# Influence of Personality Characteristics in the Late Adoption of Innovation

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**Abstract**

Diffusion of information is a process that does not occur at the same point in time for all individuals. Rogers [1,2] proposes a curve, indicating different user categories, on the basis of the degree of innovation adoption: innovators, early adopters, early majority, late majority and laggards. A recent study found significant differences in the characteristics between the adopter groups such as age, information gathering and environmental attitude [3].

Studies have focused primarily on early adopters' characteristics, neglecting those who adopt an idea or product in a later stage. Since late majority and laggards (from now on late adopters) represent about an half of the users [2], it would be also important to understand these users, in order to guarantee innovation's success. Besides that, Mahajan and Muller [4] identified markets in which it is valuable not to focus only on innovators but also on other user categories. Being able to comprehend their characteristics would allow professionals to create a specific strategy, so late adopters could adopt a certain innovation earlier in time.

Identification of patterns of emotions, thoughts and behaviors might constitute a starting point to understand users' characteristics. This can be obtained through research and measurement of users' personality traits. Personality has already been identified as a variable that affect specific life domains such as job performance [5].

Different models have been developed to assess personality, such as the Five Factor Model (FFM) [6], Eysenck's P-E-N model [7, 8], and Cattell's Sixteen Personality Factor Model (16-PF) [9]. One of the most notable is the FFM, not only because it can be applied in various settings but also because of its empirical validation and cross-cultural replications [10]. The FFM considers that individuals' personality can be described according to five bipolar domains: 1) Neuroticism; 2) Extraversion; 3) Openness to Experience; 4) Agreeableness; 5) Conscientiousness [11].[1]

Personality is related with the concept of impulsivity. Within the FFM model, impulsivity is a facet of neuroticism domain [6]. More, it is known that impulsivity is an important variable in explaining impulsive buying [12]. Psychological processes that lead to impulsive behavior have already been identified, namely, urgency, lack of premeditation, lack of perseverance and sensation seeking [13]. Taken together, these findings suggest that late

[1] The five domains can be assessed by the Revised NEO Personality Inventory (NEO-PI-R) which includes six facets for each domain, describing in more detail individuals' features (Costa and McCrae, 1992). Neuroticism facets: anxiety, hostility, depression, self, consciousness, impulsiveness, vulnerability to stress; Extraversion facets: warmth, gregariousness, assertiveness, activity, excitement seeking, positive emotions; Openness to experience facets: fantasy, aesthetics, feelings actions, ideas, values; Agreeableness facets: trust, straightforwardness, altruism, compliance, modesty, tendermindedness; Conscientiousness facets: competence, order, dutifulness, achievement striving, self-discipline, deliberation.

adopters may present less impulsive behavior which, in turn, may lead them not to adopt an innovation rapidly. This leads us to our first hypothesis.

Hypothesis1: There is a negative relationship between neuroticism and late adoption.

Extraverts are characterized by high social skills, enterprising vocational interests [6] and they look for new activities and excitement. These goals can be achieved by getting to know a new idea or by having a new product to explore. In other words, new activities and excitement can be accomplished through innovation adoption. With this in mind, we expect late adopters to exhibit low extraversion levels.

Hypothesis 2: There is a negative relationship between extraversion and late adoption.

In the context of innovation, Openness to Experience may constitute a central factor in explaining why some individuals take less time to adopt a new idea or product. Openness to Experience involves a need for variety, novelty and change [6]. From this perspective, we can think about late adopters as individuals that, for example, do not prefer variety and do not have curiosity for the novelty. Moreover, since each personality domain represents a continuum, we can expect laggards to be less open to experience than the late majority. This leads us to:

Hypothesis 3: There is a negative relationship between openness to experience and late adoption.

Conscientious individuals have the tendency to show self-discipline and to plan their behavior rather than act spontaneously. Thus, these individuals might need more time to make a decision in terms of their behavior towards the innovation which, in turn, leads us to the assumption that late adopters might show high levels of conscientiousness.

Hypothesis 4: There is a positive relationship between conscientiousness and late adoption.

Agreeableness reflects a tendency to be compassionate, cooperative, helpful and friendly. Empirical research has shown that agreeableness is strongly correlated with social desirability which might imply that agreeableness is part of social desirability [14]. Social desirability is defined as “a bias that prompts individuals to present themselves in ways that are likely to be seen as positive by the majority of other people” [15, page 864]. The last ones to adopt a product may often do so because of peer pressure and because they wish to become social integrated, showing high levels of Agreeableness. This leads us to:

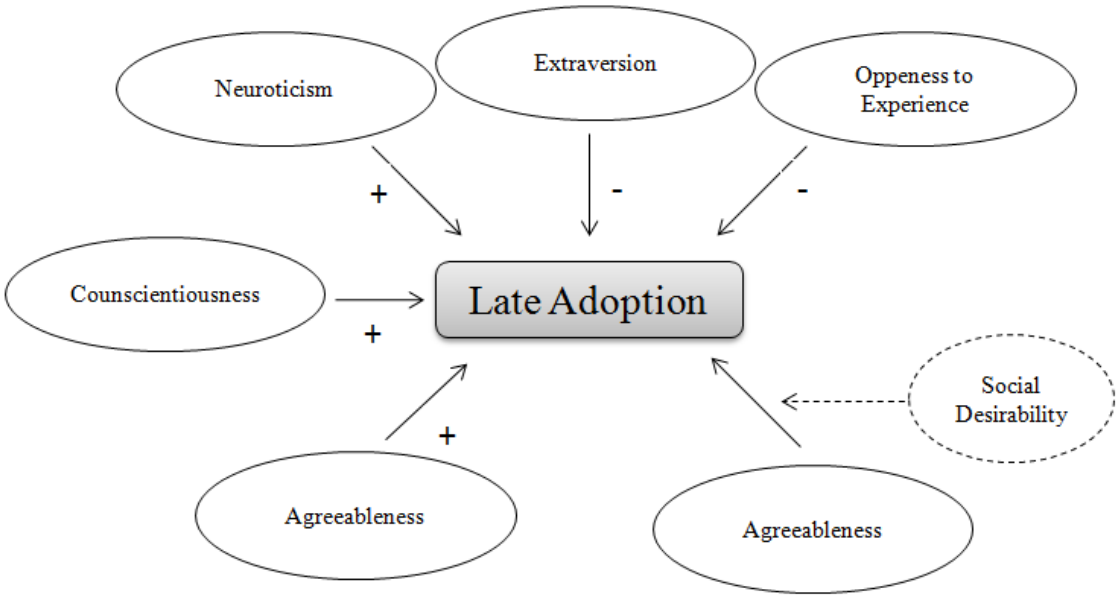
Hypothesis 5: There is a positive relationship between agreeableness and late adoption.

However, one might also argue that the relation between Agreeableness and late adoption may be moderated by social desirability. If an individual presents high levels of Agreeableness and belongs to a social environment that valorizes innovation and adopt it early in time, he/she probably will present the same behavior in order to fulfill the group pattern.

Hypothesis 6: The relationship between agreeableness and late adoption is moderated by social desirability.

Altogether, these hypotheses lead us to the conceptual model presented in Figure I.

Figure I: Influence of personality characteristics on late adoption.




Legend: Figure I describes the positive or negative influence of personality domains in the late adoption of innovation

Knowing later adopters' characteristics may enable firms to address late adopters with a different method. Taking into account their personality characteristics when developing a new product, firms may reduce their innovation adoption time.

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