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EDITORIAL

I-O Psychology in Romania: A Profession Dedicated to Assessment

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In Romania, psychological assessment and industrial-organizational psychology have an interwoven history. The interplay between the two domains continues to shape science and practice of our profession. In this editorial, we dive into the history of psychological assessment and its connection with I-O psychology and take note of the potential future opportunities and pitfalls.

The "Psychotechnical" Age

Following a similar trend to that of other European countries, psychology was introduced in Romania by Eduard Gruber, one of Wundt's students. During the early days, the practice of psychological science boiled down to various forms of psychological and psychotechnical assessments, assessments usually conducted in experimental psychology labs. During the early 1900s, The Romanian Ministry of Labor solicited the establishment of such laboratories in order to determine whether personnel working in various industries were "fit for work" from a psych-physiological standpoint. Naturally, the activities in these laboratories consisted mostly of administering and interpreting psycho-technical assessments. Basically, the practice of psychology during the respective period consisted of administering and interpreting *psychotechnical* assessments. Various industrial organizations, such as Bucharest Tram Society or the Aeronautical Medical Center solicited such incipient forms of psychological assessment in order to determine whether their prospective employees are psycho-physiologically "fit for work". Alongside the psycho-physiological assessments, the psychologist operating within these laboratories used translated versions for renowned measures, such as the Army Alpha.

The earliest publications reflected the deep connection between psychological assessment and the practice of I-O psychology. In 1931 the first scientific journal of psychology, the Romanian Journal of Experimental and Applied Psychology, was published under the supervision of Constantin Radulescu Motru. In 1937 the first issue of Psychotechnics Journal, an outlet dedicated to disseminating knowledge on the development and use of various psycho-physiological assessments in Romanian psychotechnical laboratories. Moreover, some of the first academic handbooks were dedicated to the domain of psychological assessment: Selecting Capacities and Professional Orientation by Ștefănescu-Goangă, in 1928 and Tests for Measuring Mental Functions authored by Ștefănescu-Goangă and Roșca, in 1935.

The "Industrial" Age

The installment of a communist regime in Romania, in the aftermath of World War II brought about significant changes to our

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profession. In line with the communistic *zeiggeist* private enterprises and private ownership were demised. To quickly shape the country and its society according to the New Man ideals, a particularly brutal purge of the Romanian Intelligentsia unfolded during the first decade of communistic rule. The leading figures of our profession, such as Nicolae Mărgineanu or Florian Ștefanescu Goangă were imprisoned, bringing the development of the psychological science to an abrupt halt. In the decades that followed, the communist regime instated a series of bans, limiting the freedom to travel and imposing censorship on publications, effectively severing the ties between Romanian psychologists and scholars from Western Europe or the US. The oppression against our profession peaked during the late '70s when based on the make-believe pretext of psychologists getting involved in the dangerous practice of meditation, the communist regime decided to outlaw psychology as an independent academic discipline. Thus, in less than two decades the scintillating development psychology was not only halted, but the entire profession was now outlawed. This way, the regime that upheld full equality of all members of society, managed to formally abolish the single academic discipline focusing on the understanding and measuring of individual differences. Or did it!?

One of the priorities of the communist regime was to transform the country's agricultural economy into an industrial one. The mammoth industrial plants had to be manned with personnel having extensive experience in agriculture rather than in manipulating complex industrial equipment or handling various production processes within such organizations. Psychological assessments were still needed! This way, although the profession had been disbanded, psychologists continued to administer various tests and inventories, they continued to assess personnel with the aim of preventing work accidents and establishing fitness for work. During an unusual 5-weeks visit in Romania, during 1986, Frank Landy noted that most of the psychological practice consisted in administering measures for personnel selection (Landy, 1986). Moreover, he noted that Romanian psychologists were conducting typical validity research and employing a wide range of psychometric assessments: cognitive abilities (e.g., Raven's APM, mechanical, deductive, numerical or spatial reasoning), personality (e.g., California Psychological Inventory).

Current status

The three decades of state-imposed censorship, isolation and abuse against the profession did not result in a *de facto* dissolution of psychology. Psychology's endurance as a profession was possible mainly because one psychological assessment proved to be an essential contribution to society. This way, Romanian psychologists developed extensive expertise in developing or translating psychometric assessments. Romanian psychologists relied heavily on the practice of using tests to ground various recommendations and opinions.

After the fall of the communist regime, psychology was reinstated, and a long process of reconstruction began. Psychological assessment with a particularly strong focus on personnel selection is still one of the main pillars of Romanian psychology, both in the practitioners' and academic realms. Psychological assessments are legally solicited for a wide range of contexts: obtaining the driving license, obtaining the permit to carry firearms, or for various lines of work (e.g., industry or transportation). There are four independent well established test publishers, some focusing on adapting and localizing flagship psychological measures and others focusing on test development. In the realm of I-O psychology, major players in the domain of psychological assessments have been active in Romania since the late 2000s. The Romanian Board of Psychologists methodological commission approved over 30 different translated or locally developed psychometric assessments. During the past 10 years Romanian researchers were involved in leading international organizations, such as the International Test Commission. There are currently three Romanian psychologists sitting on the European Journal of Psychological Assessment's editorial board, one of them being Editor in Chief.

What lies ahead

That is not to say that currently, Romanian I-O psychology and psychological assessment in particular does not have its fair share of unresolved issues and challenges.

#1: I-O Psychology practitioners are under-represented. The most preeminent and single Romanian I-O psychological association has less that 200 active members while the Romanian Psychologists Board issued several thousands practice licenses for psychologists specializing in work, organizational and services psychology. Most of the practitioners of I-O psychology are not part of an organization who could represent their interests.

#2: There is a methodological disarray in respect to the way in which the legally required psychological assessments are being conducted: psychologists using obsolete measures of concentrated attention as part of the psychological assessment for granting the permit to own firearms is not a rare sight. Furthermore, there are no rigorous standards, best practice documents or guidelines that regulate or at least provide a clear set of directions about how various legally required assessments should be conducted.

#3: There is a lack of publications or other media outlets who could provide news, updates, reports and other type of non-commercial information dedicated to the fundamental practice and science of I-O psychology. Thus, our profession lacks an important communication channel amongst its members as well as a forum for sharing best practices or for discussing about the current or future trends. This further deepens the academic-practitioner gap.

#4: Romanian psychologists, I-O psychologists included, are not involved in any formal government relations, public policy or advocacy initiatives, and, as a consequence psychologists' expertise in the broader area of I-O psychology or in psychological assessment is not harvested by public authorities or policy makers.

#5: There are no professional structures involved in media relations. Consequently, the interest or the common points of view of I-O psychologists and/or experts in psychological assessment seldom get sent across, into the mainstream media. Consequently, our profession is not represented by voices that could share insights, news, updates or, conversely, take a strong position in respect to various issues where psychologists could and should have a saying.

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RESEARCH ARTICLE

Communal narcissism, self-motives, and work effort

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Abstract

Communal narcissists amplify their prosocial traits and consider themselves saintly individuals. However, communal narcissistic self-enhancement can foster or block one's willingness to be actively involved in the workplace or in solving tasks by making a systematic effort. The present study explored the relationship between communal narcissistic features (i.e., present, and future-related thoughts), self-motives (i.e., self-leadership, power-seeking, and desire for fame), and work effort among a convenience sample composed of university students (N = 489). We analyzed three parallel mediation models to assess the indirect effect of communal narcissistic features on work effort via self-motives. Results indicated that communal narcissism positively correlated with self-motives and work effort. Moreover, communal narcissistic and present-future-related thoughts had similar indirect associations with work effort through self-leadership strategies, desire for power, and fame. The relationship between communal narcissistic features, self-motives, and work effort can have important implications for organizations, which were discussed.

Keywords

communal narcissism; leadership; power; fame; work effort

Introduction

Work effort represents a central construct when analyzing various ways to improve organizational outcomes. Also, to attract and retain employees to enhance performance at work, organizations should pay more attention to individual differences. Researchers have defined effort in several ways, which has led to a lack of consistency and clarity regarding the conceptualization of work effort (De Cooman et al., 2009). In their meta-analytic review, Iddekinge, Arnold and Lievens (2022) explained that effort can be understood as a direct outcome of motivation, highlighting three key components of work effort, namely what individuals work on, how hard they work and how long they persist in the task. Work effort "captures the behavioral energy that motivation represents cognitively, which is then translated into an accomplished output" (De Cooman et al., 2011, p. 301-302). Therefore, work effort can be situated between motivation and performance (De Cooman et

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al., 2009). Thus, work effort represents a determinant of future performance because an individual who puts more effort into a job will increase his/her chances of obtaining a good performance. In this paper, we operationalize work effort as the behavioral manifestation of work motivation, considering the effort direction (i.e., what an individual wants to do by choosing a strategy), effort intensity (i.e., how hard an individual works to implement the chosen behavior or strategy) and effort persistence (how long an individual tries to work in order to implement the strategy) (Iddekinge et al., 2022).

The importance of effort as a performance-enabling mechanism could be highlighted in relation to certain aspects related to the personality traits. For example, self-confidence and the trust of being successful can increase narcissistic individuals' effort and improve their performance (Roberts et al., 2019). Empirical support suggests that individuals high in narcissism are workaholics, engaged in their work (Falco et al., 2020), and have a strong desire to be successful at work because they can overtly display their abilities (Clark et al., 2010). Some authors explained that narcissistic individuals are highly motivated to obtain outstanding performance only when self-enhancement opportunities are visible (Wallace & Baumeister, 2002). On the other hand, Sudha & Shahnawaz, (2020) found that narcissism was negatively related to task performance and teamwork dimensions of performance. Thus, the relational pattern between narcissism and work performance can produce inconsistent results due to the dynamic self-regulatory processes and different performance indicators measured.

There has been relatively little research on the underlying mechanisms that can explain the relationship between communal narcissism and work effort. Most previous research on narcissism and work outputs has been concerned with agentic narcissism (Judge LePine & Rich, 2006; Sudha & Shahnawaz, 2020). However, communal narcissism may be more relevant to possible positive benefits resulting from the desire of individuals to self-enhance in communal domains. Although theoretically similar, agentic and communal narcissism enables individuals to self-enhance and hold unrealistically positive self-views, the underlying motivational processes and the functions served through behavior may manifest differently. Some studies have assessed the relationship between narcissism and the willingness of individuals to engage in prosocial behaviors, along with the factors that lead to these motivations (Fatfouta & Schröder-Abé, 2018; Konrath, Ho & Zarins, 2016). For example, Naderi (2018) found that communal narcissists consider pro-environmental actions as communal means that serve their self-directed motives, but when they perceive the actions as a threat to their self-interest, they do not engage anymore in pro-environmental actions. Furthermore, communal narcissistic traits can increase daily life pro-environmental behavior for predominantly egoistic reasons but not for altruistic ones (Kesenheimer & Greitemeyer, 2021). Other results indicated that communal narcissism was unrelated to objective prosociality but was related to higher subjective prosociality (Nehrlich, Gebauer, Sedikides & Schoel, 2019).

This present study contributes to the field by exploring the mechanisms that underlie the relationship between communal narcissism and work effort. Specifically, we want to investigate how self-motives (i.e., self-leadership, power-seeking, and desire for fame) as process variables can mediate the relationship between communal narcissistic characteristics and the effort individuals put into their work. To our knowledge, previous studies have not investigated present and future-related thoughts of communal narcissism and their relationship to work effort. Thus, we sought to expand existing research by analyzing the two-dimensional concept of communal narcissism (i.e., present versus future-oriented thoughts) to the preferences for using specific self-enhancement strategies. Also, following the recommendations of Roberts and Woodman (2017), we wanted to extend the understanding of the effects of other relevant personality traits on work effort, moving beyond the Big 5.

Theory and Hypothesis

Communal narcissism and work effort

The agency-communion model of narcissism (Gebauer, Sedikides, Verplanken & Maio, 2012) postulated that there are two types of grandiose narcissism: agentic and communal. Both forms of narcissism (i.e., agentic, and communal) are based on global, exaggerated self-assessments of their importance, their justification in their relationships with others, and their desire to have power. Agentic narcissists make global self-evaluations to self-enhance their agentic attributes, while communal narcissists hold the same self-evaluations but base them on unduly self-enhancing their communal attributes (see Gebauer & Sedikides, 2018 for review). This less investigated form of narcissism - communal narcissism - is of interest given that it manifests in an exaggerated view of oneself regarding morality, prosociality, kindness, and other aspects of the communal domain. Thus, communal narcissism can be defined as grandiose self-views manifested in the communal domain (Rogoza & Fatfouta, 2019). Communal narcissism "possess the same core self-motives as agentic narcissists (i.e., grandiosity, esteem, entitlement, power), but satisfy these self-motives through communal means" (Gebauer et al., 2012, p. 855). Thus, a typical communal narcissist would consider himself the most helpful, caring and understanding person, an amazing listener who can be extraordinarily trustworthy. Żemojtel-Piotrowska and her colleagues (2016) proposed that self-enhancement tendencies can express grandiose views of the present self or as optimistic, unrealistic fantasies about the future. Their reasoning is based on the fact that in the communal domain, optimistic future views are difficult to accomplish because they are vague and subjective. Therefore, claiming future accomplishments in the communal domain can be much more convenient for communal narcissistic individuals (Żemojtel-Piotrowska et al., 2016).

On the other hand, adopting short-term social motives stimulates narcissistic individuals to function and persist in different social situations (Sheldon, Sedikides, Ntoumanis, Corcoran & Titova, 2020). Starting from the unidimensional measure proposed by Gebauer et al. (2012), Żemojtel-Piotrowska and her colleagues (2016) analyzed communal narcissism through the manifestation of present-focused and future-focused communal self-thoughts. The first dimension (i.e., present-focused communal self-thoughts) refers to the general beliefs about moral superiority and exceptionality compared to others. In contrast, the second one (i.e., future-focused communal self-thoughts) refers to grandiose fantasies about the desire to change the world and the capacity to influence others at a large-scale, highlighting instead the desire for fame and worldwide recognition (Żemojtel-Piotrowska et al., 2016). There are different correlates of present and future communal narcissism, which emphases the empirical need to differentiate both factors in explaining the dynamics of communal narcissists (Martin, Jin, O'Connor & Hughes, 2019). Moreover, depending on the temporal perspective adopted, people differ in the extent to which they feel they own or want to possess status and the extent to which they desire each (Neel, Kenrick, White & Neuberg 2016).

Studies have shown that the performance of narcissistic individuals depends on the self-enhancement opportunity for glory allowed by a particular situation or work task (Roberts et al., 2019; Roberts, Woodman & Sedikides, 2018). For example, Wallace and Baumeister (2002) suggested that people with high levels of narcissism would likely invest more effort in situations where they believe an opportunity for personal glory exists. In this way, the increasing effort and engagement in resolving a task maximizes the chances of gaining desired attention from others and brings social success. Moreover, narcissistic individuals are willing to make a more significant effort when others can identify their performance. Woodman and his colleagues (2011) found evidence that narcissists increase their on-task effort when they are aware that their performance has greater identifiability. While the effects of agentic narcissism on performance in various tasks have been relatively constant (i.e., invest more effort when the opportunity of glory appears or when greater identifiability exists), the mechanisms that favor the involvement and work effort of people with communal narcissistic tendencies are still poorly understood. The relationship between communal narcissism and work effort is likely to be mediated by individual factors such as self-leadership, power seeking or desire for fame. Furthermore, this relationship can be prone to prefer temporal trajectories in which narcissistic people are cognitively anchored (e.g., present, and future communal narcissism-related thoughts).

In addition, as attention-seeking behaviors and celebrity positions have become increasingly promoted and rewarded in society especially in the communal domain (Murphy, 2021), it is useful to determine whether these elements have anything to do with the willingness to really make an effort or it is just an interface that only catches the attention of others. Furthermore, narcissistic tendencies manifested in the stage performance arena are related to self-leadership capacity and power-seeking. Narcissistic individuals use several behavior-focused strategies (e.g., self-goal setting) or constructive patterns of thinking (e.g., visualizing successful performance) in order to maintain an inflated self-view and to influence themselves to actively enhance their narcissistic esteem (Furtner, Rauthmann & Sachse, 2011). The activation of different strategies manifests according to the motivation of narcissistic individuals to get ahead (Sedikides & Campbell, 2017), to emerge as leaders (Brunell et al., 2008), or to climb in formal hierarchies and persistently pursue status (Grapsas, Brummelman, Back & Denissen, 2020). Narcissism predicted higher self-promotion and a greater desire for status and power (Nevicka & Sedikides, 2021), and the interaction between narcissism and power leads to overconfidence (Macenczak, Campbell, Henley & Campbell, 2016). However, narcissistic people can manifest changes in the effort they put in at work or in a certain task if the opportunities for personal glory are more salient (Roberts et al., 2019). The increased motivation to appear socially desirable in order to gain the acceptance of others and the need to achieve power and fame describe the characteristic interpersonal style of individuals with narcissistic tendencies (Raskin, Novacek & Hogan, 1991). Thus, we aim to investigate whether the relationship between communal narcissism and work effort can be explained by self-leadership, desire for fame, and power-seeking.

Self-leadership, narcissism and work effort

People possess internal self-control systems and mechanisms that allow them to engage in self-evaluation processes to manage their activities (Manz, 1986). Self-leadership refers to "a comprehensive self-influence perspective that concerns leading oneself toward performance of naturally motivating tasks as well as managing oneself to do work that must be done but is not naturally motivating" (Manz, 1986, p. 589). Houghton and Neck (2002) proposed that self-leadership skills can be analyzed through the lenses of three general categories, namely behavior-focused strategies, natural reward strategies and constructive thought pattern strategies. According to the authors, behavior-focused strategies (e.g., self-observation, self-goal setting, self-reward, self-correcting feedback, and practice) have the role of increasing individual awareness and involve the management of behaviors for pleasant or unpleasant tasks. Natural reward strategies refer to the individual focusing on enjoyable aspects of a task or activity by changing perceptions or including pleasant features. Constructive thought pattern strategies refer to the individual capacity to identify and change dysfunctional beliefs by using positive self-talk and mental imagery of successful future performance. Furtner and his colleagues (2011) found that narcissism significantly correlates with global self-leadership and its categories, namely self-goal setting, self-observation, natural reward strategies, and constructive thought patterns (i.e., visualizing successful performance and evaluating beliefs and assumptions). Communal domains are frequently promoted in society therefore, they represent a field suitable for narcissistic individuals to show-off and gain social capital. Thus, we expect communal narcissism will be positively correlated with self-leadership, given that communal narcissism manifests itself mainly through socially desirable behaviors in communal domains (e.g., world poverty, charity) and self-leadership is a process through which people influence themselves to obtain the motivation necessary to behave and perform in desirable ways.

Moreover, self-leadership can involve dualistic elements, such as a need to balance the challenge and the routine, the self-development and the relations with others, work and non-work, thus, "leading oneself means keeping a capacity to handle and sustain complementary and potentially conflicting demands (Pina e Cunha, Pacheco, Castanheira & Rego, 2017, p. 484). Hence, individuals characterized by narcissism may face such dualities. For example, narcissistic individuals seek to exploit and manipulate others to self-enhance and maintain their grandiose self-views (Morf & Rhodewalt, 2001). When these possibilities are blocked, they may activate certain self-leadership strategies for the purpose of intrapersonal and interpersonal self-regulation, which may have positive benefits on work outcomes. Several studies revealed positive associations between self-leadership and work-related outcomes (Goldsby, Goldsby, Neck, Neck & Mathews, 2021; Neck & Houghton, 2006; Stewart, Courtright & Manz, 2011). Self-leadership can be applied to improve daily tasks, challenges, and most of professionals' work, therefore, it enhances work effort (Amundsen & Martinsen, 2015). Goldsby and his colleagues (2021) stated that self-leadership manifests when the individual takes ownership of the work's subjective experience. Self-leadership has a positive relationship with work engagement (Knotts & Houghton, 2021), with commitment to the organization and overall work performance (Inam, Ho, Sheikh, Shafqat & Najam, 2021). Therefore, we expect that individuals with high self-leadership traits will put more effort into their work.

Power seeking, narcissism and work effort

The self-enhancement of communal narcissists is driven by the need for power (Gebauer et al., 2012). We previously highlighted that agentic and communal narcissists possess strong motives to validate their self-perceived grandiosity, entitlement, and power but they differ in how they satisfy these needs. Giacomin and Jordan (2015) pointed out the fact that there is a disagreement between Paulhus and John's (1998) model and the agency–communion model of narcissism (Gebauer et al., 2012). In this regard, the first mentioned model postulated that the need for approval enhances communal narcissistic bias, whereas the need for power does not, while the second model suggests that communal narcissists are driven to self-enhance in communal domains by agentic needs, such as the need to validate a sense of power. Furthermore, Giacomin and Jordan (2015) found that validating a sense of power moderated the relationship between communal intentions and self-enhancement tendencies. More specifically, communal narcissistic individuals tend to be more helpful when their sense of power is threatened, but when was validated, they behave less communally. Moreover, need for power and need for autonomy mediated the relationship between narcissism and other variables (Campbell, Foster & Finkel, 2002). Therefore, given that the relational pattern between agentic and communal narcissism with pursuit of power is relatively similar in the aforementioned studies we expect communal narcissism will be positively correlated with power seeking. Further, a sense of power gives individuals the authority to make decisions that they consider important for their performance, leading to higher levels of work engagement (Rana, 2015). Considering that need for power can be a good motivator in developing a greater sense of responsibility and targeting specific goals (McClelland & Burhnam, 2006), power seeking should be positively related to work effort.

Desire for fame, narcissism and work effort

Past research highlighted that people with narcissistic tendencies seek to pursue extrinsic goals, such as fame or status, but not intrinsic goals of relationships and community (Abeyta, Routledge & Sedikides, 2017; Sedikides, Hart, Cisek & Routledge, 2013).

Thus, to enhance their social status and to promote their self-importance and specialness (Sedikides et al., 2013), narcissistic individuals are attracted to external rewards (e.g., material wealth and fame). Greenwood, Long and Dal Cin (2013) suggested that narcissistic individuals seek the recognition and elite status that fame confers and consider that future fame is more realistic. Thus, the interest in fame alongside with increased appeal of visibility and status makes narcissistic individuals to spend more time engaged in fame fantasy (Greenwood et al., 2013). Moreover, fame is associated with social recognition, richness, professional success, and attractive appearance, highly promoted extrinsic goals which people automatically associate with personal happiness (Gountas, Gountas, Reeves & Moran, 2012). Whilst, without a sustained effort and a continuing influx of positive experiences, individual well-being is likely to diminish very early (Sheldon et al., 2010).

Previous research examined the associations between agentic narcissism and fame interest. For example, Southard and Zeigler-Hill (2016) analyzed whether the two forms of pathological narcissism (i.e., grandiose, and vulnerable) are associated with fame interest dimensions. The authors obtained an interesting pattern of results, slightly different from those obtained by Maltby (2010). Grandiose narcissistic individuals desire a celebrity lifestyle, consider that are suitable for celebrity status, intensively crave for fame, but are not actually doing something to become famous (Southard & Zeigler-Hill, 2016). Interestingly, grandiose narcissism was positively associated with the altruistic dimension of fame, while Maltby (2010) did not find a significant association between narcissism and an altruistic desire for fame.

Communal narcissistic individuals get their superiority by exacerbating their prosocial traits, they tend to report being more altruistic, interested in moral values and outraged at unfairness, even though their self-views are not always found in their expressed behavior (Yang et al., 2018). To our knowledge, no research has examined how communal narcissistic features may relate to desire for fame. Starting from the results of the previously mentioned studies, we expected that communal narcissism and its forms (i.e., present, and future related thoughts) will be positively related to desire for fame. Narcissistic individuals are attracted to extrinsic pursuits that can bring them wealth (Abeyta et al., 2008) and are strongly motivated to approach desirable outcomes (Foster & Trimm, 2008). Desire for fame can reflect a view of hard-working (i.e., work hard all day to be famous) (Maltby et al., 2008), so it can represent a force that mobilizes narcissists to put in more effort into their work.

Hypotheses

Drawing on previous empirical research and theoretical arguments, our study investigates the mediating role of self-leadership, power seeking and desire for fame in the relationship between communal narcissism dimensions (i.e., present, and future-related thoughts) and work effort. We expect that communal narcissism dimensions will have a positive effect on work effort through the increase of self-leadership, desire for power and fame. Thus, we hypothesized that:

Hypothesis 1: Communal narcissism will be positively associated with work effort.

Hypothesis 2: Self-leadership, power seeking and desire for fame mediates the relationship between overall communal narcissism and work effort.

Hypothesis 3: Self-leadership, power seeking and desire for fame mediates the relationship between present-focused communal self-thoughts and work effort.

Hypothesis 4: Self-leadership, power seeking and desire for fame mediates the relationship between future-focused communal self-thoughts and work effort.

Method

Participants and procedure

The sample was comprised of 489 participants (*Mage* = 24.38; *SD* = 7.03, range 18 – 65 years) from the North-Eastern part of Romania. From the total sample, 338 were woman (69.1%), most participants were undergraduate students (87.7% bachelor's degree studies and 52,8% enrolled in their third year of study) and were from an urban area (61.1%). Only 195 participants (39.9%) declared that they are presently employed. We used a snowball sampling technique to identify other participants among the personal acquaintances of students. Students were instructed to identify among personal acquaintances at least two people with a minimum age of 18 years and send them a link to an online questionnaire form in exchange for course credits. All the participants received information about the aim of the study (i.e., analysis of the relationships between several individual variables and work behavior), their rights to withdraw from the study any time and were ensured about the confidentiality of their answers. The participants were told that completing the questionnaires does not pose physical risks, psychological or social discomfort and that all the information they will provide is confidential and will be used only to analyze, at the individual level, the relationships between different psychological variables. Also, the participants received information about the average time for completing the questionnaires (approximately 15 min.).

Measures

Communal narcissism. The 16-item Communal Narcissism Inventory (CNI; Gebauer et al., 2012) was used to assess grandiose self-thoughts in the communal domain (e.g., I am going to bring peace and justice to the world). Participants were asked to rate how well each statement described them using a 7-point scale, where 1 - *strongly disagree* and 7- *strongly agree*. We used the bifactor model of CNI proposed by Żemojtel-Piotrowska and her colleagues (2016), and from the total scale items, we calculated two dimensions: Present related thoughts and Future related thoughts. The scale has good reliability with Cronbach's alphas ranged from .79 to .90 (see Table 1).

Self-leadership. Self-leadership was assessed using the Revised Self-Leadership Questionnaire (RSLQ; Houghton & Neck, 2002). The RSLQ includes 35 items grouped in nine sub-scales that represent three primary self-leadership dimensions: 1) Behavior focused (e.g., I establish specific goals for my own performance), 2) Natural reward (e.g., I seek out activities in my work that I enjoy doing) and 3) Constructive thought (e.g., I visualize myself successfully performing a task before I do it). Answers were given on a 5-point Likert scale (between 1 = *totally disagree* and 5 = *totally agree*). The instrument showed good internal reliability (see Table 1).

Power seeking. To measure power seeking we used the Romanian validated version of the International Set of Personality Items (Iliescu, Popa & Dimache, 2015) from Tellegen's Multidimensional Personality Questionnaire (MPQ; Tellegen, 1982 apud Iliescu et al., 2015). Power seeking scale includes 10 items measuring aspects of social potency, such dominance, persuasion or liking to be in charge (e.g., Have a natural talent for influencing people; Can talk others into doing things). Participants were asked to rate how well each statement described them using scales from 1 (*totally disagree*) to 5 (*totally agree*). A total score was calculated to create an index of power seeking and the internal reliability was good (see Table 1).

Desire for fame. Desire for fame was measured using a six-item scale developed by Gountas and his colleagues (2012). The scale comprises common subjects related to desire for fame and perceived benefits of social status (e.g., I would like to be famous celebrity because it would give me a higher social status), power and influence (e.g., I would like to be famous because other people would perceive me as having more power and influence), improved lifestyle, celebrity rivalry, and increased happiness (e.g., If I were famous, I would be happier). Items were rated on a 5-point Likert scale, from 1 (*strongly disagree*) to 5 (*strongly agree*). The scale showed good internal reliability (see Table 1) thus a total score was calculated to create an index of desire for fame.

Work effort. Work effort was assessed using Work Effort Scale (WESC; De Cooman, De Gieter, Pepermans, Jegers & Van Acker, 2009), a short, self-report 10-item scale. The scale captures the field of commonly agreed on aspects of work effort: persistence (e.g., I do not give up quickly when something does not work well), direction (e.g., I do my best to do what is expected of me), and intensity (e.g., I put a lot of energy into the tasks that I commence). The items of the scale refer to different aspects related to the willingness to work in general or to engage in certain tasks and for this reason, where appropriate, we have adapted the items and added the alternative to the workplace or at school. Participants were asked to rate their level of agreement with each statement using scales from 1 (*not at all*) to 7 (*very much*). Items were summed to calculate a work effort index, and the internal reliability was good (see Table 1).

Lastly, several items that tap into different socio-demographics information were addressed, such as age, gender, studies level, residence, and employment status.

Results

Preliminary analyses and associations among the main study variables

Measures related to normality or nonnormality of distributions are under-reported in published literature (Cain et al., 2017). Some authors suggested that "a normal distribution of data cannot be assumed simply on the basis of the robustness of parametric statistics, and that it needs to be checked prior to proceeding with the selected statistical test" (Blanca et al., 2013, p.3). Skewness and kurtosis represent normality measures that should be reported routinely along with other summary statistics (Cain et al., 2017; Hopkins & Weeks, 1990). Because the influence of skewness and kurtosis on statistical tests should be carefully considered, we tested all the variables for normality, considering the range values for Skewness and Kurtosis, namely ± 1 (Lei & Lomax, 2005). Summary statistics for all the variables are presented in Table 1.

Table 1. *Descriptive statistics of the main study variables*

	Alpha	Mean inter-item correlation	*M*	*SD*	Skewness (*SE*)	Kurtosis (*SE*)
Communal narcissism	.90	.37	66.72	14.17	-.04 (.11)	.31 (.22)
CN Present thoughts	.79	.39	30.81	5.66	-.43 (.11)	.50 (.22)
CN Future thoughts	.89	.54	25.22	8.74	.20 (.11)	-.14 (.22)
Self-leadership	.93	.29	87.36	12.88	-.52 (.11)	.68 (.22)
SL Behavior focused	.86	.28	63.41	9.74	-.47 (.11)	.43 (.22)
SL Natural reward	.67	.29	16.16	2.76	-.43 (.11)	.34 (.22)
SL Constructive thought	.89	.40	36.26	6.92	-.69 (.11)	.41 (.22)
Power seeking	.89	.45	33.27	8.32	-.32 (.11)	-.03 (.22)
Desire for fame	.92	.66	17.35	6.62	.02 (.11)	-.88 (.22)
Work effort	.91	.51	30.30	5.11	-.80 (.11)	.83 (.22)

Note. CN = communal narcissism; SL = self-leadership. *N* = 489.

Table 2. *Inter-correlations between study variables*

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Communal Narcissism	-											
2. CN Present thoughts	$.83^{***}$	-										
3. CN Future thoughts	$.86^{***}$	$.49^{***}$	-									
4. Self-leadership	$.46^{***}$	$.41^{***}$	$.38^{***}$	-								
5. SL Behavior focused	$.43^{***}$	$.37^{***}$	$.36^{***}$	$.97^{***}$	-							
6. SL Natural reward	$.46^{***}$	$.45^{***}$	$.33^{***}$	$.61^{***}$	$.49^{***}$	-						
7. SE Constructive thought	$.40^{***}$	$.36^{***}$	$.33^{***}$	$.83^{***}$	$.74^{***}$	$.54^{***}$	-					
8. Power seeking	$.44^{***}$	$.32^{***}$	$.39^{***}$	$.31^{***}$	$.28^{***}$	$.34^{***}$	$.28^{***}$	-				
9. Desire for fame	$.37^{***}$	$.24^{***}$	$.40^{***}$	$.25^{***}$	$.24^{***}$	$.21^{***}$	$.23^{***}$	$.39^{***}$	-			
10. Work effort	$.35^{***}$	$.38^{***}$	$.21^{***}$	$.49^{***}$	$.47^{***}$	$.48^{***}$	$.37^{***}$	$.37^{***}$	$.09^{*}$	-		
11. Age	.04	.07	-.00	-.05	-.04	.01	$-.09^{*}$	.03	$-.11^{*}$	$.11^{*}$	-	
12. Gender	.07	.06	.07	$.12^{**}$	$.14^{**}$	.00	.06	$-.09^{*}$	03	-01	-.02	-

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; $N = 489$; CN = communal narcissism; SL = self-leadership. All gender correlations represent point biserial coefficients (gender was coded with 0 for men and 1 for women).

Zero-order correlations showed that both overall communal narcissistic and its dimensions (i.e., present, and future thoughts) were positively and significantly correlated with self-leadership dimensions, power seeking, desire for fame and work effort. Regarding the socio-demographic variables, age was positively and significantly associated with work effort and negatively correlated with desire for fame. Also, results indicated that women score higher on self-leadership, while men score higher on power seeking (see Table 2).

Furthermore, preliminary analysis of employment status differences indicated that employed participants scored significantly higher on work effort, while unemployed ones scored significantly higher to desire for fame (see Table 3). No significant differences were found between employed and unemployed participants regarding communal narcissism (present and future-related thoughts), self-leadership dimensions and power seeking.

Table 3. *Differences on communal narcissism, self-leadership, power seeking, desire for fame and work effort according to working status*

	Employed (N = 195)	Unemployed (N = 294)	
	M (*SD*)	M (*SD*)	*t*
Communal narcissism	66.91 (13.46)	66.60 (14.64)	-.23
CN Present thoughts	31.02 (5.35)	30.67 (5.86)	-.66
CN Future thoughts	25.09 (8.73)	25.30 (8.76)	.25
Self-leadership	87.08 (13.44)	87.55 (12.52)	.39
SL Behavior focused	63.15 (10.15)	63.58 (9.46)	.47
SL Natural reward	16.42 (2.74)	15.98 (2.76)	-1.72
SL Constructive thought	35.72 (7.53)	36.62 (6.47)	1.36
Power seeking	34.10 (8.12)	32.72 (8.42)	-1.79
Desire for fame	16.61 (6.73)	17.84 (6.51)	2.01^{*}
Work effort	31.61 (4.61)	29.44 (5.25)	-4.68^{***}

Note. $^{*}p<.05$; $^{***}p<.001$; CN = communal narcissism; SL = self-leadership.

Mediation analyses

The resulted pattern of correlations suggested that individuals higher in communal narcissism tend to put more effort into work, meaning the first hypothesis was supported by the data. In addition, the search for power, the components of self-leadership and the desire to have fame determine them to put more effort into work. Thus, we used self-leadership, power seeking and desire for fame as potential mediators of the influence of communal narcissism dimensions on work effort, while controlling for age, gender, and employee status. We decided to control the previously stated variables given their relationship to the outcome variables and the proposed mediators. We performed three mediation analyses using the PROCESS macro (Hayes, 2018) for IBM SPSS to test the hypothesized mediation models. PROCESS uses a nonparametric approach to examine the statistical significance of the mediation effects, through a bootstrap resampling process to generate 95% bootstrap confidence intervals (CI). In estimating 95% CI, 5000 resamples were used and CIs that did not include zero indicated significant mediation.

The first mediation analysis tested the mediation effect of self-leadership, power seeking and desire for fame of the relation between overall communal narcissism and work effort, while controlling for age, gender, and employee status (see Figure 1). Communal narcissism was significantly related to work effort (B = .12; p < .001; 95% CI [.0990, .1580]), indicating that higher communal narcissism was associated with higher work effort. Communal narcissism was significantly related to self-leadership (*B* = .41; *p* < .001; 95% CI [.3448, .4882]) which was significantly related to work effort (*B* = .16; *p* < .001; 95% CI [.1308, .1964]). Communal narcissism significantly predicted power seeking (*B* = .26; *p* < .001; 95% CI [.2227, .3156]), which significantly predicted work effort (*B* = .14; *p* < .001; 95% CI [.0886, .1937]). Finally, communal narcissism was significantly related to desire for fame (*B* = .17; *p* < .001; 95% CI [.1392, .2161]) which was significantly related to work effort (*B* = -.09; *p* < .01; 95% CI [-.1587, -.0326]). After analyzing the indirect effects, self-leadership, power seeking and desire for fame significantly mediated the relationship between communal narcissism and work effort (see Table 4). The direct relation between communal narcissism and work effort became weaker but remained significant. Thus, the second hypothesis was partially supported by the data.

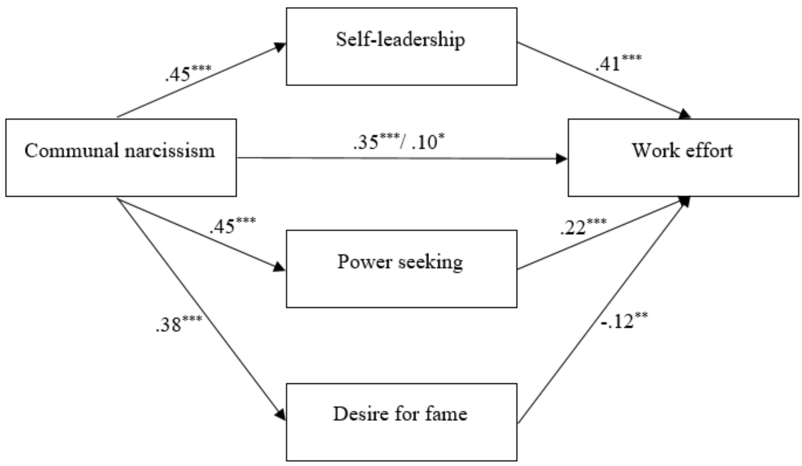

Figure 1. *The mediation paths from communal narcissism to work effort, through self-leadership, power seeking and desire for fame while controlling for age, gender, and employee status.*

Note. Path values represent standardized coefficients. The first effect value between communal narcissism and work effort (the value before the slash) shows the total effect of communal narcissism on work effort, and the second effect value (the value after the slash) shows the direct effect of communal narcissism on work effort, while controlling for mediators. ** $p < .01$; *** $p < .001$

The second mediation analysis tested the mediation effect of self-leadership, power seeking, desire for fame of the relation between the present related thoughts (PRT) dimension of communal narcissism and work effort, while controlling for age, gender, and employee status (see Figure 2). PRT was significantly related to work effort (*B* = .34; *p* < .001; 95% CI [.2721, .4181]), indicating that higher communal narcissistic PRT was associated with higher work effort. PRT was significantly related to self-leadership (*B* = .93; *p* < .001; 95% CI [.7474, 1.1164]) which was significantly related to work effort (*B* = .15; *p* < .001; 95% CI [.1221, .1863]). PRT significantly predicted power seeking (*B* = .48; *p* < .001; 95% CI [.3584, .6060]), which significantly predicted work effort (*B* = .14; *p* < .001; 95% CI [.0896, .1904]). Finally, communal narcissistic PRT was significantly related to desire for fame (*B* = .29; *p* < .001; 95% CI [.1964, .3979]) which was significantly related to work effort (*B* = -.09; *p* < .01; 95% CI [-.1546, -.0322]). After analyzing the indirect effects, self-leadership, power seeking and desire for fame significantly mediated the relationship between communal narcissistic PRT and work effort (see Table 4). The direct relation between communal narcissistic PRT and work effort became weaker but remained significant. The third hypothesis was partially supported by the data.

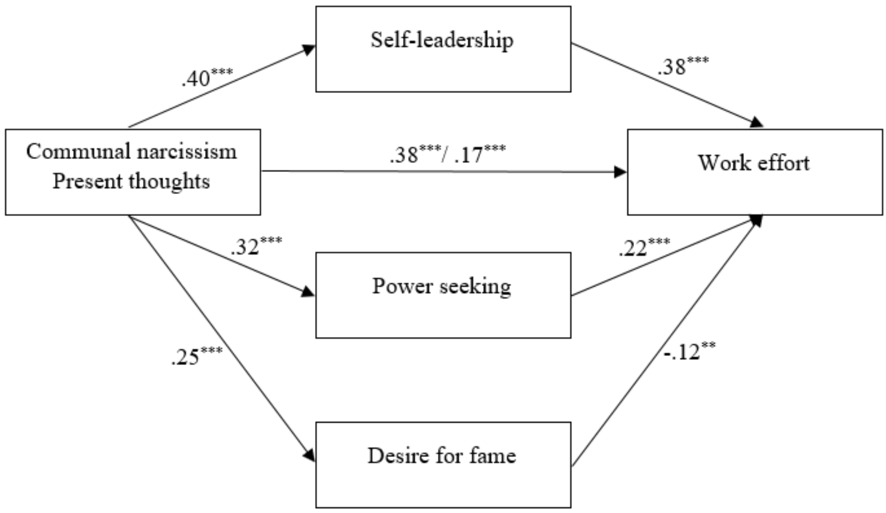

Figure 2. *The mediation paths from communal narcissism PRT to work effort, through self-leadership, power seeking and desire for fame while controlling for age, gender, and employee status.*

Note. Path values represent standardized coefficients. The first effect value between communal narcissism PRT and work effort (the value before the slash) shows the total effect of communal narcissism PRT on work effort, and the second effect value (the value after the slash) shows the direct effect of communal narcissism PRT on work effort, while controlling for mediators. ** $p < .01$; *** $p < .001$

Further, we tested the indirect effects of communal narcissistic future related thoughts (FRT) on work effort through self-leadership, power seeking and desire for fame while controlling for age, gender, and employee status (see Figure 3). The results revealed that communal narcissistic FRT was significantly related to work effort (B = .12; p < .001; 95% CI [.0734, .1734]), indicating that higher communal narcissistic FRT was associated with higher work effort. Communal narcissistic FRT was significantly related to self-leadership (B = .54; p < .001; 95% CI [.4272, .6696]) which was significantly related to work effort (B = .18; p < .001; 95% CI [.1482, .2121]). Communal narcissistic FRT significantly predicted power seeking (B = .38; p < .001; 95% CI [.3104, .4649]), which significantly predicted work effort (B = .16; p < .001; 95% CI [.1117, .2157]). Moreover, communal narcissistic FRT was significantly related to desire for fame (B = .30; p < .001; 95% CI [.2456, .3685]) which was significantly and negative related to work effort (B = -.07; p < .05; 95% CI [-.1384, -.0097]).

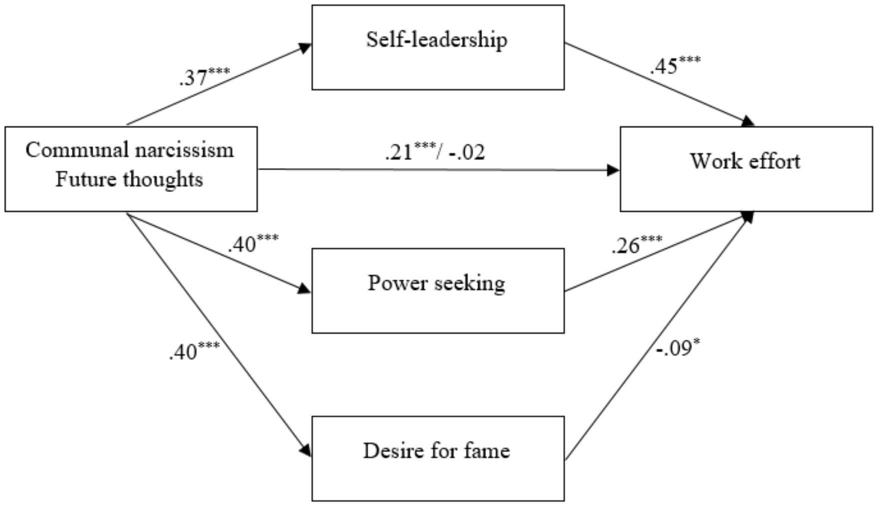

Figure 3. *The mediation paths from communal narcissism FRT to work effort, through self-leadership, power seeking and desire for fame while controlling for age, gender, and employee status.*

Note. Path values represent standardized coefficients. The first effect value between communal narcissism FRT and work effort (the value before the slash) shows the total effect of communal narcissism FRT on work effort, and the second effect value (the value after the slash) shows the direct effect of communal narcissism FRT on work effort, while controlling for mediators. * p < .05; *** p < .001

After analyzing the indirect effects, the 95% bootstrap confidence interval (CIs) for the mediators did not contain the zero value (see Table 4), thus the mediated effect of self-leadership, power seeking and desire for fame was significant. Finally, the direct relation between communal narcissistic FRT and work effort failed to yield the significance level. In conclusion, the fourth hypothesis was partially supported by the data.

Discussion

The aim of this research was to examine the associations (via self-motives) between communal narcissism and work effort. Results indicated that communal narcissism and both forms (i.e., PRT and FRT) are positively related to work effort. Congruent with our hypotheses, both forms of communal narcissism were positively related to self-leadership, power seeking and desire for fame. We tested three separate mediational models to explain the effect of communal narcissism on work effort, through self-motives. The relationship between communal narcissistic PRT and work effort was mediated by self-leadership, power seeking and desire for fame. Also, the relationship between communal narcissistic FRT and work effort was mediated by the self-motives.

The correlational pattern between communal narcissistic types and global self-leadership was relatively similar. Both forms correlated positively with self-leadership strategies, namely behavioral skills, natural reward, and constructive thought patterns. Consistent with previous research (Furtner et al., 2011), our results further evidence that communal narcissists can actively use self-regulation strategies to achieve their goals. For example, by using behavior-focused strategies, individuals identify certain behaviors that can be enhanced or eliminated (Houghton & Neck, 2002). Thus, narcissistic individuals pursue the best sources to gain admiration and when it no longer offers them the desired benefits, they move to another source.

Table 4. *The indirect effects of communal narcissistic dimensions (overall, present, and future related thoughts) on work effort through self-leadership, power seeking and desire for fame while controlling for age, gender, and employee status*

	Communal narcissism				Communal narcissism PRT				Communal narcissism FRT			
			Bias corrected				Bias corrected				Bias corrected	
Mediators	Point estimate	SE	95% lower	95% upper	Point estimate	SE	95% lower	95% upper	Point estimate	SE	95% lower	95% upper
Total	.08	.01	.0629	.1169	.18	.02	.1305	.2389	.13	.02	.0988	.1828
Self-leadership	.06	.01	.0479	.0910	.14	.02	.0995	.1923	.09	.01	.0696	.1323
Power seeking	.03	.00	.0231	.0538	.06	.01	.0388	.1002	.06	.01	.0412	.0893
Desire for fame	-.01	.00	-.0299	-.0058	-.02	.01	-.0508	-.0090	-.02	.01	-.0447	-.0027

Note. PRT = present-related thoughts; FRT = future-related thoughts.

Also, when the search for admiration fails, narcissistic individuals seek elsewhere to satisfy their cravings for grandiosity (Baumeister & Vohs, 2001). This behavior management reinforces desirable outcomes, while protecting individuals from unsuccessful results.

Moreover, communal narcissistic individuals use natural reward strategies (e.g., incorporating pleasant features into certain task or activity). Previous studies suggested that narcissistic individuals are motivated by extrinsic rewards (Abeyta et al., 2017), but sometimes they can experience fluctuations or search for intrinsic goals, depending on the support offered in the social environment (Sedikides, Ntoumanis & Sheldon, 2019). For example, Morf, Weir and Davidov (2000) identified the situations in which narcissistic individuals become intrinsically motivated and engage in activity in the absence of external reinforcement – only when ego goals were made salient, not when provided with mastery-focused goals. Further, communal narcissists used constructive thoughts pattern strategies (e.g., positive self-talks, mental imagery of successful performance). According to the dynamic self-regulatory processing model (Morf & Rhodewalt, 2001), the self-knowledge component plays a central role (cognitive self and valence statement) because it represents the current self-view of the narcissist, manifested through mental representations such appraisals, possible future selves, life ideals and goals. In addition, narcissistic individuals benefit from the use of imagery (Roberts, Callow, Hardy, Woodman & Thomas, 2010) and their positive appraisals of certain competition situations along with their trust in their own capabilities makes them use psychological skills effectively (Roberts, Woodman, Hardy, Davis & Wallace, 2013).

Communal narcissism, power seeking and desire for fame correlated positively, thus, communal narcissistic individuals fantasize about achieving fame and desire to validate their power. Gentile (2011) explained that narcissistic individuals desire for fame it is due to the perceived opportunity to be public evaluated and praised for their performance. Further, grandiose narcissists are attracted to fame appeal (e.g., visibility, status, or access to important places) (Greenwood, McCutcheon, Collisson & Wong, 2018). Moreover, fame allows narcissistic individuals to display socially promoted external markers of success (e.g., material wealth, access to exclusive services, excessive promotion, attractive partners) to receive attention and manifest superiority. Past research provided evidence that celebrities have higher rates of narcissism (Young & Pinsky, 2006), but the mechanism of occurrence has not yet been established - celebrities have high levels of narcissism prior to becoming famous or develop narcissistic tendencies with their career success over time. Thus, "for narcissists, fame represents the ultimate confirmation of their inflated self-views" (Gentile, 2011, p. 404). Furthermore, power over others allows them to engage in favorable situations to improve their social status. These findings are in line with past studies that indicated that grandiose narcissists have a strong need for power and strategically seek status (Giacomin, Battaglini & Rule, 2018; Zeigler-Hill, McCabe, Vrabel, Raby & Cronin, 2018).

The results support the positive influence of communal narcissism on work effort, mediated by different self-motives. Overall communal narcissism is related to self-leadership, power seeking and desire for fame, and all these self-motives mediate its effect on work effort. First, all self-motives mediated the relationship between global communal narcissism, its dimensions (i.e., PRT and FRT) and work effort. Thus, communal narcissistic individuals use self-leadership strategies and have a high desire to obtain power, both making them to invest more effort into work. Desire for fame was a significant mediator and this relational pattern was present in all three mediation models. These results are consistent with previous findings showing that narcissistic individuals manifest fame interest (e.g., want a celebrity lifestyle, consider that are suitable to be famous) but do not actually work to become famous (Southard & Zeigler-Hill, 2016). We can explain this result by the fact that they may consider themselves worthy of fame because they are unique, therefore they do not have to make an effort in this regard. Also, grandiose narcissism was linked with popularity at first sight in previous studies (Back, Schmukle & Egloff, 2010; Leckelt et al., 2020), therefore they "taste" fame for a short time in the social contexts without engaging efforts in this regard.

Narcissism was analyzed in the context of performance (Zhang, Roberts, Woodman & Cooke, 2020), and the results of previous studies indicated that the effort of narcissistic individuals fluctuates depending on the opportunity for glory identified (Roberts et al., 2018). Previous studies highlighted that narcissism was positive associated with work engagement dimensions of vigor and dedication in employees with average levels of workload (Falco et al., 2020) and with enjoyment of work (Andreassen, Ursin, Eriksen & Pallesen, 2012). The key mechanisms that lead narcissists to effortful engage in work play a central role, especially when we are interested in motivating employees. Therefore, narcissistic self-motives can play the role of a catalyst that increase narcissistic work effort. In this paper we highlighted the fact that the desire to fame does not necessarily lead to a higher effort from individuals with narcissistic communal tendencies, but the desire to power does. In addition, the use of various self-leadership strategies, such as selecting the right behaviors and eliminating those that do not bring the desired results and focusing on pleasant aspects of the task, along with a positive thinking pattern, makes communal narcissists to increase their efforts into work.

Congruent with agentic-communal model (Gebauer et al., 2012) we brought evidence to the fact that both forms of narcissism (i.e., agentic, and communal) manifest similar core self-motives (e.g., desire for power and fame) in order to self-enhance and eventually to engage in work. Thus, the need to achieve their goals (e.g., maintaining a grandiose self-esteem, gaining social admiration, taking credit for positive outcomes, demonstrating superiority over others) makes narcissistic individuals to allocate their behavioral and cognitive resources towards specific work contexts. As Campbell and Foster (2007) mentioned, "as long as this system is operating effectively – the skills are available, the strategies are working, and the social environment is cooperative – the narcissist feels good" (p. 122) and we might add that it can also produce workplace positive benefits.

Furthermore, we analyzed the original unifactorial structure of Communal Narcissism Inventory (Gebauer et al., 2012) and the bifactorial model proposed by Żemojtel-Piotrowska et al., (2016). As previous studies in this area are scarce regarding the analysis of the relations between communal narcissism dimensions, self-motives, and work outcomes, we brought evidence related to the two times perspectives of narcissistic thoughts. Our results suggested that present and future-related self-thoughts manifested a similar correlational pattern with work effort. Thus, the present communal self-thoughts manifested through beliefs about general moral superiority in comparison with others, makes communal narcissists to increase their work efforts. Similarly, communal future self-thoughts, beliefs in own capacity to influence other people and fantasizing with world-changing achievements increase the level of work effort made by communal narcissists. In conclusion, the results indicated that self-leadership, power seeking and desire for fame represent a good mechanism that accounts for the impact of communal narcissism on work effort.

Even though we managed to bring evidence on the mediation mechanism of communal narcissism on work effort, our results should be interpreted with care given the limitations of the study. First, the main limitation is related to the use of self-report instruments. Second, even though we used a heterogeneous sample, composed by employed and unemployed participants, future studies should investigate peers' perceptions of communal narcissistic individuals' work effort in organizational contexts using a round robin design. Third, narcissistic individuals tend to self-inflate, thus, it is possible that self-inflation occurred when participants answered to the self-reported measures. Also, future research may seek to investigate deeper the mediating role of the desire for fame in the relationship between communal narcissism and work effort. Access to fame can block individuals from making systematic work effort and this can have implications for individual motivation or performance. Finally, given that most participants were undergraduate students, this may limit the generalizability of our findings.

We need to build a solid foundation of knowledge to understand the influence of narcissism on work outcomes (Campbell et al., 2011). Our results highlight the case in which communal narcissistic individuals can provide positive benefits, such as high work effort. Some authors highlighted the need to rehabilitate personalities considered difficult or malevolent in order to encourage compliance with institutional norms or rules (Fennimore, 2021). Aligning organizational goals with the personal motivations of people with narcissistic tendencies could lead to obvious benefits in terms of engagement in work tasks. On the other hand, it is important to carefully observe employees who seem very cooperative and willing to help because it is possible that they efficiently manage communal impressions. Narcissists seek social job resources to build in organization a social network (i.e., communal behavior) that admire their attributes (i.e., agentic goal) (Roczniewska & Bakker, 2016). Also, when dealing with communal narcissism in organizational context we should reduce the negative consequences of individuals' narcissistic desirable behaviors by promoting a collaborative environment with specific assessment criteria for performance. Highly individualized and competitive work environments can provide a fertile ground for narcissistic people to successfully use their strategies for manipulating and exploiting those around them. On the other hand, if the manifestations of narcissists appear in the communal domain, they could be used with the aim of building efficient work teams, motivated to obtain victories in terms of group tasks.

The results of this study have implications regarding recruitment. Organizations want to hire people who are prosocial, concerned, and attentive to those around them, who offer unconditional support and help to their colleagues. However, communal narcissists present themselves in a socially desirable manner, putting a lot of emphasis on their desire to help the people around them, being at the same time confident in their own strength and showing proof of morality and kindness. Therefore, they could be selected very quickly due to these qualities. However, their work effort may fluctuate depending on their ability to implement self-leadership strategies and to gain power over others, the desire to have fame making them select only those activities they consider opportune for receive glory.

In conclusion, the present study examined whether the relationship between communal narcissistic features and work effort can be partially explained by several self-motives (i.e., self-leadership, power seeking and desire for fame). Our results showed that communal narcissistic PRT and FRT had similar indirect associations with work effort, through self-leadership strategies, desire for power and fame. The mediation models help to clarify the underlying mechanisms between communal narcissism and work effort, highlighting the fact that communal narcissistic individuals possess the same core-self motives as agentic narcissists. The work effort of individuals with communal narcissistic tendencies can lead to prosocial differences and various organizational benefits. Individuals with strong communal motives become more strongly involved in relational aspects in order to cultivate and maintain their socially desirable manifestations.

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RESEARCH ARTICLE

The adaptation and validation of the Techno-Work Engagement Scale (TechnoWES-9) in the case of Romanian employees

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Abstract

The study looks into the validation and analysis of the psychometric properties of the Techno-Work Engagement Scale (TechnoWES-9) in the case of a sample of Romanian employees (N=280). The scale is based on the concept of work engagement and evaluates the well-being generated by the use of technology at the workplace. The tool includes three factors: techno-vigor, techno-dedication, and techno-absorption, each with three items. The factorial structure was verified through confirmatory factor analysis (CFA), and the reliability of the scale was examined from the perspective of its internal consistency. The concurrent validity was performed by associating scales that assess subjective well-being. The CFA supports the tri-factorial structure of the scale. The internal consistency of the total score is excellent. TechnoWES-9 is positively associated with subjective well-being, life satisfaction, and positive affect. None of the dimensions of the scale correlates with negative affect. The study suggests that the Romanian version of TechnoWES-9 is an adequate measure for the assessment of well-being of Romanian employees working in digital technology.

Keywords

techno-work; work engagement; employability; well-being; validation.

Introduction

Most studies that looked into the role of technology at the workplace focused on the employee's negative experiences and on work-related techno-stress (Salanova, 2003; Stich et al., 2017; Imran et al., 2017; La Torre et al., 2019; Visvizi & Daniela, 2019). However, a smaller number of studies shows the association between the use of digital technology and the user's well-being (Dienlin & Johannes, 2020; Bavaresco et al., 2021). In 2019, a first study coined the concept of techno-work engagement with the purpose of filling the gap in the literature on the positive feeling that the employee has when s/he uses technology (digital technology, in particular) at the workplace (Mäkiniemi et al., 2019). The study was completed by the development of an instrument that measures well-being when working with technology: Techno-Work Engagement Scale-9 (TechnoWES-9) (Mäkiniemi et al., 2020).

The concept of techno-work engagement represents this positive experience in the work with technology opposed to the negative experience of techno-stress (Mäkiniemi et al.,

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2020). The concept is based on the established term “work engagement” – a positive state of mind concerning work (Schaufeli et al., 2002; Schaufeli et al., 2006) – and it is similar to the latter: techno-work engagement has three dimensions: techno-vigor (high level of energy when technology is used at the workplace), techno-dedication (enthusiasm and inspiration generated by the work with technology), and techno-absorption (full focus when technology is used at the workplace). Although both concepts mentioned above capture the meaning of well-being at the workplace, work engagement is focused on work in general, while techno-work focuses on digital technology which is used at the workplace (Mäkiniemi et al., 2019).

The scale was validated on samples of employees from various organizations (N=870) and on Finish teachers (N=216) (Mäkiniemi et al., 2020). TechnoWES-9 showed good internal consistency: McDonald ω coefficients are over 0.82 in the case of the three factors and over 0.90 in the case of the total score. The construct validity was assessed by the correlations with the scores obtained from other relevant constructs such as techno-stress and technology-related job resources. TechnoWES-9 and its three scales correlate negatively with the techno-stress scale and the latter’s dimensions: skepticism, fatigue, anxiety and inefficacity, and it makes positive correlations with technology-related job resources (autonomy, social support, self-efficacy, value congruence) (Mäkiniemi et al., 2019).

The rationale for which we proposed to adapt and validate TechnoWES-9 for the Romanian space would be related to the fact that technology is ubiquitous in our lives, and digitalization is a megatrend of contemporary society with a major impact on the way in which people work. A balanced picture of both the negative and positive effects of the intensive digitalization of work on well-being is also needed. And TechnoWES-9 offers us the evaluation of the well-being that results from working with technology. In addition, in Romania there is a shortage of instruments that assess the individuals’ experiences with regard to the relationship with technology at the workplace.

The scale helps to understand the degree of engagement in technology-related work and the positive experiences that technology users have in the work process since technology makes their work easier and helps to increase their performance and productivity. Just like work engagement, techno-work engagement is an inspiring, fulfilling work-related state of mind. Studies have shown that work engagement is associated with happiness (Kameyama et al., 2022), life satisfaction (Mache et al., 2014), and psychological well-being (Rahi, 2022, Radic et al., 2020). Therefore, we assume that techno-work engagement is associated with the general well-being of employees. Moreover, theoretical studies have advanced the relationship between techno work engagement and subjective well-being (Cazan, 2020). On the other hand, research shows that subjective well-being conceived as individual cognitive and affective evaluations of life (Diener, 2000; Seligman, 2018) is positively and significantly influenced by workplace well-being (Horowitz, 2016). Studies on teachers show that well-being at work is correlated with happiness and optimism (Kun & Gadanecz, 2019). Another empirical investigation carried out on technological employees demonstrates the impact of workplace well-being on subjective well-being via flow as the overall feeling that employees feel when they are fully engaged (Chang & Hsu, 2022). This means that a very good or less good job affects subjective well-being. Work satisfaction and work-related affect are considered essential for a successful business and increase employee psychological well-being, including hedonic and affective (DiPietro et al., 2020).

Research hypotheses

Hypothesis 1: Starting from the above-mentioned literature (Mäkiniemi et al., 2019; Mäkiniemi et al., 2020) we hypothesize that the factorial structure of TechnoWES-9 is trifactorial.

Hypothesis 2: Starting from the definition of techno-work and from the purpose of TechnoWES-9, we hypothesize that the scale will correlate positively with subjective well-being, positive affect and life satisfaction, and *it will correlate negatively with negative affect.*

Method

Linguistic adaptation of the TechnoWES-9 into Romanian

The cross-cultural adaptation of the scale was based on the recommendations proposed by Beaton et al. (2000) for self-report scales. Thus, the scale was translated into Romanian independently by two researchers. Then we made a synthesis of the translations and compared the discrepancies. The blind backward translation of the initial versions was made by other two bilingual people, an English teacher and a psychologist who is familiar with the jargon of the domain. The last stage consisted in pre-testing the version of a sample of 30 master students (all are employed in the public and/or private sector), in order to make sure items are clear and comprehensible. The latter were not included in the final sample.

Ethical considerations

The study has been conducted in full accordance with ethical principles, including the World Medical Association Declaration of Helsinki from 1975 as revised in 2013. The study was approved by the responsible body for research ethics of the Polytechnic University of Bucharest (Reg. No. 686/22 02 2022).

Data collection procedure

Between March and April 2022, the participants filled in an online survey with a Google Forms link. The latter was secured so that one person can fill in the questionnaire only once. The link was distributed in online groups, in e-mail campaigns, as well as inside a banking institution. In order to be eligible, one had to be over 18 and to have stable residency in Romania. The questionnaire contains a text that informs participants that all the answers are used exclusively for scientific purposes, there are no rewards for the participation in the study and data are confidential. When they joined the study, the participants agreed to have their data processed for the research.

Instruments

Techno-Work Engagement Scale-9 - TechnoWES-9 (Mäkiniemi et al., 2020) is a 9-item instrument with normal scoring which measures a specific state of well-being related to digital technology at the workplace. The scale is made of three subscales each with 3 items assessed on a continuum from 0 – *never* to 6 – *always*: techno-vigor (e.g., *When I utilize technology in my work, I feel that I am bursting with energy*), techno-dedication (e.g., *I am enthusiastic about utilizing technology in my job*) and techno-absorption (e.g., *I feel happy when I am immersed in using technology in my work*),. Eight items are adapted from the Utrecht Work Engagement Scale-9 (UWES-9) (Schaufeli et al., 2006). An item is adapted from the Utrecht Work Engagement Scale-17 (UWES-17) (subscale Vigor). The total score is calculated by adding up the scores obtained for the nine items.

Satisfaction with Life Scale – SWLS (Diener et al., 1985) is used in the assessment of life satisfaction and, implicitly, of subjective well-being by assessing the cognitive component of the latter. The scale included five items assessed on a scale from 1 – *strongly disagree* to 7 – *strongly agree*. SWLS demonstrated good psychometric properties in prior studies carried out on various samples of Romanian adults (Marcu, 2013; Cazan, 2014; Balgiu, 2019a; Balgiu et al., 2021). For the present study, the coefficients of internal consistency are good: Cronbach's α=0.84 (95%CI:0.81-0.87) and McDonald's ω= 0.85 (95%CI:0.82–0.87). CFA shows good fit coefficients: χ^2=9.185; df=5; χ^2/df=1.83; CFI=0.99; TLI=0.98; NFI=0.98; RMSEA=0.055; SRMR=0.021; p=0.102.

Scale of positive and negative experience – SPANE (Diener et al., 2010) is made of 12 items, out of which six are related to positive affects (the subscale Spane-Positive) and the other six are related to negative affects (the subscale Spane Negative). All the items are assessed from 1–*very rarely* or never to 5–*very frequently* or *always*. Every subscale has a score between 6 and 30. Finally, it was calculated the effective balance (SPANE-B) by subtracting the negative score from the positive one. The scale was previous validated on samples of Romanian students (Balgiu, 2019b). In the case of the present study, Cronbach α coefficients are 0.89 (95%CI: 0.86-0.90) for SPANE-P and 0.87 (95%CI: 0.85–0.89) for SPANE-N and McDonald ω=0.89 (95%CI: 0.87–0.91) for Spane-P and 0.87 (95%CI: 0.85-0.89) for SPANE-N. CFA shows the good value of the fit coefficients: χ^2=68.945; df=51; χ^2/df=1.35; CFI=0.99; TLI=0.98; NFI=0.96; RMSEA=0.035; SRMR=0.041; p=0.048.

Subjective well-being was measured in accordance with the model proposed by Diener (2000) and it consisted in the total of the scores obtained for the cognitive component of well-being (life satisfaction) and the scores for the affective component (the balance between positive affect and negative affect).

The socio-demographic data. The collected data considered: (i) self-identified gender, (ii) age, (iii) studies (primary studies, secondary studies, university studies, post-university studies), (iv) domicile (urban versus rural), (v) work sector (public, private, another), (vi) the geographical region (the main eight regions of the country were included).

Data analysis

For a start, we analysed the descriptive statistics: averages, standard deviations, skewness and kurtosis. We used CFA for construct validity, as well as the maximum likelihood (ML) assessment method considered robust in terms of non-normal distribution (Byrne, 2010). In this sense, we used the following fit coefficients: χ^2 (chi-squared test) which needs to be insignificant from a statistical point of view (Hooper et al., 2008) and χ^2/df (relative/standard chi-square test) which has an acceptable value if it is <3 (Schermelleh-Engel et al., 2003). Since χ^2 is sensitive to the dimension of the sample we used a combination of indexes: CFI (comparative fit index), TLI (Tucker-Lewis index), NNFI (Bentler-Bonned Non-Normed fit index) recommendable ≥0.95 (Hooper et al., 2008; Hu & Bentler, 1999); RMSEA value (root mean squared error of approximation) and of SRMR (standardized root mean square residual) are good, if they are <0.05 (Byrne, 2010), and acceptable if they are <0.08 (Hooper et al., 2008; Hu & Bentler, 1999). The AIC coefficient (Akaike information criterion) is used to compare the models; the model with the lowest values is the most desirable. Reliability was examined with Cronbach α and McDonald ω coefficients. To calculate composite reliability (CR) whose minimum cut-off level must be >0.70 (Chin, 2010) the factor loading is used. The Average variance extracted (AVE) with the minimum limit level of 0,50 (Fornell & Larcker, 1981), was used to calculate the convergence validity. Concurrent validity was analysed through the TechnoWES-9 relationship with scales that evaluate subjective well-being. The discriminant validity was calculated by comparing the square root of AVE of each construct with its inter-construct correlation. Gender differences were calculated using the nonparametric Mann-Whitney U test. The measurement of gender invariance was under the recommendations of Rutkowschi and Svetina (2017), who considered that ΔCFI should be < 0.010 and ΔRMSEA<0.010. The use of network analysis aimed to identify the items that provide the highest information for the latent constructs. The data were analysed with the SPSS (version 22), Amos (version 22) and JASP (version 0.16.10) programs.

Results

Socio-demographic characteristics of the sample

The sample required to validate the scale was calculated based on the formulas developed by Soper (2022) considering all the instruments used. The parameter values for calculating the sample sizes were: an expected effect size of 0.30, a desired statistical power level of 0.95, number of latent variable was 7 and number of observed variable was 26. The recommended minimum sample size is 247. To compensate for potential losses (approximately 10%) 33 additional participants were added to this estimate, resulting in a total of 280 subjects.

Therefore, the sample was made of 280 participants in the 20 to 58 age bracket ($Mean_{age}$=30.59; S.D.=9.80), with a relatively equal proportion of males (41.43%) and females (58.57%). 97.20% of participants work and live in the city and only 2.8% work and live in the rural area. The sample is mostly made of university graduates (66,70%), followed by high school graduates (21.60%) and master and PhD graduates (11,7%). As for the work sector, 37.14% work in the public sector and 66.80% in the private sector, while 3.21% are freelance. Most participants are engineers (I.T. and telecommunications) (37.50%), teachers (32.14%), and employees working in financing and banking (14.28%). A smaller proportion of subjects work in commerce (4.28%), online journalism (3.92%), marketing (3.57 %), consultancy (2.50 %), and various other domains (1.78%).

Descriptive statistics

The descriptive statistics were presented as an average ± standard deviation and the normality condition of the data was verified by means of skewness and kurtosis indicators (Table 1). We calculated the Z scores for skewness and kurtosis by comparing the absolute value to the standard error. Given that the Z score is not between -3.29 and 3.29, corresponding to normal distribution for samples of 50-300 of subjects (Kim, 2013), we considered that the data have non-normal distribution. The average scores of items varied between 3.97 (*I am completely immersed in using technology in my work*) to 4.75 (*When I utilize technology in my work, I feel that I am bursting with energy*). Corrected item total-correlations are all positive and they are between 0.62 and 0.78. There are no gender differences related techno-work engagement (Mean rank $_{males}$ =137.40; Mean rank $_{females}$ =142.70; p=0.589; U=9152.00).

Table 1. *Descriptive statistics for TechnoWES-9 items*

Items	Min.	Max.	M	S.D.	Skewness	Kurtosis	Corrected item-total correlation
Techno_VI1	0.00	6.00	4.75	1.28	-1.26	1.85	0.73
Techno_VI2	0.00	6.00	4.56	1.39	-0.95	0.53	0.75
Techno_VI3	0.00	6.00	4.56	1.24	-0.75	0.27	0.62
Techno_DE1	1.00	6.00	4.67	1.26	-0.72	-0.29	0.71
Techno_DE2	0.00	6.00	4.55	1.30	-0.84	0.58	0.76
Techno_DE3	0.00	6.00	4.56	1.41	-0.86	0.28	0.77
Techno_AB1	0.00	6.00	4.24	1.47	-0.79	0.35	0.78
Techno_AB2	0.00	6.00	3.97	1.51	-0.50	-0.21	0.65
Techno_AB3	0.00	6.00	4.57	1.32	-0.74	0.05	0.63

Note: M–Mean; S.D.–Standard Deviation

Internal consistency

As for reliability, Cronbach α and McDonald ω coefficients are over 0.80 in the case of the three subscales: techno-vigor (α=0.81; ω=0.82), techno-dedication (α=0.84; ω=0.84), techno-absorption (α=0.81; ω=0.81), and TechnoWES-9 total score (α=0.92; ω=0.92) (Table 2). There are no significant modifications after the item deletions.

Table 2. *Descriptive statistics for factors – Mean, standard deviations and reliability*

Factors	M	S.D.	Min-Max	α	ω
Techno-vigor	4.62	1.12	0-6	0.81	0.82
Techno-dedication	4.60	1.16	1-6	0.84	0.84
Techno-absorption	4.26	1.22	0-6	0.81	0.82
TechnoWES-9	4.49	1.06	0-6	0.92	0.92

Factorial structure

We used CFA for the verification of the factorial structure. Since the assumptions of multivariate normality did not prove to be true (Mardia coefficient = 51.36; c.r = 30.54) we used bootstrapping technique (2000 resamplings). We made three models (Table 3). The first model took into consideration the unifactorial dimension: χ^2=128.349; df=27; χ^2/df=4.74; CFI=0.93; TLI=0.91; NNFI=0.91; GFI=0.90; RMSEA=0.116 (90%CI: 0.096–0.137); SRMR=0.043; AIC=164.349. Model 2 (χ^2=65.749; df=24; χ^2/df=2.74; CFI=0.97; TLI=0.95; NNFI=0.95; GFI=0.95; RMSEA=0.079 (90%CI: 0.056–0.102); SRMR=0.039; AIC=107.749) and 3 (χ^2=53.932; df=23; χ^2/df=2.34; CFI=0.97; TLI=0.96; NNFI=0.96; GFI=0.95; RMSEA=0.069 (90%CI: 0.045–0.084); SRMR =0.031; AIC=97.932) are tri-factorial, of which model 3 is with negative residual correlation between items 7 and 9. Model 3 was made in order to reduce the RMSEA value (upper limit of the confidence interval). The justification of the option for model 2 as having the highest degree of adequacy consists, on the one hand, in avoiding negative covariances between items 7 and 9. On the other hand, although there are authors who consider that the cut-off level for the upper limit of the RMSEA should be 0.080 (Hooper et al., 2008), still other authors demonstrate that this rule should not be generalized in the conditions where the factor loadings are at a high level. (McNeish & Hancock, 2018). Thus, a RMSEA value of 0.20 can be acceptable (Mc Neish & Hancock 2018). Therefore, we concluded that model 2 has the best values of the goodness-of-fit indices (Figure 1).

Table 3. *Goodness-of-fit indices of the CFAs*

Models	**χ^2**	**df**	**χ^2/ df**	**CFI**	**NNFI**	**TLI**	**RMSEA (90%CI)**	**SRMR**	**GFI**	**AIC**
M1 one factor	128.349	27	4.74	0.93	0.91	0.91	0.116 [0.096-0.137]	0.043	0.90	164.349
M2 three-factors without correlated errors	65.749	24	2.74	0.97	0.95	0.95	0.079 [0.056-0.102]	0.039	0.95	107.749
M3 three-factors with correlated errors	53.932	23	2.34	0.97	0.96	0.96	0.067 [0.045-0.083]	0.031	0.95	97.932

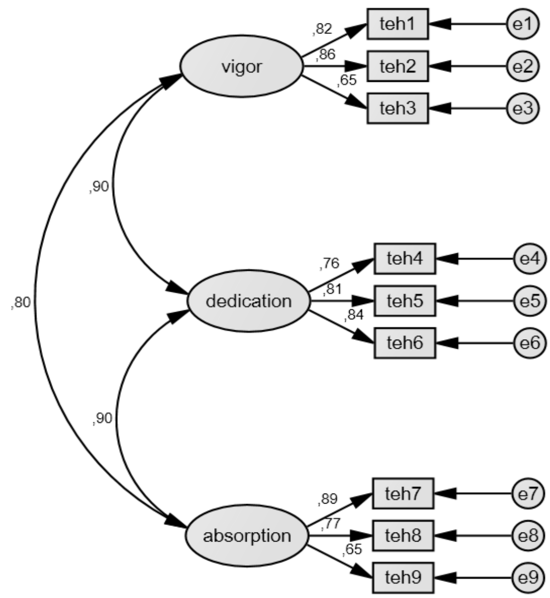

Figure 1. *The confirmatory factor analysis of the scale Techno WES-9*

Notes: The figure shows the standardized values of the factor loading; teh1-teh9 represent the items of the scale

The measurement invariance across gender

The results obtained in gender invariance demonstrated that the scale measures the same construct in both groups of males and females (Table 4). The invariance according to gender is supported by the ΔCFI and ΔRMSEA values that are lower than the recommended limits of 0.010.

Table 4. *The gender invariance for TechnoWes-9*

Model Invariance	Overall Fit Indices					Comparative Fit Indices			
	χ^2	df	χ^2/df	CFI	RMSEA	$\Delta\chi^2$	Δdf	ΔCFI	ΔRMSEA
Configural	95.383	48	1.98	0.969	0.060 [0.042-0.077]	–	–	–	–
Metric	106.090	54	1.96	0.966	0.059 [0.042-0.075]	-10.707	6	0.003	0.001
Scalar	111.877	60	1.86	0.965	0.056 [0.042-0.075]	5.787	6	0.001	0.003
Strict	125.864	69	1.82	0.964	0.054 [0.039-0.069]	13.877	9	0.002	0.002

Concurrent validity

Concurrent validity is certified by the fact that the TechnoWES-9 total score and its 3 subscales make weak, but significantly positive correlations with subjective well-being (r between 0.18; $p<0.01$ and 0.27; $p < .001$), life satisfaction (r between 0.21 and 0.26; $p<0.001$), positive affect (r between 0.23 and 0.32; $p<0.001$), and balance affect (r between 0.14; $p < .01$ and 0.23; $p<0.001$) (Table 5). There were no significant correlations with negative affect.

Table 5. *Intercorrelations between TechnoWES-9 and other validated measures*

Vars.	1	2	3	4	5	6	7	8
1. Techno-VI	-							
2. Techno-DE	0.76***	-						
3. Techno-AB	0.69***	0.74***	-					
4. TechnoWES	0.75****	0.87***	0.97***	-				
5. Life satisfaction	0.26***	0.23***	0.21***	0.23***	-			
6. Positive affect	0.32***	0.23***	0.23***	0.24***	0.62***	-		
7. Negative affect	-0.10	-0.10	-0.02	-0.08	-0.40***	-0.46***	-	
8. Balance affect	0.23***	0.19**	0.14*	0.16**	0.58***	0.82***	-0.88***	-
9. Subjective well-being	0.27***	0.23***	0.18**	0.21***	0.84***	0.82***	-0.77***	0.93***

* p < .05; ** p < .01; *** p < .001

Convergent validity

We calculated AVE (Average variance extracted) and CR (composite reliability) by considering the factor loading (λ) and the standard error of measurement (ε) obtained by means of CFA. As Table 6 shows, both AVE (0.63 – Global Score TechnoWES-9) and CR (0.93 – Global Score TechnoWES-9) are over the cutoff level of 0.50 and 0.70, respectively (Chin, 2010; Hair et al., 2021).

Table 6**.** *Convergent validity*

Factors	CR	AVE
Techno-vigor	0.82	0.61
Techno-dedication	0.84	0.64
Techno-absorption	0.81	0.60
TechnoWES global score	0.93	0.62

Discriminant validity

At the same time, in order to test the discriminant validity of the scale it was used the Fornell-Larcker criterion which refers to the comparison of the square root of AVE in every construct with its inter-construct correlation. If the square root of AVE is higher, then the discriminant validity is confirmed (Fornell & Larcker, 1981). TechnoWES-9 meets the criterion of the discriminant validity: the square root of AVE value for each factor is 0.77 (techno-vigor), 0.80 (techno-dedication) and 0.80 (techno-absorption) (Table 7). The discriminant validity is also certified by the intercorrelations between the subscales of the TechnoWES-9 (between 0.69 and 0.97) higher than the correlations between the TechnoWES-9 and the other instruments (Table 5) (Hair et al., 2021).

Table 7. *Discriminant validity: Fornell-Larcker criterion*

Subscales	AVE	1	2	3
1. Techno-VI	0.61	**0.78***		
2. Techno-DE	0.64	0.76	**0.80***	
3. Techno-AB	0.60	0.69	0.74	**0.77***

Note: *square root of AVE value for each factor

Discussion

The study aimed to validate the scale TechnoWES-9 in the case of a sample of Romanian employees from various organisations. The results of the present study demonstrate that TechnoWES-9 is a consistent instrument for the measurement of well-being in the work with technology. The level of techno-work engagement of the analysed sample is relatively high (M=4.49; S.D.=1.06). We have drawn this conclusion after comparing a group of Finnish teachers (with the caution with which we can compare employees coming from different cultural backgrounds) whose average value for techno-work engagement is M=3.93; S.D.=1.49 (Mäkiniemi et al., 2019). The score obtained in the present study is somehow closer to the scores of school managers (M=5.71; S.D.=1.26) (Mäkiniemi et al., 2019). Just like in the case of the study carried out on Finnish subjects, no gender difference was obtained in this case either.

The factorial models we assessed demonstrated that the tri-factorial 9-item structure is more appropriate for the scale Techno WES-9 than the 1-factor structure, and this aspect is in line with the study in which the concept of techno-work engagement was developed and the scale TechnoWES-9 (Mäkiniemi et al., 2020) was validated. The findings of this study supported configural, metric, scalar and strict invariance of the scale across gender.

The convergent validity was confirmed by means of AVE and CR whose values are over the minimum cut-off level recommended. In addition, the scale reliability was α over 0.80 for subscales and over 0.90 for the global score and ω over 0,85 for subscales and over 0.90 for the global score, which is very close to the original version ω>0.82 in the case of the 3 factors and > 0.90 in the case of the global score (Mäkiniemi et al., 2020).

The study found that TechnoWES-9 is associated with subjective well-being, with life satisfaction – its cognitive component – with positive affect and balance affect, thus confirming the mission of the scale of the positive experiences related to work with technology. There were no negative relations with negative affectivity, thus the hypothesis proposed with regard to the negative relation between techno-work and negative affect is not confirmed. As the number of respondents in the sample increases, the relations between techno-work and negative affect may become significant. This is an aspect which deserves to be researched in subsequent studies. The results confirm previous studies that find that the role of technology in the workplace is one of determining well-being in the conditions in which it is aided and becomes inspiring for the work performed (Hakami et al., 2021; Johnson et al., 2020). As studies show, employees can experience technical involvement in work when technology facilitates their work and allows progress that brings added value to the work carried out (Makiniemi, 2022), the condition being that employees possess sufficient skills in the use of new technologies (Haepp, 2022).

One of the theoretical implications consists in the fact that the respective study demonstrates that the factors involved in techno-work engagement are the same as those in other European areas, such as Finland. This study also claims that the three-factor model of techno-work engagement worked better than the one-factor model and is consistent with the findings from previous studies (Mäkiniemi et al., 2020). We believe that this research provides a new measure for practitioners and researchers inside and outside organizations to assess the states that employees have when they experience a high level of involvement in working with technology. The use of the scale in self-evaluation could help the employee to be aware of the positive affective states he could have while working with technology. Although the relationship between the three factors of TechnoWES-9 with subjective well-being is moderate, they are still in the expected direction. The study depends on self-report scales of SWB, but future research should investigate different types of well-being to confirm our results. Since the 3-item version of the TechnoWES is an alternative to the 9-item version (the two versions share 92% of the variances and have good internal consistency) (Mäkiniemi et al., 2020), future research would consist in verifying the psychometric properties of the three items version on different subject samples.

Limitations of the study

One of the limits is due to the usage of self-report scales which can be influenced by social desirability, that is why subsequent longitudinal studies are necessary. Secondly, the use of a convenience sample reduces the possibility of generalizing the current results. Another limitation is related to the non-collection of data regarding the time of work with techno-work. One of the subsequent directions would consist precisely in correlating the level of techno-work with the number of hours in which technology is used in one's professional activity.

Conclusions

The study is the first to analyse the cross-cultural adaptation of an instrument such as TechnoWES-9 that assesses the well-being of the employees who use technology, in the case of a group of Romanian employees. The results we obtained led us to believe that TechnoWES-9 has good psychometric properties so as to be used by researchers who deal with the impact and the functionality of new technologies on employees from various sectors.

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RESEARCH ARTICLE

How well do we know ourselves? Disentangling self-judgment biases in perceived accuracy and preference of personality feedback

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Abstract

Despite personality measurement and feedback being pervasive practices, there are self-judgment biases that may impair their usage. We set out to analyze the differences between two kinds of false feedback and real feedback on personality regarding perceived accuracy and preference. We propose that there would be no differences between false and real feedback regarding perceived accuracy, but we expect differences regarding feedback preference. A sample of 146 students completed the IPIP-50 instrument that measured the Big 5 Factors and received three kinds of feedback - a general one (Barnum effect as false feedback), a positive one (Better-than-average effect as false feedback), and a real one. They rated each regarding accuracy and preference. Results indicate differences regarding both dependent variables. Participants perceive false feedback as more accurate than the real one. Moreover, they prefer positive feedback over the other two, and general feedback compared to the real one. We discuss both theoretical and practical implications, alongside a series of limitations and future research directions.

Keywords

personality, Barnum effect, better-than-average effect, psychometrics

Introduction

Personality measurement is a pervasive element in organizations, especially regarding employee selection (Nikolaou & Foti, 2018), as it predicts multiple work-relevant outcomes, such as engagement (Young et al., 2018), creativity and voice behaviors (Zare & Flinchbaugh, 2019) and performance (Zell & Lesick, 2022). Yet, the majority of

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participants rate bogus or trivial personality statements as accurate and personally applicable, a phenomenon known as the Barnum effect (for reviews, see Dickson & Kelly, 1985; Furnham & Schofield, 1987; Snyder et al., 1977).

Previous studies have investigated whether the content of feedback statements plays a role in ratings of accuracy and acceptance (Furnham & Varian, 1988; Halperin et al., 1976; Macdonald & Standing, 2002). Because feedback was more frequently accepted when using generally positive statements over neutral or negative ones, researchers argued that the Barnum effect could overlap with the Better-Than-Average effect (BTA; Johnson et al., 1985; MacDonald & Standing, 2002). This effect explains the tendency to view ourselves in a positive light and is supported by studies highlighting only a moderate association between self-evaluations of ability and objective ratings of performance (Dunning et al., 2004).

There has been a lack of explicit distinction between ratings of perceived accuracy and preferences in previous work on the Barnum effect. Researchers also frequently only compared Barnum effect feedback to either real feedback or feedback presenting the individual in a positive light (Andersen & Nordvik, 2002; Dana & Fouke, 1979; MacDonald & Standing, 2002). Additionally, the literature to date shows contradictory findings regarding the existence of the Barnum effect, although the majority of studies report results in favor of this bias. This limits our understanding of biases in the judgment of personality feedback. Such biases are crucial in understanding how well people generally know or understand themselves. Individuals are highly likely to endorse global, ambiguous, or positive descriptions and integrate them into their self-concept, especially if they believe they were derived from the results of psychological assessment techniques, and specifically developed for them (Johnson et al., 1985; Snyder et al., 1977).

In order to disentangle the literature on measurement acceptance and preference, we set out to investigate whether participants differentiate between generalized, better-than-average, and real, personalized personality feedback in terms of accuracy. Secondly, drawing on previous research on biases in self-judgments, we test whether participants prefer a generalized (Barnum effect) profile over a real one, or a profile presenting them in a positive light (better-than-average effect).

The present study contributes to the literature on self-judgment biases by differentiating between perceived accuracy and preference in the context of three types of feedback. Consistent with the evidence supporting the Barnum effect, we argue that individuals are biased in their judgment of personality feedback. Moreover, we argue that participants will more likely endorse and prefer personality feedback that presents them in a self-enhancing way.

Theoretical framework

Self-knowledge and personality assessment

Personality is most frequently conceptualized in terms of traits, defined as relatively enduring patterns of thought, emotion, and behavior (Funder, 2001; McCrae & John, 1992). The Big Five model (also known as the Five-Factor model or FFM) is one of the most widely used personality taxonomies (Costa & McCrae, 1992; Goldberg, 1993). This model defines five broad superordinate dimensions (extraversion, agreeableness, conscientiousness, neuroticism, and openness or intellect), capturing individual differences in personality (McCrae & Costa, 1987; John & Srivastava, 1999).

Personality assessment consists of procedures for determining and measuring the underlying characteristics that account for individual differences in personality structure (Ozer & Reise, 1994). During the reporting stage, the examiner and the assessee frequently engage in a collaborative assessment process, when the examiner presents their feedback and the assessee can contribute with their own view (Fischer, 2000). This process is especially relevant when examiners are less certain about their conclusions, or when the assessment is undertaken during a validation study. Validating an instrument based on individuals' appraisal of accuracy is based on the underlying assumption that individuals can accurately assess their personality or other intrinsic traits, often better than an observer would. For example, Costa and McCrae (1992) used ratings of the accuracy of NEO-PI-R profiles to assess the validity of their instrument.

However, drawing on the Barnum effect literature, participants should be more likely to endorse assessments and accept feedback as accurate if the statements used are generally accurate (trivial) rather than specific. On the other hand, drawing on self-enhancement theories, participants should be more likely to endorse positive statements, irrespective of their actual accuracy (Dickson & Kelly, 1985).

This led authors to question the validity of accuracy ratings and the practice of using participants' own assessment of instruments as a validation criterion (Forer, 1949), as participants might readily accept a profile as personally relevant and assimilate that content into their own self-concept (Rogers & Soule, 2009). Similarly, Guerrettaz and Arkin (2016) argue that individuals who possess a high degree of self-concept clarity rate Barnum statements as less accurate, while individuals with lower self-concept clarity can more easily endorse the non-specific feedback and integrate it into their self-knowledge.

Biases in the accuracy of self-judgment

The Barnum effect

The Barnum effect (also known as the Forer effect; Forer, 1949) characterizes people's tendency to accept bogus personality feedback as accurate descriptions of their personality. Although this effect was first introduced by Forer (1949), it was later labeled as the Barnum effect by Meehl (1956), as this scholar thought psychology clients were agreeing to general profile descriptions that could apply to everyone. Scholars have extensively investigated this effect, demonstrating the strong tendency to accept vague and generalized feedback after completing a personality test (Dana & Fouke, 1979; Holmes et al., 1986; Rogers & Soule, 2009; Stachnik & Stachnik, 1980).

Although Barnum descriptions are general in nature and applicable to the general population, participants frequently rate Barnum-type personality feedback as personally relevant and uniquely true about themselves. This prompted many researchers to conclude that participants were gullible and lacked self-knowledge, considering generalized reports significantly more applicable to themselves than others (Johnson et al., 1985; Standing & Keays, 1987). This argument has been used to explain why many individuals believe in astrology and fortune-tellers (Dickson & Kelly, 1985; Fichten & Sunerton, 1983; Snyder, 1974). However, there are other critical perspectives of the Barnum effect that go against the gullibility hypothesis.

One perspective is that statements are accepted because they are vague in nature, which means participants can internalize the traits described based on their own understanding and assessment of the reports (Dickson & Kelly, 1985; Merrens & Richards, 1970).

Another perspective holds that statements are accepted because they are generally true, so they accurately describe the majority of individuals. Accordingly, participants are rational in rating the statements as true of themselves; in this case, the statements are considered to have high "base-rate accuracy" (Layne, 1979; Michels & Layne, 1980; Verberne, 1974). Especially when asked directly, participants can recognize that Barnum effect feedback fails to describe their uniqueness (Greene, 1977) and can differentiate between accurate, trivial, and inaccurate feedback (Harris & Greene, 1984).

Putting the two perspectives together, the observed differences could be due to methodological choices. Generally, participants discern more easily between real and randomly generated personality feedback compared to real personality feedback and Barnum-effect feedback (Andersen & Nordvik, 2002; Christian & Bringmann, 1982; De Fruyt & Wille, 2013). For example, participants were able to correctly identify descriptions based on randomly generated personality scores that deviated from their original scores (Andersen & Nordvik, 2002). Also, these participants tended to disagree more with the false feedback reports when the difference between the real and random scores was larger (De Fruyt & Wille, 2013). However, participants still endorsed false reports if they were based on neutral scores (De Fruyt & Wille, 2013).

Consistent with the previously cited literature, we put forward the following hypothesis:

Hypothesis 1: The perceived accuracy of the real personality assessment report will be similar to the perceived accuracy of the false personality assessment reports including the Barnum effect feedback and the better-than-average effect feedback.

Although participants rate both real and fake personality descriptions as accurate, previous research suggests differences in terms of preference. Specifically, there is evidence that participants favor generalized (i.e., Barnum effect) feedback over personalized, real feedback that is based on their actual test scores. When asked to choose which profile better describes their personality, participants favored the Barnum-effect description over a real description based on their actual Personality Research Form scores (Merrens & Richards, 1970). Accordingly, we put forward the following hypothesis:

Hypothesis 2: The participants will accept the Barnum effect feedback more frequently than in the case of the real feedback on personality assessment.

The better-than-average effect

Literature reveals that participants are more likely to favor descriptions containing positive statements or traits over negative statements, consistent with the better-than-average effect (Michels & Layne, 1980). When asked to rate the accuracy of astrological descriptions, even non-believers rated the fake astrological profiles as accurate when they contained positive statements (Glick et al., 1989). When directly comparing Barnum descriptions, participants frequently rate positively worded descriptions as more accurate and more descriptive of their own personalities than negatively worded descriptions (Furnham & Varian, 1988; Halperin et al., 1976; Macdonald & Standing, 2002).

The better-than-average effect describes people's tendency to evaluate their abilities, attributes, and personality traits as better than an average peer (Alicke & Govorun, 2005). This effect comes in line with the self-enhancement bias as self-insight (Allport, 1960; Kwan et al., 2004), where individuals perceive themselves in a better light than others do. In support of the self-enhancement bias, this effect is more likely to be observed for positive traits, showing that individuals are more prone to present and view themselves in a positive light rather than self-protect and minimize their negative characteristics. Moreover, this effect is larger for personality traits than abilities (Zell et al., 2020).

Therefore, we formulate the following hypothesis:

Hypothesis 3: The participants will accept the favorable (BTA) feedback more frequently than in the case of the real feedback on personality assessment (3a) and the Barnum effect feedback (3b).

Method

Participants

The sample comprises 146 participants that were enrolled as bachelor students in a large public Romanian university. Most of the participants were female (90.40%). The average age of the participants was 20.56 years old (*SD* = 1.55). The sample of students has not previously received any personality feedback during the course they were attending. However, we do not have collected any information on previous personality assessments they have received.

Participation in this study was voluntary, although all the tasks were carried out as part of a class on psychology applied to work and organization. The completion of the IPIP-50 instrument was mandatory for the final grade of the participants, yet participation in the feedback evaluation was not mandatory. Those that took part in the feedback evaluation task received extra points for their final grade.

Instruments

To measure personality we used the Romanian version of the International Personality Item Pool 50 (IPIP-50) (Iliescu et al., 2015). Ten items were used to measure each of the following personality factors: extraversion (a = .89; "*I am the life of the party*"), agreeability (a = .80; "*I am interested in people"*), conscientiousness (a = .69; the exclusion of a reversed item leads to an alpha of .71; "*I pay attention to details*"), emotional stability (a = .83; "*I get stressed out easily*"), and openness (a = .79; "*I have excellent ideas*"). Participants were asked to rate each item using a Likert scale, ranging from 1 (Totally disagree) to 5 (Totally agree).

We examined two dependent variables – perceived global perceived accuracy of the description (which is defined as the measure of perceived global accuracy for the descriptions) and description acceptance (which is defined as a measure of evaluating each one of the statements that compose a description).

To assess the global perceived accuracy of the personality descriptions we used a single-item measure that was originally used by Forer (1949) - "*On a scale from 0 to 5, where 0 represents "completely disagree" and 5 represents "completely agree", please assess to what extent this description encaptures your personality*". This scale was used in the case of all three types of personality profiles/feedback: real feedback, Barnum effect, and BTA effect.

For description acceptance, the second dependent variable, we used a single-item scale inspired by Forer (1949). Participants were asked to re-read the personality descriptions and then rate whether each paragraph is true, false, or unsure. Each of the alternatives had an assigned value - the "true" answer was coded with 1 point, a "false" answer was coded with minus 1 and an "unsure" was coded with 0. In order to compute the final score, we counted the number of "true" answers and divided it by the total number of statements. In order to work with integers, we multiplied the scores by 100.

Procedure

After the participants gave their consent to be part of this study, they were asked to fill in the Romanian version of the IPIP-50 (Iliescu et al., 2015). Each student that filled in this instrument, received an electronic report including three personality profiles: (a). the real personality profile resulted from IPIP-50; (b). a fake personality profile meant to position the individual as above average including five paragraphs developed by Paterson (in Forer, 1949; e.g. "*Above average in intelligence or mental alertness. Also above average in accuracy—rather painstaking at times. Deserves a reputation for neatness—dislikes turning out sloppy work. Has initiative; that is, ability to make suggestions and to get new ideas, open-mindedness*"), and (c). a fake personality profile that included 13 general short statements reflecting universal descriptions, used by Forer (1949) (e.g. "*You prefer a certain amount of change and variety and become dissatisfied when hemmed in by restrictions and limitations*"). Participants were asked to assess the perceived validity of the descriptions and the feedback acceptance.

In order to avoid the order effect, we split the participants into two sub-groups. A number of the 78 participants were included in one of the sub-groups and 68 participants were included in the second one. The first sub-group received the fake feedback first, while the second group received the true feedback first. Data was collected through Google forms between April 2020-May 2021.

Results

Data was analyzed using IBM SPSS V26. In order to test the first hypothesis, regarding the similarity in the perceived accuracy between real and fictitious descriptions, we used non-parametric tests. The choice of the non-parametric tests was driven by the measurement of the dependent variable on an ordinal scale. We chose the Friedman test as we adopted a repeated-measures design that involves an independent variable with three levels (i.e., better-than-average feedback, Barnum feedback, and real feedback on personality). In order to test the second hypothesis, regarding the acceptance of feedback, we used the repeated-measures analysis of variance (ANOVA).

Table 1 presents the means, standard deviations, and correlation coefficients for the personality measures, perceived accuracy, feedback acceptance, and gender.

According to the first hypothesis, we expect similar levels of perceived accuracy for the three types of feedback (i.e., better-than-average, Barnum, and real feedback). In order to test this hypothesis we used the Friedman non-parametric test. Data does not support this hypothesis, as we identified a significant difference between the three kinds of feedback ($\chi^2(2) = 36.19$, $p < .001$).

As the Friendman test is an omnibus test, we were further interested in identifying the specific types of feedback where significant differences emerge. Thus, we used the Wilcoxon test in order to make two-by-two comparisons. In order to avoid the escalation of the alpha error, we used the Bonferroni correction. We divided the .05 threshold by the number of comparisons, resulting in a threshold of .016. The comparison between the two false feedbacks (i.e., Barnum and better-than-average feedback) does not show a statistically significant difference ($z = -2.12$, $p = .03$). The comparison between the real feedback and better-than-average feedback shows a statistically significant difference ($z = -5.41$, $p < .001$). The comparison between the real feedback and the Barnum feedback also shows a statistically significant difference ($z = -4.12$, $p < .001$). Table 2 presents the rankings for the comparisons.

Table 1. *Correlations, means, and standard deviations* ($N = 146$)

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Gender													
2. Extraversion	3.30	.81	-.02	-									
3. Agreeability	3.99	.56	.16	.32**									
4. Conscientiousness	3.67	.54	.09	.02	.14								
5. Emotional Stability	2.83	.72	-.10	.18*	-.01	.31**							
6. Intellect	3.66	.53	.03	.42**	.20*	-.03	-.08						
7. Accuracy BTA	4.07	.93	.20*	.27**	.24**	.13	.02	.09					
8. Accuracy Barnum	3.90	.88	.18*	.06	.05	-.04	-.29**	.09	.44**				
9. Accuracy Real	3.46	1.07	.05	-.01	.01	.06	.08	-.01	.25**	.31**			
10. Acceptance BTA	.86	.18	.23*	.39**	.19*	.04	.12	.13	.64**	.25**	.11		
11.Acceptance Barnum	.72	.19	.15	.10	.11	-.17*	-.38**	.21*	.33**	.58**	.18*	.26**	
12. Acceptance Real	.61	.25	.12	.00	.02	.03	-.06	.02	.25**	.29**	.69**	.12	.27**

Note. On the diagonal line we preset the means and standard deviations for each variable; *$p < .05$, **$p < .01$

According to the second and third hypotheses, there are significant differences regarding the acceptance of feedback, with participants accepting the Barnum feedback more than the real one (H2), and the better-than-average feedback more than the other two types of feedback (i.e., general and real) (H3). In order to test these hypotheses we used repeated measures ANOVA, with gender as a control variable.

Overall, there is a significant difference regarding the acceptance of feedback ($F(2, 288) = 19.60$, $p < .001$, $\eta^2 = .12$, $\pi = 1$). The effect of gender is also significant ($F(1, 144) = 8.55$, $p < .01$, $\eta^2 = .056$, $\pi = .828$), with females ($M = .74$, $SE = .01$) accepting feedback at higher levels compared to males ($M = .63$, $SE = .04$). Table 3 shows the pairwise comparisons, where we used the Bonferroni test. The second hypothesis is supported by data, as the average acceptance for the Barnum feedback (*M* = 68.07, *SE* = 2.61) is significantly higher than the one for the real feedback (*M* = 56.62, *SE* = 3.56). The third hypothesis also received empirical support, as the average acceptance for the better-than-average feedback (*M* = 80.07, *SE* = 2.50) is significantly higher than the other two kinds of feedback.

Table 2. *Wilcoxon test ranks*

		N	Mean Ranks	Sum of Ranks
Barnum and Better-than-Average Feedbacks	Negative ranks	49	38.60	1891.50
	Positive ranks	28	39.70	1111.50
	Ties	69		
	Total	146		
Real and Better-than-Average Feedbacks	Negative ranks	74	51.62	3820
	Positive ranks	23	40.57	933
	Ties	49		
	Total	146		
Real and Barnum Feedbacks	Negative ranks	63	45.48	2865
	Positive ranks	24	40.13	963
	Ties	59		
	Total	146		

Table 3. *Pairwise comparisons feedback acceptance* (*N* = 146)

Variable 1	Variable 2	Mean Difference	*SE*	95% Confidence Interval
Better-Than-Average Feedback	Barnum Feedback	11.99***	3.16	[4.30, 19.65]
Better-Than-Average Feedback	Real Feedback	23.44***	4.16	[13.37, 33.51]
Barnum Feedback	Real Feedback	11.45**	3.84	[2.14, 20.76]

Note. **p* < .05, ***p* < .01, ***p* < .001

Discussion

The aim of the present paper was twofold. First, we were interested in differences in the perceived feedback accuracy regarding personality assessment for false and real feedback. Second, we were interested in differences in the preference for false and real feedback on personality profiles

Overall, our results show support for the existence of biases in the judgment of personality feedback. Primarily, our first set of data analyses provide findings that were not in line with the expectations included in our first hypothesis. These findings indicate a tendency to rate fictitious feedback as more accurate than real one. This comes in support of the Barnum effect (Dickson & Kelly, 1985; Furnham & Schofield, 1987; Snyder et al., 1977), as more general descriptions of personality are easily integrated into the self-concept of participants (Dickson & Kelly, 1985; Merrens & Richards, 1970).

Interestingly, the better-than-average effect feedback (Alicke & Govorun, 2005) was also assessed by our participants as more accurate than the real feedback, with no differences between the two types of false feedback. These results may offer a more clear direction toward unraveling the mechanism for these biases. The results regarding perceived accuracy may also be explained through the lens of the self-enhancement effect (Dickson & Kelly, 1985). Thus, in order for feedback to enable one to gain higher self-esteem levels and to provide a positive self-image, it must be accepted as accurately describing the person. This can be achieved with either general, easy-to-integrate statements (i.e. Barnum effect), or overly positive ones (i.e. better-than-average effect).

Secondarily, our participants not only rated fictitious feedback as more accurate, but they also preferred it over real feedback. This preference indicates a significantly higher acceptance in the case of Barnum effect feedback and better-than-average feedback descriptions. These findings are in line with the previous research on the Barnum effect showing a preference for general, rather than actual feedback (Merrens & Richards, 1970). This is also aligned with the self-enhancement effect (Dickson & Kelly, 1985), with participants preferring feedback that enables them to maintain a positive self-image. There was also a significant difference in preference between the two false feedbacks, with participants preferring the better-than-average feedback over the Barnum effect. This difference underscores the idea that people are more likely to endorse feedback that puts them in a good light when it comes to personality.

Theoretical and practical implications

Our findings have multiple implications, both theoretically and practically. In terms of theoretical implications, we add to and extend the literature on the Barnum effect and the better-than-average effect, showing support for the idea that individuals are more open to feedback that is easy to integrate (i.e. Barnum Effect) or that puts them in a positive light (i.e., Better-than-Average Effect). Furthermore, apart from previous research, we examined simultaneously these three types of feedback on personality descriptions. Interestingly, from the perspective of accuracy, there was not a significant difference between the two types of false feedback. But there was a significant difference regarding the preference for the three types of feedback. These findings take the study of self-judgment biases a step forwards, as it becomes clear that people are biased in their views on feedback, but the new research venue involves disentangling the subtle differences between biases and the relationship between them.

Additionally, our findings discuss self-judgment biases in light of two dependent variables - perceived accuracy and preference, clearly delineating between the biased perception of feedback and the preference towards a positively-formulated one. We note that participants do not only prefer more general and positive feedback, but they also perceive it as being more accurate. These results are important as they offer insight into the pervasive influences of feedback in the light of the self-enhancement effect (Dickson & Kelly, 1985), with general and positive feedback being more readily accepted due to their effect on a positive self-concept.

At the practical level, these results have important implications regarding the usage of personality measurements and feedback, in general, and when working with student populations in academic contexts, in particular. In these contexts, personality assessment may be used for self-knowledge and career orientation purposes. As participants readily tend to accept general and positive feedback, it would be worthwhile to provide real feedback on personality by presenting information in a positive manner (e.g., positively worded, discussing positive consequences) in order to ensure their integration. Moreover, as the theory backing these results involves the self-enhancement effect, with people being motivated to maintain a positive self-image (Dickson & Kelly, 1985), practitioners could build the feedback around the positive self-concept of the assessee, helping bridge the gaps between the positive self-image and the real results of the assessment. Thus, they could identify the positive self-concept of the assessee, and their current position, and discuss ways in which they can attain that image.

Limitations and future directions

The present paper also has limitations. First, the sample of our study consists of students derived from one bachelor specialization from one Romanian University. As the participation in this study was voluntary, this limits the generalizability of the results to the general population, in general, and to the student population, in particular. Moreover, it could be that age may place a role in the observed results. It is possible that our findings hold only for the population of younger people. As we collected data from university students, our study was insensitive to group differences in terms of age effects. Research suggests that senior students were more skeptical than juniors or sophomores in rating Barnum effects statements (Beins, 1993; Greene, 1977), so we encourage the replication of our study using samples of older students or other categories of participants that are assessed in terms of personality for various decisions, such as employment or career-related decisions.

Another limitation regards the content of the task we used, particularly how the three types of feedback on personality were formulated. As the personality assessment targeted a five-factor personality model (Costa & McCrae, 1992; Goldberg, 1993), only the real feedback was constructed around the five dimensions. The two kinds of false feedback were extracted from studies regarding self-perception biases (Forer, 1949), and they had patterns of response that were not reflective of the five-factor personality model (Costa & McCrae, 1992; Goldberg, 1993). As research showed that the degree of discrepancy between different types of feedback in terms of scaffolding or format plays an important role (De Fruyt & Wille, 2013), false feedback should be constructed by respecting the same patterns and carefully manipulating the quantity of discrepancy. Moreover, it is possible that the differences we identified between the three types of feedback in terms of perceived accuracy and preference might reflect differences in the language used in the content of the personality descriptions such as jargon. Literature reveals that psychological reports often involve jargon that imposes a high level of reading difficulty, which can become problematic in that they are read by multiple audiences with varying levels of educational background (Harvey, 2006) and experience with psychological testing and assessment, in general, and personality assessments, in particular.

Furthermore, we consider that the lack of high-stake feedback consequences may limit the generalizability of the present findings. In organizations, personality feedback usually has some consequences, such as employment decisions (Nikolaou & Foti, 2018), performance improvement, and general development (Jelley, 2021; Kwiatkowski, 2018). In the present study, there were no high-stake situations regarding the personality assessment results, which may not have led the participants to the need to protect the self as much. Future studies may focus on high-stake situations, where rejection, exposure of weak points, or penalization may trigger the need to protect the self-image.

Last, future research could include the manipulation of assessment and feedback reports length. In this sense, previous studies indicate that longer assessment procedures, but shorter personality descriptions are more often endorsed than shorter assessment procedures, respectively longer personality descriptions (Dickson & Kelly, 1985).

Conclusion

The present study represents an effort to disentangle the effect of different types of feedback on judgments of accuracy and preference. We used three types of feedback, two reflecting self-judgment biases (i.e., Barnum effect, better-than-average effect), and one reflecting the observed scores on a personality assessment instrument. We used a within-subjects experimental design, in which participants rated the accuracy and preference for the three types of feedback on personality. Our findings revealed that participants rate false feedback as more accurate than real feedback. In addition, participants prefer better-than-average feedback more than the other two kinds. They also prefer the general, Barnum feedback more than the real one. These results add to the literature on self-judgment biases and offer insights for practitioners regarding personality assessment in general, and reporting, in particular.

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RESEARCH ARTICLE

Goal self-concordance mediates the relation of core self-evaluations with organizational citizenship behavior but not with environmental organizational citizenship behavior

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Abstract

This paper tested antecedents of organizational citizenship behavior for the environment (OCB-E) and goal self-concordance as a mediator between those antecedents and OCB-E or related outcomes. We proposed that core self-evaluations, a well-studied antecedent of organizational citizenship behavior (OCB), are also related to a newer form of OCB – namely, OCB-E. Similarly, we proposed that environmental identity, a well-studied antecedent of pro-environmental behaviors (PEBS), are also related to a specific form of PEBS – again, OCB-E. The specific relations of these antecedents to OCB-E, to the best of our knowledge, had never been tested. Drawing on the goal-self concordance model, we tested goal self-concordance as a mediating mechanism in each of these relationships. Results drawn from a sample of 297 employees from diverse organizations support goal self-concordance as a relevant mediator between core self-evaluations and OCB, but not for the remaining relationships. Still, environmental identity, as well as core self-evaluations, are positively and significantly related to OCB-E. We discuss implications for the conceptualization of OCB-E and ways to further study this concept.

Keywords

organizational citizenship behavior for the environment, pro-environmental behaviors, organizational citizenship behavior, goal self-concordance, environmental identity.

Introduction

That the concept of core self-evaluations (CSE) is a stable personality trait serving as antecedent for various desirable organizational outcomes is an insight widely documented in the organizational psychology and management literatures (Debusscher,

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Hofmans, & De Fruyt, 2016; Ferris et al., 2011; Judge, 2009). That the concept of environmental organizational citizenship behavior (OCB-E, also OCB toward the environment) holds its roots in organizational citizenship behavior (OCB) frameworks is also acknowledged (Robertson & Barling, 2017). However, the possibility that the same personality trait that predisposes employees to manifesting OCB could play the same role in the manifestation of OCB-E seems to have, so far, escaped the research on OCB-E's antecedents. In the current study we propose that CSE are an antecedent of OCB-E and test this empirically. We also propose and test a specific motivational mechanism which we believe could explain why this personality antecedent relates with desirable organizational outcomes such as OCB and OCB-E.

OCB-E was defined as "environmental efforts that are discretionary acts, within the organizational setting, not rewarded or required from the organization" (Daily, Bishop, & Govindarajulu, 2009, p. 243). The concept was formally introduced by Daily et al. (2009) and also by Boiral (2009), with the latter referring to it (while defining it in a similar vein) under the label of "environmental organizational citizenship behaviors". The conceptual foundation of OCB-E as well as some of the most prominently used scales for capturing OCB-E (Boiral & Paillé, 2012; Robertson & Barling, 2017) have their roots in OCB frameworks. Past research also labeled OCB-E as voluntary pro-environmental behaviors in the workplace or voluntary employee green behaviors (Yuriev, Boiral, Francoeur, & Paillé, 2018).

Recent regulations in the US and the EU indicate an increased relevance of encouraging OCB-E within companies. Regulations such as the Corporate Sustainability Reporting Directive (CSRD) in the EU (European Parliament, 2022) and the proposed climate risk disclosure for US companies (U.S. SEC, 2022) will turn environmental reporting into legal obligations for more companies than ever before. About 50,000 EU-operating companies (compared to 11,700 as of October 2022) will be required to report their environmental impacts. Many of these environmental impacts can be monitored at role level, through required employee green behaviors (Norton, Parker, Zacher, & Ashkanasy, 2015). Nevertheless, complementing these behaviors and also impacting the environmental performance of an organization, are voluntary employee green behaviors (the conceptual equivalent of OCB-E). These too, are considered to have large impacts on the overall environmental performance of an organization when added up across its employee population (Boiral, 2009; Yuriev et al., 2018).

It comes as no surprise then, that OCB-E and their related concepts have received increased attention since 2009 (e.g., Boiral, 2009; Daily et al. , 2009; Francoeur, Paillé, Yuriev, & Boiral, 2021; Norton et al., 2015; Yuriev et al., 2018). Still, although OCB-E is largely regarded as a desirable outcome and various antecedents have been considered for it (Yuriev et al., 2018), we see a research gap in the exploration of CSE and environmental identity as antecedents of OCB-E, as well as that of a motivational mechanism linking them.

We have four theoretical contributions. Firstly, we bridge across organizational psychology and environmental psychology literatures and highlight how they can benefit each other. From early on, OCB-E was described "as a new construct to capture pro-environmental behaviors in the work setting" (Paillé & Boiral, 2013, p. 118), thus being conceptually related to pro-environmental behaviors (PEBS). We posit that some antecedents traditionally considered for PEBS) and typically covered by the environmental psychology literature, are of relevance to organizational settings as well. Concomitantly, some of OCB's antecedents, typically covered by the organizational psychology literature, can be of relevance to contexts outside of the workplace. Specifically, we propose that as "core-evaluations influence people's appraisal of themselves, the world and others, and do so subconsciously" (Bono & Judge, 2003a, p. 6), those employees with higher CSE are more likely to engage in OCB-E due to their higher confidence in own abilities, belief of self-worthiness, belief in own ability to control the surrounding contexts, as well as emotional stability. In parallel, we propose that employees with higher levels of environmental identity - that is, the extent to which they regard themselves as valuing and being connected to the natural environment (Clayton & Opotow, 2003) - can draw a sense of connection and belongingness from this form of identity and that this influences not only their PEBS in general but also in the particular context of their workplaces.

Secondly, through the above proposals, our study also addresses a research gap observed in the employee-level antecedents reviewed by Norton et al. (2015) from a total of 41 studies on employee green behaviors (inclusive of OCB-E): both CSE and environmental identity, as well as their broader categories of personality and identity-level antecedents were missing from the empirical studies to date. This state of the literature is in contrast to many other antecedents having been explored empirically (i.e., behavioral beliefs, habits, personal norms, motivations, affect, behavioral intentions). Furthermore, though not found in prior empirical studies, the same authors included in their proposed theoretical model, personality as a person-level factor which impacts motivational states and, through them, voluntary employee green behaviors (those equivalent to OCB-E).

Thirdly, we propose and test a potentially shared explanatory mechanisms of OCB-E, PEBS and OCB. We draw on the goal self-concordance (GSC) model and posit GSC as motivational path linking our antecedents and outcomes. GSC refers to “the degree to which stated goals express enduring interests and values” (Sheldon & Elliot, 1999, p. 482) and captures the differences between autonomous and controlled motivations one exhibits in regards to goals of their own choice. The same study from which this definition is drawn showed GSC to relate to changes in wellbeing. Bono and Judge (2003) have since leveraged the self-concordance model (Sheldon & Elliot, 1999), along with the self-concept based theory (Shamir, House, & Arthur, 1993) to test a model in which GSC acted as mediator between transformational leadership and overall job performance (i.e., task performance, personal initiative, self-direction and innovation). Furthermore, GSC has also been employed as mediator in the relationship between CSE and life satisfaction, as well as CSE and goal attainment (Judge, Bono, Erez, & Locke, 2005). The current paper assists in clarifying whether GSC is also a mediator in the relationship between CSE and outcomes such as OCB and OCB-E.

Fourthly, whether the same theoretical frameworks explain PEBS both within and outside of the workplace also does not seem to have reached consensus – though social exchange theory, the norm-activation model, the theory of planned behavior and the value-belief norm theory have been among the favored candidates considered for explaining PEBS in both work and non-work settings (Paillé & Boiral, 2013). The current paper contributes to this important, ongoing discussion on whether there are shared paths for influencing PEBS both within and beyond workplace settings – and it does so by zooming in on GSC as such a potentially shared path.

From a practical relevance perspective, the current paper also addresses interventions that have already been empirically tested and seem to have successfully encouraged certain PEBS (i.e., signing a petition in favor of sustainable energy transitioning, as well as intention to engage in sustainable energy use and more sustainable commuting behaviors) by increasing GSC (Unsworth & McNeill, 2016). The current empirical study tests potential levers to be used in defining new or more effective future interventions.

Antecedents of OCB and PEBS

This paper subscribes to the calls for further clarification of the OCB-E concept, its model of antecedents and their relative importance (Ciocirlan, 2017; Francoeur et al., 2021; Paillé, Boiral, & Chen, 2013). We first draw a parallel to the OCB literature. In the decades which have passed since the OCB concept had first surfaced (Smith, Organ, & Near, 1983), its research agenda have long reached the stage of exploring tens of potential predictors and their relative importance has also come to be quite clearly understood (Hoffman et al., 2007; Organ et al., 2005; Organ, 1997; Spitzmuller et al., 2008). One way in which those antecedents have been grouped is in the form of: personality dispositions (e.g. agreeableness and conscientiousness), attitudes (e.g. job satisfaction, organizational commitments), motivations (e.g. expressive motives such as expression of role identity, instrumental motives such as cost-benefit consideration), task characteristics (e.g. task demands, task routinization), social relationships (e.g. employee relationships with supervisors or and co-workers) (Spitzmuller et al., 2008). In reviewing the state of the literature and its future directions, Organ (2018) pointed to job satisfaction, perceived fairness and personality dimensions as OCB's most frequently found correlates and antecedents from the existing, predominantly North American, study samples.

We next draw a parallel to the PEBS literature. As the OCB concept was just budding, the search for the strongest predictors of responsible environmental behavior was already flourishing. The first meta-analytical review of such behaviors (Hines, Hungerford, & Tomera, 1987) found support for awareness related antecedents such as knowledge of issues and of action strategies, psycho-social antecedents such as locus of control, attitudes, and individual's sense of responsibility, and behavior intent ones such as verbal commitment. Later on, the PEBS literature moved away from the responsible environmental behavior terminology and embraced PEBS, as a way to differentiate them as those aimed at minimizing negative impact and increasing positive impact on the environment (Steg & Vlek, 2009). These behaviors have been in the scope of ample research (Bamberg & Möser, 2007; Markle, 2013; Osbaldiston & Schott, 2012; Steg & Vlek, 2009), which has taken into consideration both psychological and contextual factors (Ruepert, 2016). More recent meta-analytic reviews of 46 PEBS related correlational reports and 253 experimental treatments have surfaced eight psychological constructs which related to PEBS (Bamberg & Möser, 2007). This newer review added antecedents such as social and moral norms, feelings of guilt, and perceived behavioral control. It also emphasized as most effective the treatments relying on cognitive dissonance, goal setting, social modelling and prompts (Osbaldiston & Schott, 2012).

CSE and EID as antecedents under focus

The current study hypothesized four mediation models, as shown in Figure 1. The following paragraphs are an account of which antecedents have been considered in the current study, why they have been selected, what is the state of the literature on their relationship with OCB-E (and more broadly, with OCB and PEB), and what (if not before studied) would justify expecting such a relation. Following this exposition of the relevance of antecedents, we advance into introducing GSC as a potential mediation mechanism applicable to each of the hypothesized relationships.

Personality in general and CSE in particular as antecedents of OCB

Personality aspects such as Big Five and proactive personality have been extensively studied and found as antecedents of OCB (Borman, Allen, Peener, & Motowildo, 2001; Greguras & Diefendorff, 2010; Ilies, Scott, & Judge, 2006; Ilies, Fulmer, Spitzmuller, & Johnson, 2009; Organ, 2018; Spitzmuller, Van Dyne, & Ilies, 2008). Moreover, there is consistent research indicating that CSE act as antecedents to attitudes, motivation, and behavior in the workplace (Judge & Kammeyer-Mueller, 2011). CSE emerged as an incremental predictor of job performance even when accounting for Big Five traits as a potentially confounding variable (Judge, Erez, Bono, & Thoresen, 2003). Also, meta-analytical research has shown the correlations between each of the four CSE traits and job performance to range from .19 to .26 (Judge & Bono, 2001).

The approach-avoidance motivational framework is one of the theoretical frameworks which explain the relationship between CSE and OCB (Debusscher et al., 2016) as well as job performance, more broadly (Ferris et al., 2011). High levels of CSE are considered favorable for high approach motivation and low avoidance motivation, which in turn favor higher performance (Debusscher et al., 2016; Ferris et al., 2011).

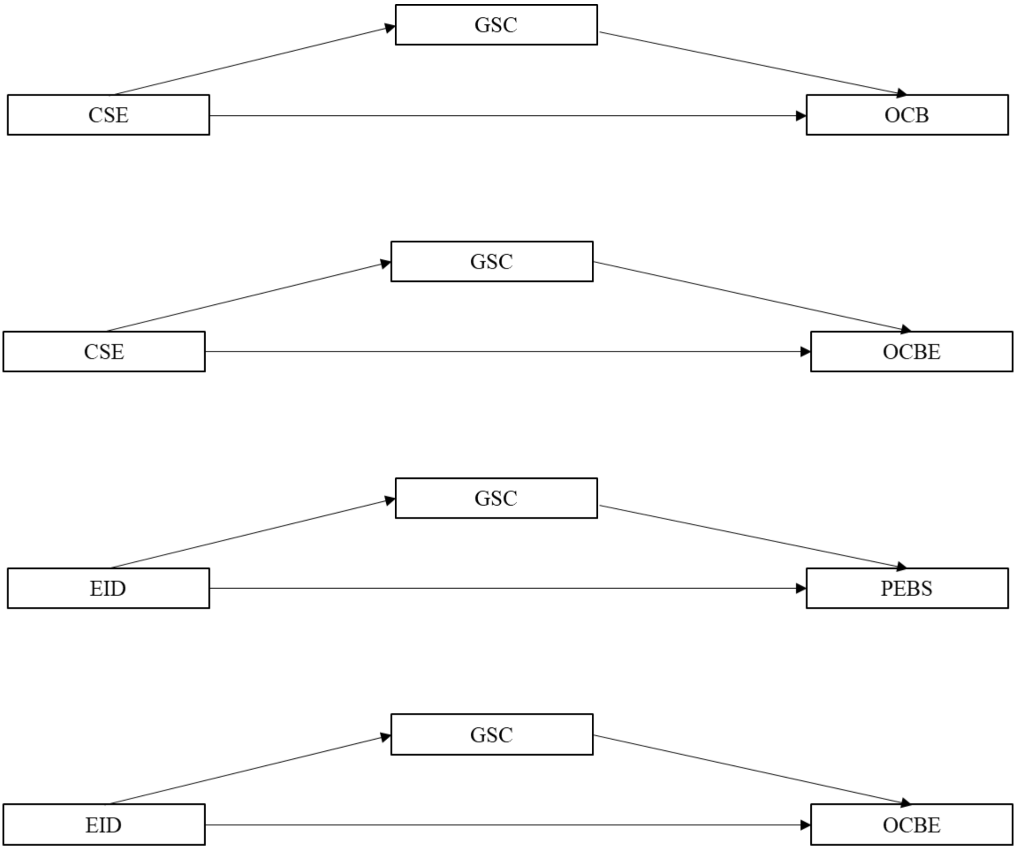

Figure 1. *Proposed mediation models associated with the hypotheses.*

Note. CSE = core self-evaluations; OCB = organizational citizenship behavior; GSC = goal self-concordance; EID = environmental identity; PEBS = pro-environmental behaviors; OCBE = organizational citizenship behavior for the environment.

This paper relies on a similar, yet somewhat different motivational framework in explaining the relationship between CSE in OCB.

According to the self-concordance theory, people who rate higher in GSC (that is, they choose more of autonomous-motivated goals and less of controlled-motivated goals) are more likely to achieve their goals. We posit the same mechanism applies to OCB in organizational settings. Autonomous motivations includes intrinsic motivation and fully internalized extrinsic motivation, and these type of motivations lead to engagement in activities with a higher degree of ownership and volition (Deci, Olafsen, & Ryan, 2017). Controlled motivations, in turn, include introjected (e.g., shame if not pursued) or external motivations, and these can have detrimental effects on performance and level of engagement in activities. Furthermore, other researchers have suggested that “many self-concordant goals are social in nature, involving activities such as helping others” (Greguras & Diefendorff, 2010, p. 543). We believe such “helping others” behaviors are part of what OCB represent in organizational settings.

Prior empirical studies have focused on the mediator role of CSE in explaining other relationships with OCB (Bowling, Wang, & Li, 2012; Spanouli & Hofmans, 2020). However, empirical support for the CSE-OCB relationship comes from some subdimensions of CSE (namely self-esteem, internal locus of control and emotional stability) having emerged as predictors of OCB in previous studies (Borman et al., 2001; Bowling et al., 2012). Furthermore, a related antecedent, creative self-efficacy (a particular type of self-efficacy, which in turn is a subdimension of CSE), has also been shown to predict innovative behavior (Newman, Tse, Schwarz, & Nielsen, 2018) and creative task performance (Tierney & Farmer, 2002).

Bono and Judge (2003b) obtained mixed results regarding the relationship between self-concordance and job performance (in their field versus lab studies). We consider their observation that "it is possible that self-concordance only affects performance on simple tasks or those with an entirely motivational basis (such as extrarole behaviors)" (Bono & Judge, 2003b, p. 568). This is why we also test whether GSC also relates to in-role behaviors (IRB, or task performance) or only to OCB (as a type of extra-role behaviors).

Personality in General and CSE in Particular as Antecedents of OCB-E

To our knowledge, the specific relationship between CSE and OCB-E has not been previously researched. we employ the same GSC theoretical framework in order to posit that CSE could also act as an antecedent of OCB-E. Moreover, other personality traits, such as the Big Five have already been tested as antecedents of OCB-E. Among them, agreeableness, conscientiousness and openness have been shown to relate to OCB-E (Terrier, Kim, & Fernandez, 2016). In that same study, openness to experience and conscientiousness also showed associations with certain subdimensions of OCB-E.

Personality in General and CSE in Particular as Antecedents to PEBS

The current study explores whether CSE, a well-researched antecedent of OCB (Debusscher et al., 2016) and more recently, of OCB-E too (Terrier et al., 2016), can also drive the understanding of PEB. To our knowledge, the direct relationship between CSE and PEBS has not yet been tested. Still, among antecedents of PEBS, personality related ones have been considered as far back as 1988, when they were proposed, along with other variables, in defining clusters of ecologically responsible consumers (Balderjahn, 1988). More recently, Big Five personality traits have also been analyzed in relation to PEBS, with results pointing at openness to experience as relating to PEBS (Markowitz, Goldberg, Ashton, & Lee, 2012) and at specific Big Five personality facets such as altruism, trust, aesthetics, feelings, values and anxiety as relevant in explaining environmental attitudes and choices (Farizo, Oglethorpe, & Soliño, 2016). Furthermore, 64% of the variation in CSE was so far found to be at between-person level (Debusscher et al., 2016). Considering this finding along with the existing support for the Big Five personality and PEBS relationship, we reiterate that, to a large extent, CSE will differ between persons and be somewhat stable across contexts – and thus we posit it will also relate to a person's PEBS manifested outside of the workplace, as well as in the workplace.

Identity in General and EID in Particular as Antecedents to PEBS

Much like CSE in relationship with OCB, EID is one of the most widely researched antecedents of PEB. Building upon the heightened interest the theme of self and identity has received since 1996 onwards, Clayton and Opotow's (2003) put forward the more specific concept of environmental identity, rooted in the earlier concepts of place identity and place attachment (Clayton & Opotow, 2003; Devine-Wright & Clayton, 2010). Since then, environmental identity, as well as related concepts such as pro-environmental self-identity or environmental self-identity, have been gaining traction as antecedents of PEBS in several empirical studies (Brick & Lai, 2018; Carfora, Caso, Sparks, & Conner, 2017; Dermody, Koenig-Lewis, Zhao, & Hanmer-Lloyd, 2018; Gatersleben, Murtagh, & Abrahamse, 2014; Van der Werff, Steg, & Keizer, 2013b, 2013a; Whitmarsh & O'Neill, 2010), including a special issue in the Journal of Environmental Psychology, under the umbrella of "Place, identity and environmental behavior" (Devine-Wright & Clayton, 2010). Several theories have explained the relationship between environmental identity and PEBS (Ruepert, 2016). Among them, the theory of environmental self-identity (Van der Werff et al., 2013b) specifically considered how one's self-regard as someone who acts pro-environmentally will increase the likelihood of them behaving pro-environmentally. Personal norms (e.g., seeing PEBS as the right thing to do) as well as symbolic motivations (i.e., to signal self and others that one cares about the environment) are deemed to act together, according to this theory.

Identity in General and EID in Particular as Antecedents to OCB-E

As much as 114 bodies of literature have been previously used to explain workplace PEBS (McDonald, 2014). Contrasting this abundance, as pointed out in a more recent theoretical paper, "The concept of environmental identity, while extensively studied in the private and public environmentalism literatures (Clayton, 2003), has been given insufficient attention in the organizational sustainability literature." (Ciocirlan, 2017, p. 2). Considering OCB-E to be at least partially overlapping with the concept of workplace PEBS and in addressing the above stated research gap, the current study zooms in on EID and proposes it as antecedent of OCB-E.

Identity in General and EID in Particular as Antecedents to OCB

The main reason for considering environmental identity as an antecedent of OCB comes from the current paper's goal of cross-testing antecedents of OCB and PEBS. However, considering OCB as a type of performance, support for this pursuit can already be drawn from some of the existing theoretical perspectives on how social identity interacts with performance, such as those put forward by Ellemers, De Gilder, and Haslam (2004). Their propositions, among others, aimed to explore whether the benefits of installing workgroups and teams (or of identification with a certain group, more broadly) weight more heavily than the seemingly contrary yet rather complementary theoretical perspective of social loafing effects, according to which, individual performance is expected to decrease when working in groups compared to when working individually (Ellemers et al., 2004, p. 470). The same authors have proposed that "the emergence of collective identification directs workers' efforts toward the enhancement of their joint performance when this helps achieve or maintain a distinct collective identity. However, collective identification will diminish joint performance when the distinctive norm is for collective underperformance." (Ellemers et al., 2004, p. 470). Though, to our knowledge, environmental identity has not been explored as antecedent of OCB, we consider it to be a type of group identity that - according to the social identity theory referenced above - has the potential to positively impact performance due to group members' sustained efforts being stimulated by their social identification (Ellemers et al., 2004; Tajfel & Turner, 1979).

Goal self-concordance as hypothesized mediating mechanism

Our first hypothesis follows up on some prior studies and posits the mediating role of GSC between CSE and OCB, for the reasons detailed in the above-dedicated section.

Hypothesis 1: GSC mediates the relationship between CSE and OCB.

The second hypothesis takes into consideration OCB-E as a new type of OCB (Daily et al., 2009; Paillé & Boiral, 2013). More specifically, it proposes that GSC holds a mediating role in the relationship between CSE and OCB-E.
Hypothesis 2: GSC mediates the relationship between CSE and OCB-E.

The third hypothesis reiterates the mediating role of GSC in the relationship between environmental identity and PEBS. It considers prior literature highlighting environmental identity as an antecedent of PEBS (Ruepert, 2016) and the existing support for self-concordance impacting PEBS, as found by Unsworth and McNeill (2016). It advances these prior findings by proposing GSC as mediator.
Hypothesis 3: GSC mediates the relationship between EID and PEBS.

The fourth hypothesis proposes that GSC also mediates the relationship between EIS and OCB-E. This proposal relies on considering OCB-E as a workplace specific type of PEBS. It also assumes the EID-GSC path to PEBS is not particular to contexts outside of organizations.
Hypothesis 4: GSC mediates the relationship between EID and OCB-E.

As a result of all of the above-stated considerations, the proposed mediation models associated with these hypotheses are shown in Figure 1.

Method

Participants and Procedure

Participants were recruited through a dedicated data collection platform (Prolific Academic). Participants were informed and were provided with equal compensation even if they chose to drop out of the study at any stage in the research process. Participants' recruitment criteria include age, employment status and country of residence. Age was solely included to select in adults. Employment status was critical for some of the key outcomes considered in this study (namely, IRB, OCBI, OCBO, OCB-E). A single country of residence was used in order to minimize the considerable variations in what constitutes as PEBS across countries, often due to the differences in social norms and standards of living – for instance, carpooling is seen as a preferred alternative to driving and as a result, regarded as PEBS in the US; at the same time, in countries in which car ownership is not as common (e.g., due to sustained environmental efforts or to reduced purchasing power), carpooling's environmental impact can actually be worse than that of the ”default” transportation mode (e.g., biking). With Markle (2013) having published a critical review of the PEBS scale and having put forward a comprehensive one but for PEBS rather typical of the US and Western countries, we have therefore chosen to recruit participants solely from the US and use this rather “localized” PEBS scale.

This has resulted in 353 participants who have opened the link to the survey (a brief description referring to preferences, objectives and behaviors as well as the number of open-ended items in the survey showed up). Out of these, some opted out of the survey (incompatibility with their tablet was cited as a reason) and others have been timed out (i.e., took more than 10 minutes above the average survey completion time of 15 minutes). Finally, all answers to the open-ended question regarding objectives (used as part of the GSC measurement) have been screened by the research team and answers from two participants were excluded on the basis of them providing seemingly random words or numbers instead of objectives. As a result, the actual number of participants being considered in the analysis stage was n = 297 (84.13% of those who opened the link to the survey). Of these, 52.86% were male (157) and 46.80% were female (139), while one participant selected “Other / I choose not to answer”. Ages ranged from 18 to 68 (M = 32; SD = 10). Table 1 shows descriptive statistics of the sample, including age, household size and household income. To rule out potential bias introduced by monetary motivations, we included an optional item regarding the respondents' annual household income. Out of the 97.70% participants who answered this question, less than 10% had annual household income levels below 20,000 USD and over 15% were in the above 100,000 USD group, thus we considered the participants were diverse enough in respect to annual household income.

Table 1. *Descriptive Statistics and Pearson Correlations for Study Variables*

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	31.95	10.22	-												
2. Gender [a]	0.53	0.50	-	-											
3. HH	2.60	1.47	-.09	-	-										
4. HH income	4.58	1.67	.05	-	.21**	-									
5. Manager [b]	0.28	0.45	.04	-	-.04	-	-								
6. EID	73.38	18.48	.10	-	.09	.01	-	-							
7. CSE	40.38	9.28	.14*	-	.05	.23**	-	.07	-						
8. GSC	1.03	1.77	.01	-	-.03	.03	-	.22**	.28**	-					
9. PEBS	55.56	12.84	-.14*	-	.07	-.01	-	.58**	.00	.14*	-				
10. OCB-E	26.72	9.66	-.09	-	.07	.03	-	.52**	.14*	.11	.50**	-			
11. OCB	51.97	7.42	.01	-	.14*	.07	-	.21**	.25**	.25**	.18**	.34**	-		
12. OCBI	26.89	5.42	-.04	-	.16**	.10	-	.26**	.17**	.18**	.24**	.42**	.90**	-	
13. OCBO	25.09	3.50	.10	-	.04	.01	-	.04	.27**	.25**	.01	.08	.73**	.36**	-
14. IRB	31.27	3.64	.07	-	.07	.09	-	.07	.30**	.22**	-.03	.02	.47**	.29**	.55**

Note. HH = household; EID = environmental identity; CSE = core self-evaluations; GSC = goal self-concordance; PEBS = pro-environmental behaviors; OCB-E = organizational citizenship behavior for the environment; OCB = organizational citizenship behavior; OCBI = organizational citizenship behavior towards individuals; OCBO = organizational citizenship behavior towards the organization; IRB = in-role behavior.
[a] 0 = female, 1 = male. [b] 0 = non-managerial (no direct reports) and 1 = managerial (at least one direct report).
*$p < .05$. **$p < .01$. N = 297.

Measures

With the exception of GSC, PEBS and demographic data, all items were accompanied by Likert-type scale and were measured on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Core Self-Evaluations (CSE). CSE were measured using the 12-item scale developed by Judge et al., (2003). The scale was specifically developed to capture this higher-order trait previously assessed through a mix of self-esteem, generalized self-efficacy, neuroticism and locus of control (Judge et al., 2005; Judge, Erez, & Bono, 1998). A sample item is "When I try, I generally succeed.". The internal reliability of this scale in the current sample was Cronbach's α = .89.

Goal Self-Concordance. In line with much of the self-concordance literature, for measuring GSC we have used the scale developed by Sheldon and Elliot (1999). Participants were asked to type in six goals they aim to accomplish over the subsequent 60 days. Each goal then showed up on the screen and they provided ratings that gauged their controlled versus autonomous motivations in pursuing those goals. A sample item for autonomous motivations is "You pursue this goal because you really believe it's an important goal to have". A sample item for controlled motivations is "You pursue this goal because you would feel anxious, guilty, or ashamed if you didn't".

The self-concordance literature, including self-concordance based interventions to increase PEBS such as energy saving (Unsworth & McNeill, 2016), have alternatively employed a scale developed by Sheldon and Kasser (1995). We considered this alternative scale to be more relevant for capturing self-concordance in regard to specific behaviors and less relevant for capturing GSC as was in scope for the current study. The internal reliability of this scale was measured in line with the procedure highlighted by previous studies (Bono & Judge, 2003b; Greguras & Diefendorff, 2010; Sheldon et al., 2004) and by giving due consideration to the limitations addressed by Bono and Judge (2003). The internal reliability of this 24-item scale in our sample was $\alpha = .73$.

Organizational citizenship behavior towards the environment (OCB-E). OCB-E was measured with a nine-item scale developed by Boiral and Paillé (2012). A sample item is "I voluntarily carry out environmental actions and initiatives in my daily activities at work". The internal reliability of this scale in our sample was $\alpha = .94$. OCB-EOCB-E

In-Role Behavior (IRB, Task Performance) and Extra-Role Behaviors (OCB, OCBI, OCBO). IRB, OCB and OCB's sub-components (OCBI and OCBO) were measured with Williams and Anderson's (1991) 20-item scale. A sample item for IRB is "I fulfill responsibilities specified in job description". A sample item for OCB is "I help others who have heavy workloads". This choice in scale is linked to one of the study's goal to further clarify the findings of Bono and Judge (2003) on the relationship between GSC and job performance. Bono and Judge (2003) have considered as outcome variable overall job performance and its sub-dimension of task performance (in-role behavior), personal initiative, self-direction and innovation. By contrast, we maintained the IRB sub-dimension but replaced the others with OCBI, OCBO and OCB-E to further illuminate the potential differences in how CSE interact with in-role versus extra-role behaviors (as a key contrast they suggested for further research). The internal reliability for IRB was $\alpha = .79$, for OCB $\alpha = .80$, and for OCB-I $\alpha = .85$. OCB-O's internal reliability in this sample was lower (Cronbach's α = .60), as opposed to Cronbach's α = .75 in the original study (Williams & Anderson, 1991). Consequently, the results regarding OCB-O should be taken with caution. It is worth noting that throughout this paper we refer to task performance and in-role behaviors (IRB) as interchangeable terms due to their conceptual overlap (Motowidlo, 2000; Organ, 1997; Podsakoff et al., 2000; Spitzmuller et al., 2008).

Pro-Environmental Behaviors (PEBS). In measuring PEBS, we have decided to use the scale developed by Markle (2013) after they reviewed 49 studies with 42 unique scales. A primary criterion for our selection of a PEBS scale was to minimize the variations in what constitute PEBS by country. This criterion has also guided our decision to employ a US-based sample of respondents, as Markle's (2013) scale best fit our primary criterion and was designed mainly with US-based respondents in mind. A sample item is "During the past year how often have you walked or cycled instead of driving?". Cronbach's α in our sample was α =.80.

Environmental Identity. Consistent with prior research, environmental identity was measured using Olivos and Aragonés' (2015) 22-item scale, an improved version of Clayton and Opotow's (2003). Even though it was shown to have a five-factor structure, we only looked at the composite measure. A sample item is "In general, being part of the natural world is an important part of my self-image". Cronbach's α for this measure was α =.94.

Data analysis

We used IBM SPSS Statistics version 20 for descriptive statistics, Pearson correlations and reliability testing. For testing mediations, we used MPlus version 7 (Muthén & Muthén, 2012) with ML estimation complemented by bootstrapping (with 1000 bootstrap draws). We defined the measurement model so that each item-level value would load on its associated latent factor (e.g., each CSE item loading on the CSE latent factor) and we also allowed the within-factor correlations suggested by the modification indices. We first assessed the quality of our proposed measurement models. Where our proposed model met the guidance thresholds for ML type of estimator (Hu & Bentler, 1999), we advanced to path analysis.

Results

Preliminary Analyses in Cross-Testing Antecedents of OCB and PEBS

CSE as antecedent of PEBS, OCB-E, and OCB

While CSE is a well-researched and well-supported antecedent of job performance in both IRB and OCB forms (Bono & Judge, 2003b; Erez & Judge, 2001; Judge, 2009; Judge et al., 2005), when trying to extrapolate past empirical findings to other types of behavior, namely, to OCB-E and to PEBS, we have identified significant, positive, moderate relationship between CSE and IRB (r = .30, p = < .001), between CSE and OCB (r = .25, p = < .001) and less strong yet still positive and significant between CSE and OCB-E (r = .14, p = .015). Moreover, the relationship between CSE and OCB remained significant even when OCB was broken down into its subdimensions – that is, CSE showed a positive, moderate relationship with OCBO (r = .27, p = < .001) and a positive yet mild relationship with OCBI (r = .17, p = .004). However, the relationship between CSE and PEBS was not significant (r = .00, p = .967).

Environmental identity (EID) as antecedent of PEBS, OCB-E, and OCB

In assessing these, in line with previous studies, the relationship between EID and PEBS was significant, positive and moderate to high (r = .58, p = < .001). Similarly, as expected, EID was also found to positively relate to OCB-E (r = .52, p = < .001) as well as OCB (r = .20, p = < .001).

A moderate, significant, positive relationship was also found between EID and OCBI (r = .26, p = < .001). Interestingly, the results were not significant for the relationship of EID with neither OCBO (p = .507) nor IRB (p = .213).

Mediation models addressing the hypotheses

Hypothesis 1: GSC mediates the relationship between CSE and OCB.

Based on the χ^2 test, the model did not fit the data (χ^2 = 486.705, df = 359, p = < .001). However, bootstrap p-value was on the borderline of significance at a .050 threshold (bootstrap p = .050). Considering these mixed results and also the sensitivity of the χ^2 test to sample sizes, we decided to continue the analysis. Next, considering the SRMR fit index, the model seemed to be a good approximation of the data (SRMR = .063). Incremental fit indices (CFI = .957, TLI = .944) supported a very good incremental fit over the independence model. The RMSEA value indicated an excellent approximation of the data (RMSEA = .035; 90% CI = [.026; .042]; p > .05). Overall, we decided the data fit the measurement model well enough, and we advanced to testing the mediation paths.

As shown in Table 2, the GSC partially mediated the relationship between CSE and OCB. The indirect effect of CSE on OCB was significant (β = .087, 95% *CI* = [.007; .167]). The direct effect of CSE on OCB was also significant and larger than the indirect effect (β = .158, 95% *CI* = [.001; .316]). In line with these results, the total effect was also significant (β = .245, 95% *CI* = [.117; .374]).

The resulting mediation model, including all specific direct effects is shown in Figure 2. In addition, to address the risk of confounded mediation, we compared our hypothesized mediation model with an inverse model (assuming OCB as the mediator between CSE and GSC). Even though the direct effect of CSE on GSC was significant (β = .359, 95% *CI* = [.210; .509]) and the total effect of CSE on GSC was also significant (β = .406, 95% *CI* = [.266; .546]), the inverse model did not show significant indirect effects (β = .047, 95% *CI* = [−.007; .100]). As a result, the inverse mediation model was not supported.

Table 2. *Mediation Path analysis: Standardized Total, Indirect, and Direct Effects (STDYX Standardization with Bootstrap)*

	Estimate	*SE*	Estimate / *SE*	*p*	95% Bootstrap *C.I.*
CSE → OCB					
CSE → OCB (total)	.245	.065	3.750	< .001	.117; .374
CSE → GSC → OCB (indirect)	.087	.041	2.134	.033	.007; .167
CSE → OCB (direct)	.158	.080	1.971	.049	.001; .316
CSE → OCB-E					
CSE → OCB-E (total)	.194	.066	2.949	.003	.065; .323
CSE → GSC → OCB-E (indirect)	.030	.033	.914	.361	−.034; .094
CSE → OCB-E (direct)	.164	.075	2.187	.029	.017; .311
EID → PEBS					
EID → PEBS (total)	.846	.025	34.381	< .001	.798; .894
EID → GSC → PEBS (indirect)	.001	.016	.048	.962	−.030; .032
EID → PEBS (direct)	.845	.029	29.372	< .001	.789; .901
EID → OCB-E					
EID → OCB-E (total)	.606	.043	14.221	< .001	.522; .689
EID → GSC → OCB-E (indirect)	−.004	.017	−.231	.818	−.037; .029
EID → OCB-E (direct)	.610	.048	12.777	< .001	.516; .703

Note. CSE = core self-evaluations; OCB = organizational citizenship behavior; GSC = goal self-concordance; EID = environmental identity; PEBS = pro-environmental behaviors; OCBE = organizational citizenship behavior for the environment.

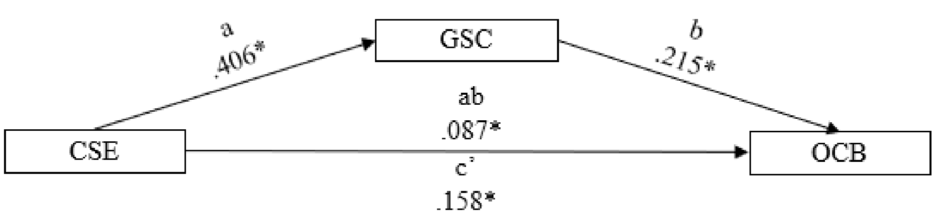

Figure 2. *Resulting meditation model associated with H1.*

Note. *Significant based on 95% confidence intervals. a, b, c' are stdyx standardized estimates of direct effects. ab is stdyx standardized estimate of indirect effect. CSE = core self-evaluations; GSC = goal self-concordance; OCB = organizational citizenship behavior.

Hypothesis 2: GSC mediates the relationship between CSE and OCB-E.
Following the same procedures as for H1, we considered various model fit indices. The results regarding model fit indices are available in Table 3. We decided the data fit the measurement model well enough, and we advanced to testing the mediation paths.
As shown in Table 2, the mediator role of GSC was not accepted in the relationship between CSE and OCB-E.

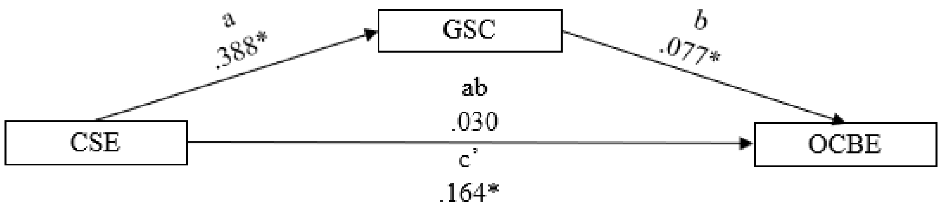

Figure 3. *Resulting meditation model associated with H2.*

Note. *Significant based on 95% confidence intervals. a, b, c' are stdyx standardized estimates of direct effects. ab is stdyx standardized estimate of indirect effect. CSE = core self-evaluations; GSC = goal self-concordance; OCBE = organizational citizenship behavior for the environment.

Hypothesis 3: GSC mediates the relationship between EID and PEBS.
The results regarding model fit indices are available in Table 3. Overall, we decided the data fit the measurement model well enough, and we advanced to testing the mediation paths.
As shown in Table 2, the mediator role of GSC was not accepted in the relationship between EID and PEBS.

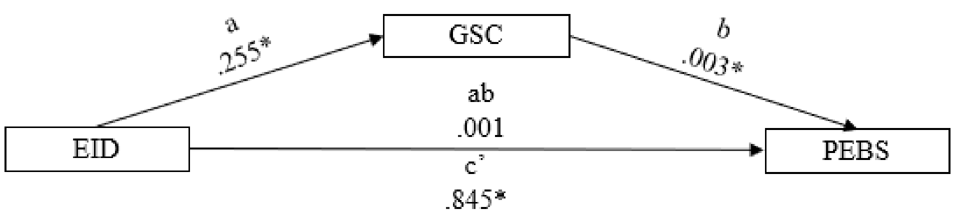

Figure 4. *Resulting meditation model associated with H3.*

Note. *Significant based on 95% confidence intervals. a, b, c' are stdyx standardized estimates of direct effects. ab is stdyx standardized estimate of indirect effect. EID = environmental identity; GSC = goal self-concordance; PEBS = pro-environmental behaviors.

Hypothesis 4: GSC mediates the relationship between EID and OCB-E.
The results regarding model fit indices are available in Table 3. Once again, we decided the data fit the measurement model well enough, and we advanced to testing the mediation paths.
As shown in Table 2, the mediator role of GSC was not accepted in the relationship between EID and OCB-E.

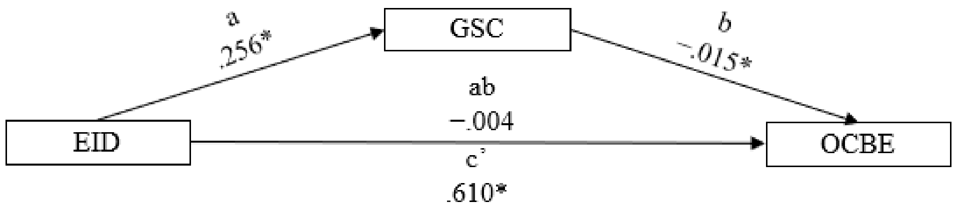

Figure 5. *Resulting meditation model associated with H4.*

Note. *Significant based on 95% confidence intervals. a, b, c' are stdyx standardized estimates of direct effects. ab is stdyx standardized estimate of indirect effect. EID = environmental identity; GSC = goal self-concordance; OCBE = organizational citizenship behavior for the environment.

Table 3. *Model Fit Indices for Models of Unconfirmed Mediations*

Model	χ^2	*df*	*p (for* χ^2*)*	bootstrap *p*	*SRMR*	*CFI*	*TLI*	*RMSEA*	90% *CI*	*p (for RMSEA)*
Hypothesis 2	391.469	295	< .001	.084	.050	.975	.970	.033	.024; .042	> .05
Hypothesis 3	1315.093	960	< .001	.017	.052	.935	.927	.035	.030; .040	> .05
Hypothesis 4	782.386	568	< .001	.049	.050	.965	.959	.036	.029; .042	> .05

Additional analyses aimed at clarifying GSC's relevance as mediator in the relationship between CSE and extra-role behaviors (OCBs) vs. in-role behaviors (IRB) vs. PEBS

Core self-evaluations and goal self-concordance. Pearson correlation was run to assess the relationship between CSE and GSC. There was a statistically significant, moderate positive correlation between CSE and GSC ($r = .28$, $p < .001$).

Goal self-concordance and all forms of OCB (OCBI, OCBO, OCB-E). Pearson correlations were used to assess the relationship between GSC and various forms of OCB. The relationship between GSC and OCB-E was not statistically significant ($p = .053$). The relationship between GSC and OCBI, OCBO and OCB was statistically significant and small to moderate positive correlations were found between GSC and OCBI ($r = .18$, p = .002), OCBO ($r = .25$, $p = < .001$), and OCB ($r = .25$, $p = < .001$).

Goal self-concordance and IRB. There was a statistically significant, small to moderate positive correlation between GSC and IRB ($r = .22$, $p = < .001$). Therefore, the suggestion that extra-role behaviors interact with GSC differently from IRB (Bono & Judge, 2003) is not supported by the current results.

Goal self-concordance and PEBS. There is a significant, yet low positive relationship between GSC and PEBS ($r = .14$, $p = .019$).

Discussion

Summary of findings

Taken together, our findings showed some support for the conceptual overlap of OCB-E with both OCB and PEBS. First, the current study reconfirmed some of the previously known relationships – those of CSE with IRB and those of environmental identity with PEBS. These relationships reiterate findings from previous studies (Bono & Judge, 2003b; Brick & Lai, 2018; Carfora et al., 2017; Dermody et al., 2018; Gatersleben et al., 2014; Van der Werff et al., 2013a, 2013b). Second, it showed that although CSE relates significantly with OCB and OCB-E, the same antecedent does not significantly relate to PEBS. Therefore, at least in the relation to CSE, OCB-E is interacting with it more similarly to OCB than to PEBS. This finding could signal OCB-E's uniqueness among PEBS, possibly due to OCB-E having its theoretical roots in the OCB concept. This finding thus relates to recent efforts to clarify the conceptual nuances of OCB-E and green workplace behaviors (Francoeur et al., 2021). Third, environmental identity, to our knowledge previously studied only as antecedent of PEBS, also showed a strong and positive relation with OCB-E, thus rather supporting the conceptualization of OCB-E as a particular case of PEBS. By contrast, the relation between environmental identity and OCB as well as that between environmental identity and OCBI were only moderate. The relation between environmental identity and IRB, as well as that between environmental identity and OCBO departed from this trend, both being not significant. All these findings are, to the best of our knowledge, new empirical findings.

By testing a specific mediation mechanism, we showed that even though GSC accounted for some of the total effect of CSE on OCB, the same mechanisms could not explain the impact of CSE on OCB-E, that of environmental identity on PEBS, nor that of environmental identity on OCB-E. On one hand, the difference in results for CSE versus environmental identity points to potential differences in how personality, as opposed to identity interact with the pro-environmental outcomes. On the other hand, the differences in mediation results for OCB as compared to both OCB-E and PEBS suggest that the GSC mechanism is unique to explaining OCB.

Theoretical and practical implications

The above stated results indicate some interesting similarities but also some surprising ways in which antecedents of OCB and PEBS relate to OCB-E. The results of the current study point to environmental identity as a transferable antecedent from the environmental behaviors literature to that of OCB-E, in line with our initial assumption that OCB-E present at least some conceptual overlap with PEBS, as PEBS taking place in the workplace context. The current results also reconfirmed previous findings on the theoretical relevance of considering GSC as a mediator in the relationship between personality traits (i.e., proactive personality, CSE) and OCB (Greguras & Diefendorff, 2010). However, the current results suggest that the significant relationships between CSE and OCB-E, as well as the significant relationship between environmental identity and OCB-E, environmental identity and OCB, or environmental identity and OCBI are not explained by the GSC motivational mechanism. Rather than the autonomous versus controlled motivations dynamics captured by GSC, it seems that other motivators explain the above-mentioned interactions.

From a practical perspective, the new antecedent we highlighted for OCB-E can signal to managers, sustainability, human resources and change management professionals that employees with strong environmental identity might be particularly interested or might particularly experience the need to engage in PEBS or environment-focused corporate social responsibility initiatives (e.g., crafting communications, facilitating discussions, volunteering for pro-environmental causes). I current results also show that the goal-self concordance lever targeted in interventions aimed at increasing certain PEBS does not necessarily translate to the same lever being of relevance for interventions aimed at increasing OCB-E. Still, given the strong link the current results showed for environmental identity with PEBS and with OCB-E, and considering approaches from change management practices, inviting those who identify as having strong environmental identity to act as environmental champions in their organization and nurturing the initiatives of this core group could be a way in which OCB-E gets initially encouraged in an organization.

Strengths and limitations

The current cross-sectional study has the potential limitation of systematic error variance, including rater effects or item effects. Using lagged data and/or methods such as experience sampling (ESM) could increase the validity of the present results. Apart from the previously stated advantages of data collection through specialized platforms, the monetary compensation they entail can externally motivate participants to complete the study rather than completing it with accuracy, thus potentially impacting data quality. However, we addressed this potential limitation by clearly communicating that compensation will be provided for those who start the survey and decide to withdraw, by using listwise deletion of data (except for some optional demographics), and by visually assessing the distribution of annual household income.

The convenience sampling method we used does not ensure statistical representation at country level. Concomitantly, by considering participants from a single country, the findings of the current study might capture some patterns that are specific to the US. Nevertheless, by including participants from diverse organizations, our findings complement existing studies which were conducted with participants belonging to a small group of organizations from countries across the EU and across sectors and industries (Ruepert, 2016).

Future research directions

Given the current results of our mediation tests, it appears that other motivation-related mediators could be considered as explaining the relationships between environmental identity or CSE, on one hand, and PEBS or OCB-E, on the other. These potential mediators include the environmentally responsible behavior motives (De Young, 2000) – which include competence, frugality, participation, and luxury. Yet another potentially relevant motivation-related mediator could be that of citizenship motivations (Rioux & Penner, 2001) – which include organizational concern, prosocial values, and impression management. Apart from motivation-focused mechanisms, prior literature has shown the relationship between environmental identity and a specific type of PEBS at work (i.e., waste prevention) to be intermediated by personal norms towards PEBS at work (Ruepert, 2016). Nevertheless, while the effect of environmental identity on norms was significant, the effect of norms on other PEBS at work (i.e., energy use, transport-related energy use, transport-related energy savings, or recycling) was not significant. Our results on aggregated PEBS, combined with the above stated ones indicate that potentially different mechanisms intermediate the relationship between environmental identity and PEBS, as well as environmental identity and OCB-E, depending on the PEBS of interest. While from a practical relevance it might seem desirable to identify shared mechanisms for aggregated PEBS, it seems that specific mechanisms might be of relevance for specific PEBS or OCB-Es and further research could help inform this.

In interpreting the contrasting results between OCBO and OCBI as they related to environmental identity, we believe that environmental identity might make more likely the manifestation of OCBs towards individuals, as individuals can be perceived as also belonging to the natural world. By contrast, organizations and work tasks can be perceived as in no way related to that natural world focus that a strong environmental identity makes salient. Instead, organizations are closer to what environmental literature terms as “the built environment”. We find some support for this in the environmental identity scale including items such as “Being a part of the ecosystem is an important part of who I am”, and “In general, being part of the natural world is an important part of my self-image” (Olivos & Aragonés, 2015). Nevertheless, this assumption we make would require exploration in future research.

A rather recent tendency in the OCB literature is that of exploring the potential negative effects of this concept which has traditionally been approached from a “benefits” perspective – this direction being often guided by resource depletion theories. The potential negative effects of OCB-E, to our knowledge, haven’t yet been discussed in either theoretical or empirical studies yet understanding if such effects exist seems particularly relevant in informing practical applications. Also, exploring such effects might also help clarify seemingly paradoxical findings such as those observed by Paillé et al. (2013), who noticed in their study that perceived supervisor support and OCB-E were negatively related. In line with literatures such as that of employee engagement or OCB, the resources depletion theoretical framework seems particularly relevant to inform this research direction. Other potential research directions to complement our findings could be comparisons with other extra-role behaviors and employing ESM to capture interactions across both persons and time.

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PUBLISHING STANDARDS

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- Introduction of the problem. This section will present the specific problem under the study and describe the research strategy. There is no need to label this section as Introduction.
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- State each tested hypothesis clearly and provide a theoretical argument for how it was derived from theory or is logically connected to previous data and argumentation.

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This section describes in detail how the study was conducted, including conceptual and operational definitions of the variables used in the study. Authors should include the following:

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Results

This section summarizes the collected data and the analysis performed on the data to test the proposed hypotheses. Report the data analysis in sufficient detail to justify your conclusions. For more information please consult the 6th APA Publication Manual.

Discussion

This section evaluates and interprets the implications of the results, especially with respect to original hypotheses. Examine, interpret, and qualify the results and draw inferences and conclusions from them. Emphasize any theoretical or practical consequences of the results.

Also, the limits of the study and possible future studies can be considered in this section.

References

References are your entries in the *alphabetical list at the end* of your article or research note. This list should include all the works you have cited throughout the manuscript. The references should be formatted as follows:

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2. Books

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Author, A.A. (Year). Title of manuscript. Unpublished manuscript [or "Manuscript submitted for publication," or "Manuscript in preparation"].

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The appendices of the manuscript (labeled APPENDIX A, APPENDIX B etc.) contain materials that supplements article content such as lengthy methodological procedures, calculations of measures, scales etc.

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