

PNP 2021  
Personality in Norm and in Pathology 2021**PSYCHO-LINGUISTIC FEATURES OF PERSONALITY  
BEHAVIORAL PATTERNS IN INSTAGRAM**Nadezhda Obvintseva (a)\*, Elena Yukhmina (b)  
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**Abstract**

A pattern in psychology is a certain set of behavioral responses. A person applies patterns consciously or unconsciously. Analyzing patterns, one can better understand the actions of people, their psychological characteristics. Nowadays a social network is a melting pot of active social life. It is a source of news, a means of work, advertising and entertainment. A person manifests him/herself in the net verbally and nonverbally via publications (or posts), which contain certain patterns with their own peculiar features. The research aims at analyzing the psycho-linguistic features of personality behavioral patterns in Instagram. The types of behavioral patterns in the social media are investigated on the basis of the DISC model by William Marston. Special attention is paid to the verbal behavior indicators. A typology of behavioral patterns has been developed. It allows clearly tracing the correlation between personal psychological characteristics and behavioral patterns in the network. 250 Instagram users were randomly selected; the most common behavioral patterns (verbal and nonverbal) were analyzed and classified. Finally, a validation on 250 Instagram accounts selected randomly was performed. Thus, each type of personality can be distinguished by subtypes that are characterized by their own behavioral patterns. This study contains practical material that helps to analyze the features of the individuals' perception of the world and their behavior in the specific situations. The research results can be used for the purposes of commercializing accounts, developing an effective content strategy aimed at a specific audience, recruiting employees, developing marketing strategies.

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*Keywords:* Behavioral patterns, Instagram, linguistic features, personality, psycholinguistic analysis

## **1. Introduction**

A pattern in psychology is a certain set of behavioral responses. A person applies patterns consciously or unconsciously. Analyzing patterns, one can better understand the actions of people, their psychological characteristics. Nowadays a social network is a melting pot of active social life. It is a source of news, a means of work, advertising and entertainment. A person manifests him or herself in the net verbally and nonverbally via publications (or posts, comments), which contain certain patterns with their own peculiar features.

Social networking sites (SNSs) are said to be new important means of participating, communicating, and gaining social capital. Thus, increasingly fragmented user population and user behaviors in SNSs make it important to achieve more knowledge about SNS users and their participation inequality (Brandtzaeg, 2011).

## **2. Problem Statement**

### **2.1. Behavior Typology in Research**

A typology of persons has been studied in psychology for a long time, but it opens more and more important things and is developing from century to century. Scientists proposed a number of personality typologies in real life that can be applied for the typology of the behavior of people online nowadays. Most of the typologies are based on the questionnaires and interviews as well as self-assessment of the people. Regarding a behavior typology one can assume that its results can be more objective when it relates to particular facts and actions but not only the thoughts and pondering on the situations.

In the research field, the personality can be described as a set of specifications that compels a tendency on the behavior of the person; this tendency is unchanged through time and positions (Kumar et al., 2017). So, through the person's behavior patterns it is easy to reveal their personality, to understand their future reactions and improve the knowledge of their needs. It is obvious that the behavior of the person online can be followed through their lexical expression. People use their comments, posts and 'likes' to demonstrate their reactions. Today Instagram is one of the most popular social networks. It is an important site for international communication and interaction. It allows cooperation and sharing the thoughts and ideas, attracting more and more people. In the network users upload the photos and write posts and comments for them. Moreover, nowadays we can also talk about differences in people who use social media frequently and those who spend less time surfing the social sites (Vaid & Harari, 2020). The linguistic behavior patterns of the people on the network is different and can be classified from the psychological point of view. It should be noted that a real personality and an online or virtual personality can be different as a person can present him or herself to an indefinite circle of people to the best of his/her ability (narcissism) (Bendiukov, 2019). In our research we consider personalities as they demonstrate themselves on the network, regardless if they are the same personalities in their real life or only online.

## **2.2. Linguistic Behavior in DISC model**

According to APA Dictionary of Psychology, the behavior is “any action or function that can be objectively observed or measured in response to controlled stimuli” (APA Dictionary). Being an action verbal reactions are also behavior (APA Dictionary). So, the attempt of analyzing the psycho-linguistic features of personality behavioral patterns in Instagram is made in this work in order to reveal the connection of the linguistic means and traits of character on the social network Instagram.

The analysis is based on the DISC model suggested by M. Marston at the beginning of the 20th century but improved and verified since that time (Prochaska et al., 2015). The model suggests that there are 4 main features (or “styles”) (DISK Profile Validation) that can be traced through the person’s behavior patterns and which are the ground of the typology proposed. They are dominance (D), influence (I), steadiness (S) and conscientiousness (C) (DISK Profile Validation). Employing this model to the users’ linguistic behavior on the Instagram network will help to understand the users’ psychology better and predict their actions in future.

Nowadays a lot of researchers of network sites have mostly paid attention to users' demographics, motivations, efficacy, life satisfaction etc. But with increasingly popular social media, it is important to study more stable psychological characteristics such as users' personality traits, as they may significantly affect how people use the Web to communicate and socialize (Correa et al., 2013).

Some time ago at the beginning of the internet era people used to hide their personalities and sought the anonymity which could be provided by the internet. These days the situation has changed, and they use the internet to communicate, to expand their network and the social networks like Instagram facilitate their socializing and self-identification. Widespread use of social media makes it possible to receive information about social media users by analyzing data retrieved from their public pages (Stankevich et al., 2018). The increasing interactivity and number of social network users make it necessary to explore the types of people according to their linguistic means of expression. It can help not only marketing specialists to find an approach to different types of people and employers to get better understanding of their future or current workers (Foroudi et al., 2020) but also it will help in studies on the internet users’ behavior and its correlation to their behavior and personal characteristics in a non-virtual world as well as it will show the correlation between users’ linguistic behavior and their type of personality.

## **3. Research Questions**

The questions to be answered in this research are the following: how does the type of personality affect people’s linguistic behavior; what linguistic means are preferably used by each type of the personality?

## **4. Purpose of the Study**

Thus, the purpose of the study is to analyse the linguistic behavior of the users in the social network Instagram to reveal similar and distinctive features of the language as identifiers of the user’s

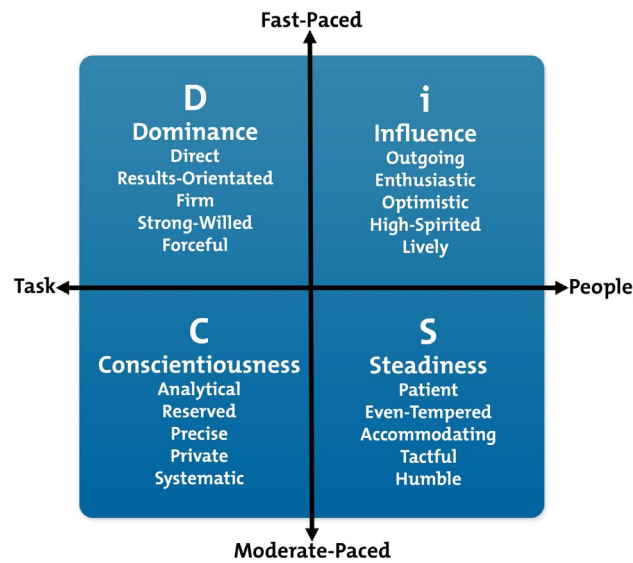
patterns of behavior and on the basis of the DISC typology to correlate specific language with a particular typological group.

## 5. Research Methods

### 5.1. General methods overview

The leading research method (Cairns et al., 1998) being applied in the present study is the psycholinguistic speech analysis, that is, the analysis of linguistic rules and means used in Instagram posts and comments. It examines the processes of the speech formation and characteristics affecting the communication, and emotions experienced by a person in the communication process. Analysing the written speech patterns, distinguishing the linguistic markers, we rely on the classical models of speech perception. The process of perception and understanding of speech is always influenced by the very nature of the speech message, determined by the language features (phonetic, grammatical, lexical, stylistic) and the logical-semantic structure of the message, which includes the degree of complexity of grammatical forms of thoughts expression (Verzhbitskaya & Aleksina, 2009). An intriguing property of natural language is the symmetry between production and understanding: when a person who is speaking wants to communicate a concept, the word the speaker produces is typically a word the same speaker would readily understand as referring to the same concept. In other words, we speak the language we hear (as a general rule; there are of course exceptions) (Monroe, 2018). This statement is of great importance for the net communication process as it can be a one-way process (e.g. an Instagram post), a two-way or a multi-way process (e.g. a dialogue or a chat in the comments or a question and answer session in Instastories). The net communication can be synchronous (on-line or live) and asynchronous (delayed in time). Synchronous is when the production and understanding occur almost simultaneously. Asynchronous is when the understanding occurs much later than the production.

The psycholinguistic analysis in relation to the semantics of linguistic means allows us to allocate the authors of the Instagram posts or comments to a certain behavioral type of a personality. Most researches on the type of personalities are held on the basis of self-assessment of the respondents, which is not very objective. The researchers of the personality models rely on such models as the Big Five model (Souri et al., 2018), DISC and the Myers-Briggs Type Indicator (Dandannavar et al., 2018). Though, there is a validation report on the DISK model [DISK Profile Validation], we suggest that the type of personality can be traced and identified through their actions, which are creating posts and comments online. Our research is based on DISK model during which 5,900 comments of 250 randomly selected Instagram users were analysed from the point of view of four basic characteristics: dominance (direct, results-oriented, firm, strong-willed, forceful), influence (outgoing, enthusiastic, optimistic, high-spirited, lively), steadiness (patient, even-tempered, accommodating, tactful) and conscientiousness (analytical, reserved, precise, private, systematic). (Figure 1)



**Figure 1.** DISK model

The comments and posts are considered as online behaviour. The characteristics were assessed from the point of view of their semantics, then, linguistic means expressing each characteristic were analysed. As the result, the comparison table with the linguistic markers of the linguistic patterns of Instagram users (Table 1) was formed which demonstrates that some linguistic means are used more often by some types of people, thus, their reactions can be predicted easier, and we can speak on the relation between the type of a personality and his/her language in online interaction. The gender and the age of users were not taken into account.

## 6. Findings

The data obtained demonstrate direct influence of a personality type on their linguistic behaviour in the SNS and the patterns revealed allow us to give specific answers to the questions on characteristic features of each personality type on Instagram. An individual's personality determines the probable repertoire of their reactions to a particular situation (Alsadhan & Skillicorn, 2017). It is the reactions in particular (comments to Instagram posts) allow us to distinguish some key characteristics of the personalities and figure out typical linguistic patterns (Table 1).

### 6.1. DISK model application and results assessment

DISC includes four behavioral types i.e. D, I, S, and C. To elaborate, we should consider the letters individually, their key characteristic features and typical linguistic means they rely on in the communication:

**Dominance (D):** An individual who is said to a D personality is largely result-oriented. He/she has the ability to accept challenges, adopt a straightforward and upright disposition, focuses on the main point

of discussion, and does not hesitate to bluntly state opinions or decisions. They derive motivation from successful results and victory; they often tend to focus on immediate results and working towards goals in fast-paced manner. However, they lack patience and concern for others. They are skeptics and fear giving out their vulnerable side to the world. They thrive on competition and victory. They bask in the attention of an audience and possess the ability to provide futuristic goals and visions to them (Strengthscape, 2020). For example, *Rain, Hail or Shine.... Come visit me in New York City, Sidney, I love you so...Run baby run!!! Rain, hail or storm, the game never get cancelled here...Posts and comments typical for D-behavioral pattern are characterized by the use of call to action constructions, exclamations, elliptical and imperative constructions. The sentences are short but informative. The author seems to be confident. He/she is independent in approach. He/she is viewed as a value competent, action-oriented individual who refrains from digressing from the 'bottom-line' of the discussion.*

D-personalities are straightforward. They say directly what they think of this or that issue in comments. Their posts are usually brief, abrupt convincing the reader that the author is well-educated, honest and result-oriented.

Influence (I): Individuals with the 'I' style give importance to persuasion and influencing others and, thus, building the work environment. Their personality traits include magnetic charm, warmth, enthusiasm, a trusting nature, positivity, and optimism. They emphasize action and enthusiasm and are prone to a subsequent lack of a conclusive process. They derive motivation from interpersonal relationships and are goaded by social activities and recognition. They lack a candid and blunt approach and fear disapproval and social absence. They need to focus on factual data and details of a particular idea. They place prominence largely on popularity, prestige, and authority (Strengthscape, 2020). For example, *New York: Dec 20, 2020: I braced the cold and ran a mini marathon dressed as Wonder Woman for St Jude Children's Research Hospital. It was cold, icy and my face mask made me feel like I've never run before. This is however nothing in comparison to the suffering kids with rare illnesses we know so little about experience. I'm so close to my fundraising goal. It's been a tough year but if you have any spare change, please be St. Jude Hero and donate to help fund their research".* This post is a typical example of influential type people. The author aims at convincing his/her followers to give a helping hand to suffering children, influence on their decisions about how and what to spend their money on. The post is full of various linguistic means such as

- ✓ allusion to a Wonder Woman (DC Comics) to make the readers feel that they can change the world to better;
- ✓ bright epithets (*cold, icy, rare, fundraising, suffering etc.*) to create a vivid image to leap in the reader's mind eye about the efforts the author has to make in order to do good;
- ✓ metaphors (*tough year, to brace the cold*) to sound more persuasive;
- ✓ a call to action (*if you have any spare change, please be St. Jude Hero and donate to help fund their research*) to make to reader perform a required action.

Influencers rely on such types of posts as convincing, persuasive, descriptive, advertising, promoting, advising, recommending, demonstrating etc. Depending on the niche the influencers are representing we distinguish the following core types of influencers: beauty-bloggers, fashion-bloggers, travel-bloggers, food-bloggers, fitness/sport/yoga-bloggers, lifestyle-bloggers, photo/video/bloggers,

gaming-bloggers, auto-bloggers, techno-gigs, sex-bloggers, couching-bloggers, cinema or theatre-bloggers and many others. Most commercial companies and charitable non-profit organizations / funds use influencers to transmit certain values, promote ideas, services and products. So, an influencer must match brand's philosophy and reflect its values. His/her tone of voice (tone of communication) should be close to the tone of the company he/she is representing. Most often it is the celebrity who behaves as an influencer. Depending on the company's goal an influencer may have the status of a brand ambassador (a person who is employed by an organization or company to represent a brand in a positive light, and by doing so, help to increase brand awareness and sale), a brand advocate (brand advocates communicate a brand's idea to its audience, more like the cliché word-of-mouth marketing concept but better) or a brand evangelist (a customer who believes so strongly in a particular product or service that he tries to convince others to buy and use it).

Steadiness (S): People with the S DISC style prioritize collaboration and coactions to complete the task under the given circumstances. They thrive on stability and focus on cooperating with others to carry out a particular task. They are motivated by a congenial and cooperative work environment and sincere appreciation of their own efforts. They are calm, patient, and predictable individuals. They thrive on consistency and stability, while being fearful of change. They tend to be overly polite and considerate and hesitate to state opinions for fear of offending others. They tend towards a stable environment and resist change (Strengthscape, 2020). For example, *It is not enough to be quietly non-racist, now is the time to be vocally anti-racist*. This post reflects the position of the speaker to the really pending problem of today's multinational world. It shows that the author is sympathetic and is ready to defend the interests of other people. He/she is persistent in the decisions and stimulates his/her followers to take his/her position in this issue. From the linguistic point of view the post contains a lot of negations that create the required effect. There is no direct address but the reader understands that it is he who can and must do something about this issue. This effect is achieved by the call to action phrase *it is time to...* It sounds like an insistent suggestion, perhaps tinged with regret, that we are dragging our feet with something really important nowadays.

Conscientiousness (C): They prioritize quality and precision and are conscientious towards work under the given work circumstances. They emphasize knowledge, quality, expertise, and growth. They are discreet, diplomatic, and judicious in approach. They have an overly analytical approach and are overcritical. They value quality and accuracy. They fear criticism and incorrectness (Strengthscape, 2020). For example, *Champagne, live music and the sound of the ocean. You rock and roll Melly!!! ...* The posts of C-type personality are knowledgeable, showing that the person thinks about other people. This is the post expressing gratitude to the colleagues when the person leaves his job for a new one: *Another day in paradise. My Amazon team. How much I adore you all. There is no team like this in the entire world. Each person told me their biggest memory of me, we laughed and cried. I'll forever have you in my heart. New York, you have massive shoes to fill*. The post contains a lot of epithets, comparisons, adjective in the superlative degree. This characterizes the author as well-educated, polite and grateful, knowing how to thank other people, thinking about their feelings, having friendly relations with his colleagues. So each DISK type can be characterized by a certain set of linguistic markers typical for it (Table 1).

## 6.2. The behavioural patterns analysis for subtypes revealing

DISC provides a thorough and exhaustive perspective of personality types and enables individuals to communicate more effectively with others. The posts and comments of each user revealing each characteristic were placed to the diagram (Figure 1) showing which characteristics is closer to this or that type of personality, then the number of characteristics in accordance with their closeness to the exact type of personality was counted and this helped to refer a user to the specific type.

Then, the behavioral patterns were analysed in each of the personality type from the point of view of their linguistic characteristics.

According to the closeness of the post or comment content to the particular type the following examples of the subtypes were distinguished:

Di: convincing and daring, e.g. *You get to wear a hat! You did great! An old BMW is like Pamela Anderson...doesn't matter how old she is you would still goo on date with her...*

iD: animated and inspiring, e.g. *Reaching for the stars!; Mum casually splashing some paint on canvas during the current lockdown; Getting ready to dance; Dream big!*

iS: upbeat and light-hearted, e.g. *Coffee is life! Golf is life also; I love the old school Beemers!!! Life is a donut; High five for sure!*

Si: supportive and agreeable, e.g. *The Empire State, largely still I shut down but we are making the most of the outdoor spaces; Hosting virtual wine tasting tonight with a friend. Cheers! Amazing to see some friendships stand the test of time and distance!!!*

SC: modest and unassuming, e.g. *Almond blossoms in the bright rays of the autumn sun; There is a lot to say but those who know - they know.*

CS: quiet and self-controlled, e.g. *My mask game just escalated; The land of kangaroos; Lost at sea; Salty hair evening;*

CD: unsentimental and matter-of-fact, e.g. *What the weather forecast for Sydney please? It's 30C today and If I could do a handstand I would take a pic too; It's Masquerade day every day (COVID 19).*

DC: resolute and strong-willed, e.g. *I think I can see the weekend from here; Suffering can take a variety of forms.*

In the study characteristic behavioral patterns for subtypes are not deeply analysed as it is not possible to follow such subtle differences through only linguistic trends. Though the analysis shows that some users can be referred to some particular subtitles.

## 6.3. Linguistic markers of the behavioral patterns of Instagram user

Having analysed the posts we have distinguished certain characteristic features for each of the key four personality types (Table 1).

**Table 1.** Linguistic markers of the linguistic patterns of Instagram users

Dominance	Influence	Steadiness	Conscientiousness
- Short sentences with an average length of 3.6 words; - elliptical, incomplete and parcelled constructions with	- Rather long posts of 10 and more words; - use of precedent texts, neologisms, metaphors,	- The average post length of 5,5 words. - predicates that	- The average length is 4-5 words; - low linguistic



an attachment link; - no expressions of a subjective opinion; - structures with the meaning of uncertainty and assumption; - predicates with the meaning of imperativeness (must, should); - downtoners and determinative pronouns with the meaning of generalization.	epithets; - deliberate violation of spelling to attract the attention of the followers; - a lot of paralinguistic means in the post, hyperlinks; - a lot of useful information and explanations.	indicate a rational, non-emotional assessment of a particular phenomenon; - speech tolerance; - making the message sound subjective	creativity; - a lot of fixed expressions and phraseological units; - comparative constructions.
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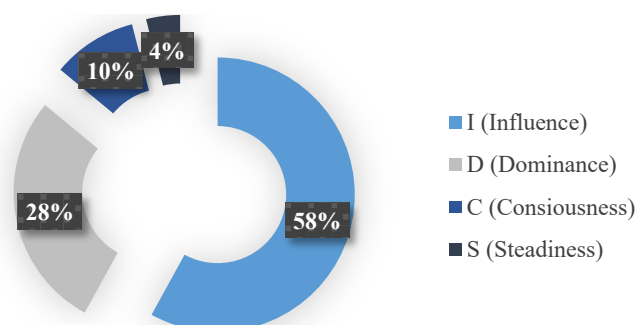
Table 1 demonstrates the most typical features of the linguistic patterns of the behavioral types. It is shown that the posts differ not only in linguistic means, but also in length. Thus, for Dominance type short sentences are typical. The capacity of the content is provided by elliptical, incomplete and parcelled constructions with an attachment link. At the same time, there are practically no expressions of a subjective opinion, structures with the meaning of uncertainty and assumption. But predicates with the meaning of imperativeness (must, should), downtoners and determinative pronouns with the meaning of generalization, like everyone, anyone (*every person, everything, everyone does it, in any situation, everyone is peculiar*) occur quite frequently.

The longest posts of I-type are distinguished by dynamism and high linguistic creativity: use of precedent texts, neologisms, metaphors, epithets, sometimes deliberate violation of spelling to attract the attention of the followers, use a lot of paralinguistic means in the post, hyperlinks.

S-type linguistic patterns are characterised by predicates that indicate a rational, non-emotional assessment of a particular phenomenon (*I think, I believe, it seems*). In addition, as these introductory constructions precede the expression of one's opinion they can be considered as an indication of speech tolerance. The individual does not present his/her own point of view as the only true one, but, on the contrary, makes the message sound subjective.

Linguistic patterns of C-type are characterized by the low linguistic creativity, but there are used a lot of fixed expressions and phraseological units, idioms. The comparative constructions are typical (as..as, as if, like, the ....the).

We have analysed 250 randomly selected Instagram users and approximately 5, 900 posts and comments. Having done the statistical analysis, we have figured out the following correlation between the behavioral patterns in Instagram (Figure 2).



**Figure 2.** Four types of behavioral pattern in Instagram.

So, the most often type of personality met in Instagram is I (Influence), 58% of the posts and comments belong to this type. It can be explained by the peculiarity of Instagram. The key function of Instagram is a promoting one. So, it is quite obvious why users rely on such behavioral pattern. The second commonly occurred type is D (Dominance)- 28%, then come C (Consciousness) -10% and S(Steadiness) 4%. It should be noted that there do not exist pure types, they are all blended to this or that extend.

## 7. Conclusion

This interdisciplinary research has demonstrated the direct dependence of the linguistic behavioral patterns on the type of personality according to the DISK model. It should be noted, that for each type of DISK model there are specific patterns that can help in revealing the type of the internet user through their comments on the SNS Instagram. Moreover, the results show the ratio of the users' types on Instagram, revealing the most common one to be I-type and the fewest number of the representative of S-type. It can be considered as a characteristic feature of the SNS and it can be suggested that each social network has its different ratio of the representatives of each DISK type personalities.

So, the results of the research have both theoretical and practical value as can be used either in the further study of an internet user as a present day phenomena or by the employers and marketologists as a first stage analysis of the person they are interested in.

The suggested correlation of models and linguistic patterns does not put the user into the strict borders of the referred type but gives the trends of the linguistic consciousness which is realized in the internet discourse by means of the specific behavioral patterns. Such an interdisciplinary research highlights new opportunities for the study of people's behavior in online society.

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