1977).

On the other hand, the fundamental attribution errors may be influenced by the culture (Kalat, 2011, p. 468). In other words, the individuals from the different cultures may perceive the same event according to their interpretation of the reality, based on their culture that may be distinct from another culture. Since we are studying the Brazilian culture in the present work,

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attribution theory and the fundamental attribution threw more light on the understanding of perceptions regarding the Brazilian context, when compared to other countries.

Jones & Davis (1965), proposed a psychological theory that investigates actor's inferences and actions for the achievement of a particular objective, called *Corinterviewee Inference Theory*. Table 1 depicts the *Trait or The Dispositional Theory* (Allport, 1961), the Attribution Theory (Heider, 1958) and the Corinterviewee Inference Theory (Jones & Davis, 1965), as follows:

Table 1: Trait (dispositional), Attribution and Correspondent Inference Theories.

Theory	Trait or Dispositional Theory	Attribution Theory	Correspondent Inference Theory
Author(s)	Gordon Allport (1961)	Fritz Heider (1958)	Jones & Davis (1965)
Dispositional approach	Personal Traits: a.cardinal b. central c.secondary	Internal/Dispositional Attributes	Success = internal/dispositional factors
Situational approach	-	External Attributes	Failure = external factors

Adapted from Allport (1961), Heider (1958), Jones & Davis (1965).

Psychometric Approaches

Prior psychological standardized instruments, destined to measure personality traits, include: Rosenberg Self-Esteem Scale, General Self-Efficacy Scale (GSE), Ego-Resiliency Scale, Dispositional Resilience Scale (DRS), Hope Scale, Life Orientation Test-Revised (LOT-R), Satisfaction with Life Scale (SWLS), and the Positive and Negative Affect Schedule (PANAS). Other standardized instruments widespread, include the Metropolitan Achievement Test (MAT), the Standardized Application Test (SAT), used mainly in the North America, the American College Test (ACT), the Graduate Record Examination Aptitude Test (GRE), the Law School Admission Test (LSAT). The ability instruments, such as the Raven Progress Matrix (RPM), the Goodenough-Harris Drawing Test (G-HDT), and the General Aptitude Battery Test (GATB). The ASVAB - Armed Services Vocational Aptitude Battery, was addressed to the military. For the negotiation and conflict management, the Self-reported Inappropriate Negotiation Strategies Scale (SINS), and Thomas-Kilmann Instrument (TKI). Social Value Orientation's measurement instruments include the Triple Dominance Measure (TDM), the Ring Measure (RM), and Social Value Orientation Slider Measure (Kalat, 2011; Murphy, Ackermann & Handgraaf, 2011; Van Lange, Otten, De Bruin & Joireman, 1997; Thomas & Kilmann, 1974; Liebrand &, McClintock, 1988; McClintock and Allison, 1989; Griesinger & Livingstone, 1973).

Psychometric Evolution: Social Value Orientation Tests

Psychometric tests evolve troughout time. This is the case of the Social Value Orientation test, presented in this section.

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Social Value Orientation was influenced by Blake & Mouton's (1964) seminal works, investigating the manager efficacy in the organizational context. Their contribution known as *the managerial grid* examined two major dimensions in that organizations were related to (a) concern for production - performance orientation and (b) concern for people - social orientation (Blake & Mouton, 1964).

Thomas & Kilmann (1974), influenced by Blake & Mouton's (1964) previous studies, investigated both assertiveness and cooperativeness modes of dealing with conflicts, resulting in an instrument called Thomas-Kilmann Instrument (Thomas & Kilmann, 1974) that presents the five conflict management modes or dimensions: (a) accommodating, which is unassertive and cooperative; (b) competing, which is assertiveness and uncooperative; (c) collaborating, which is assertive and cooperative; (d) avoiding, which is unassertive and uncooperative and (e) compromising, which is intermediate in both assertiveness and cooperativeness (Thomas & Kilmann, 1974; Thomas & Gail, 2002). TKI is, therefore, a measurement instrument based on 30 questions with two multiple-choice answers, widely used in negotiation training and commonly used as a psychological assessment tool, dedicated to revealing the bargaining styles (Shell, 2001).

According to Rubin & Brown (1975), conflicts are "a perceived divergence of interest, or a belief that the parties' current aspirations cannot be achieved simultaneously" (p. 4). Recent research has demonstrated trust as an important factor related to conflicting interests, especially when the relationship is interdependent, i.e., each party depends upon the actions of the other party (Balliet & Van Lange, 2013), as follows:

> In situations containing larger amounts of conflict, people think about the other's benevolent motives and condition their cooperation based on those beliefs, but such cognitions become less important for cooperation in situations containing less conflict (Balliet and Van Lange, 2013, p. 2).

Pruitt & Rubin (1986), devised the Dual Concern Model to provide strategies to face dyadic conflicts. The Dual Concern Model has two elements: the concern for one's outcome and the concern for the other side's outcome. Strategies are adopted and therefore, implemented according to the emphasis that the negotiators put on their or the others' outcomes. The past and present researchers drew a great deal of attention in how to encourage the parties, moving from inaction to problem-solving, and promote mutual gains instead of maximization of one or the other player's utility. The Dual Concern Model predicts a party's strategy. Pruitt & Rubin (1986) argued: "for a strategy actually to be adopted, it must also be seen as minimally feasible; if not, another strategy will be chosen, even if it is less consistent with the current combination of concerns" (p. 35).

The Dual Concern Model inspired later works such as the Ring measure (Liebrand & McClintock, 1988; McClintock and Allison, 1989). Also the Triple-dominance measure (Van Lange, Otten, De Bruin & Joireman, 1997). Finally, the Social Value Orientation Slider measure (Murphy, Ackermann & Handgraaf, 2011), for instance.

Slider Measure Test

The notion of self-interest is central to the Rational Choice Theory, in which "people vary in their motivations or goals when evaluating the different resource allocations between themselves and another person" (Murphy, Ackermann & Handgraaf, 2011, p.771). Social Value Orientation is also a

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> Continuous construct, as it corresponds to the quantity of how much a DM is willing to sacrifice to make another DM better off (or perhaps worse off). This quantification of interdependent utilities can best be represented on a continuous scale. (Murphy, Ackermann & Handgraaf, 2011, p.772).

Messick & McClintock (1968) conceptualized Social Value Orientation, presenting the following Social Value Orientation construct, regarding a utility function:

$$U(\pi_s, \pi_o) = a \,.\, \pi_s + b.\, \pi_o$$

Where π_s is the self's outcome, π_o is the other's outcome, a and b are parameters that players weigh their allocations = a, and the others' allocations = b (Messick & McClintock, 1968).

Griesinger & Livingston (1973) conceived the first Social Value Orientation framework, called Social Value Orientation ring (see Figure 1). Thomas & Kilmann (1974) devised the TKI. Rubin & Brown (1975), presented the Dual Concern Model (both separate the negotiators in two dimensions, the self *vs.* the other). De Dreu, Weingart & Kwon (2000) found, after empirical studies that, in fact, there are two independent dimensions. All Social Value Orientation constructs (the Ring Measure, the Triple-Dominance Measure, and lately Social Value Orientation Slider Measure), refer to these two dimensions, the self and the other on a Cartesian *XY* axis (De Dreu, Weingart & Kwon 2000; De Dreu, Beersma, Stroebe, & Euwema, 2006).

An individual's social orientation is known as *prosocial* when the total gains reach 45 degrees upward *x*-axis (cooperation) and *proself* when to reach 45 degrees downward *x*-axis (competition). Social Value Orientation ring also presents altruistic or individualistic choices. Game Theory supports Social Value Orientation ring concept and based on a *decomposed game*, not proper a game (as discussed somewhere else in this work), known as *Dictator Game*, a dyadic game (in which only one player makes moves). One player is the *allocator*. The other player, the *recipient*, is supposed to accept or reject allocator's offer only. In Social Value Orientation case, the *allocator* plays alone, just figuring out a conditional distribution between allocator and recipient.

Ring Measure Test

Liebrand & McClintock (1988) devised the *Ring Measure*, based on the previous studies of Griesinger & Livingston (1973). In this construct, one party (the allocator), has 24 pairs of resource allocations, say money, between the own allocator and the other party (the recipient), this time, an unknown player (in other words, the allocator plays alone, imagining an unknown opponent, the recipient). The outcomes are then grouped in outcomes, to the self on axis *x*, and outcomes to the other on axis *y*, and then converted into angle vector on Social Value Orientation ring, as depicted in Figure 1, as follows:

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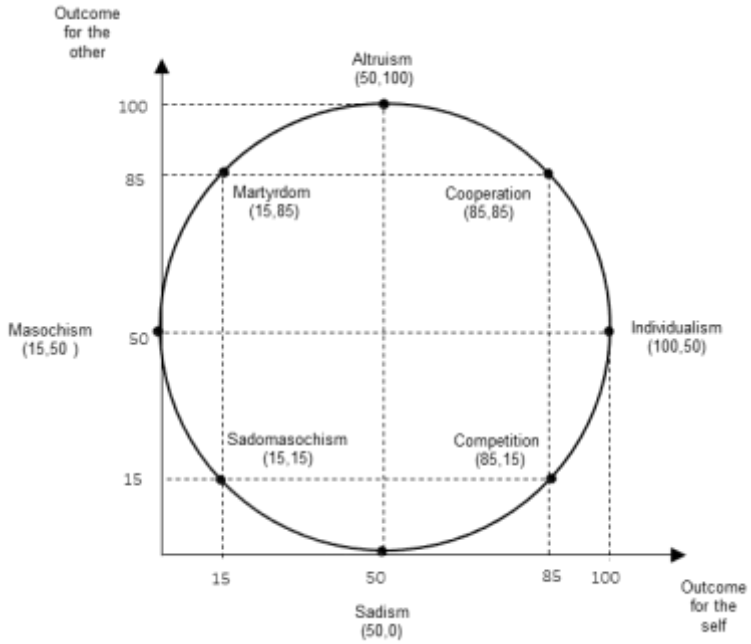

Figure 1. SVO Ring framework. Adapted from Griesinger & Livingston, 1973.

This vector's angle corresponds to a different Social Value Orientation following the equation:

$$\text{SVO Ring } \theta = \arctan (\sum P O / \sum P S)$$

Where ∑PS is the sum of payoffs allocated to the self and ∑PO is the sum of payoffs selected for the other subject. The vector's length from the center of the ring, say, x, y = (0, 0) depicted in Figure 1, indicates the strength and consistency of the decisions made. For instance, a shorter vector means an inconsistent choice. After arranging, tabulating and processing the 24 options, a vector with suitable angle and length comes up. The vector's length evidence the consistency of a subject's choice. The vector's angle indicates the Social Value Orientation measure (Griesinger & Livingston, 1973).

There are eight Social Value Orientation codes possible: (a) altruism (50,100); (b) cooperation, prosocial (85,85); (c) individualism (100,50); (d) competition (85,15); (e) sadism (50,0); (f) sadomasochism (15,15); (g) masochism (0,50) and (h) martyrdom (15,85), as depicted in Figure 1. The choices are supposed to reveal a consistent pattern. The Ring Measure reveals not only social orientations but also pathological orientations, like items (e), (f), (g) and (h), as shown in Figure 1 (Griesinger & Livingston, 1973).

Triple-Dominance Measure

The triple-dominance measure - TDM (Van Lange, Otten, De Bruin & Joireman, 1997), as well as the *Ring Measure* (Liebrand & McClintock, 1988), are based on the decomposed games (Messick & McClintock, 1968).

The triple-dominance measure presents a 9-items-questionnaire, which the subject is allowed to choose one among three alternatives (Van Lange, Otten, De Bruin & Joireman, 1997). There are two options: maximize oneself or mutual gains (Van Lange, Otten, De Bruin & Joireman,

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1997). Therefore, the subject has its value orientation towards (a) cooperative/prosocial (b) altruistic (c) individualistic and (d) competitive/proself (Van Lange, Otten, De Bruin & Joireman, 1997).

a) Cooperative *(prosocial*) orientation: in this case, the allocators try to maximize their gains as well as the other parties' benefits, in a win-win situation. They create value for themselves and the group.

b) Altruistic (*prosocial*) orientation: in this case, the allocators have little, or virtually none concerns for themselves and act exclusively regarding the other's benefit. They are capable of sacrificing their outcomes

c) Individualistic (*proself*) orientation: in this particular case, players seek to maximize their results showing no concern for others, as a win-lose situation.

d) Competitive (*proself*) orientation: in this case, players seek to maximize their utilities and gains. They try to not only improve their outcomes but also attempt to minimize the others' outcomes, as a win-lose situation or like in a zero-sum game. Table 2 shows the archetypal Social Value Orientation (Murphy, Ackermann & Handgraaf, 2011), as follows:

Table 2: The Archetypal Social Value Orientations

Self	Other	Orientation	Inferred motivation	Weight on one's own outcome	Weight on other's outcome
85	85	Prosocial	Maximize the joint payoff or minimize the difference between payoffs	1	1
100	50	Individualistic (i.e., selfish, narrow self-interest)	Maximize the payoff to oneself	1	0
85	15	Competitive	Maximize the positive difference between the payoff for oneself and the payoff for the other	1	-1
50	0	Sadistic	Minimize the other's payoff	0	-1
15	15	Sadomasochistic	Minimize the joint payoff or minimize the difference between payoffs	-1	-1
0	50	Masochistic	Minimize the payoff to oneself	-1	0
15	85	Martyr	Maximize the negative difference between the other's payoff and the payoff for oneself	-1	1
50	100	Altruistic	Maximize the other's payoff	0	1

Source: Murphy, Ackermann and Handgraaf, 2011, p. 17

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Slider Measure Test

Social Value Orientation measurement has drawn a great deal of the researchers' attention in the past few years. Murphy, Ackermann & Handgraaf (2011) devised a continuous scale, rather than using nominal motivational groups. Social Value Orientation slider consists of 15 items, six primary and nine secondary items. In each item, the individuals are supposed to indicate their most preferred allocation *vs.* the other's allocation, regarding nine options. Social Value Orientation slider measure was designed to attain statistical power and meeting psychometric standards. Social Value Orientation Slider measure is presented in a paper version, as well as in a computer-based version. There is evidence that Social Value Orientation Slider Measure is more reliable than the previous Social Value Orientation measurements (Murphy, Ackermann & Handgraaf, 2011). For instance, Social Value Orientation Slider measure's consistency is of 89 %, while the Ring measure is of 68 % and the Triple-dominance measure is of 70 % (Murphy, Ackermann & Handgraaf, 2011).

DISCUSSION

This article addressed the history of the psychometric tests and approaches, presenting Social Value Orientation (SVO) instruments. It is part of Dias (2016) doctoral thesis. Psychometric tests are very helpful to address non-observable situations during an job interview. In this case they are very supportive to provide reliable information to employers. Therefore, this work is helpful to improve future performance on candidates applying for a new job, for instance, aiming at recruitment decisions. Further studies on the evolution of psychological measurement tests are encouraged, as well as the improvement of Social Value Orientation slider measurement tests presented in this work.

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