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To repeat or not repeat? A matter of economic reward and individual differences

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ABSTRACT

This study explores the tendency to prefer more repetitive (but highly economic rewarding) tasks over less repetitive (and less economic rewarding) tasks in a sample of junior professionals, as well as their relationship to individual differences. Behavioral performance at a novel decision-making task, decision-making and personality profiles were collected. Findings showed that most junior professionals seem to prefer highly repetitive tasks (with greater economic reward) than less boring and less rewarding tasks. However, a cluster approach allows distinguishing between four distinct clusters of decision-makers: the "reward seekers", the "temporizers", the "balancers" and the "outsiders". Each cluster of professionals exhibits unique individual differences in terms of decision-making styles and personality profiles (except for reward responsiveness). Evaluating junior professionals decision-making profiles in choosing which tasks to carry out is extremely relevant in company selection processes, as it allows you to assign the new resource to the best job position.

Keywords: decision-making styles; personality profiles; reward; cluster analysis, behavioral data

1. Introduction

In the workplace, the decision to engage in prolonged repetitive behaviors, that are also associated with greater rewards, versus less repetitive, but also less rewarding, varies from person to person. Professionals may choose to take on a task that is relatively repetitive based on intersubjective individual differences as well as the economic reward they obtain.

Each of these choice options (more repetitive/more monotonous versus less repetitive/less monotonous) presents some advantages and disadvantages that have been studied in the field of cognitive psychology. Starting from a definition of these behaviors, it is possible to state that less repetitive and less monotonous behaviors include difficult and complex behaviors that require cognitive effort and attention (Navon, 1989), while more repetitive and more monotonous behaviors are characterized by behaviors performed automatically and with little cognitive load (Iso-Ahola, 2021).

Focusing on the nature of more repetitive tasks, they can be defined as the repetition of the same action over a determined period. This repetition, specifically, leads to the automatic and unconscious performance of the task/action itself and, at the same time, less mental load and cognitive effort, allowing one to be able to direct one's cognitive forces elsewhere (Iso-Ahola, 2021). In fact, the more frequently a person repeats a given task, the more a performance routine develops and at the same time knowledge and skills about it increase. With each repetition, moreover, task execution becomes more routinized and automatic, with more dominant nonconscious processing. From this definition, it is therefore possible to understand how a task initially considered difficult can be perceived over time as a monotonous task (Iso-Ahola, 2021).

In contrast, less repetitive tasks involve not only difficult and complex behaviors (Navon, 1989), but also behaviors characterized by behavioral or cognitive variation (Iso-Ahola, 2021).

This type of behavior requires more cognitive control and awareness of one's activities rather than the implementation of automatisms, typical of more repetitive and monotonous behaviors. Despite less repetitive behaviors requires performing a specific task consciously and using a high cognitive load, there are also several benefits associated with these behaviors, both in terms of personal gratification and future performance. Indeed, it is reasonable to assume that completing a less repetitive task creatively and freely may train the individual to cope with this mental demand, since the ability to generate new innovative ideas is associated with the improvement and control of the cognitive load (Sun & Yao, 2012). In this sense, therefore, performing an activity that demands cognitive load and attention might affect the personal capacity to productively address a new issue or to react to a circumstance in a more imaginative and

inventive way. Concerning the aspects of personal gratification, instead, performing a cognitive-demand task could impact the own sense of self-efficacy, personal effectiveness, and abilities, increasing value through the "strength of engagement" (Higgins, 2006) Additionally, according to Kurzban and colleagues, successfully completing a task that requires greater cognitive load could promote pleasant feelings and good outcomes, such as the belief that hard work pays off in the workplace (Kurzban et al., 2013).

Implementing more repetitive and monotonous behavior, on the other hand, could be associated with some disadvantages, including the development of a sense of boredom (Iso-Ahola, 2021; Seiler et al., 2022). The continuous repetition of the same behavior, indeed, could bring a transient experience (Koerth-Baker, 2016; Vodanovich & Watt, 2016) of undesirable mental condition when one tries to accomplish something fulfilling but do not succeed (Eastwood et al., 2012).

As previously mentioned, the choice to prefer more or less repetitive behaviors in a decision-making context in the workplace can be associated to reward expectancy and may differ among individuals. Specifically, this choice may depend on internal and external aspects, including individual characteristics related to decision-making processes - both in terms of decision-making style and personality traits -, but also the value assigned to the presence of the reward (Acconito et al., 2023; Balconi, Angioletti, Acconito, 2023; Dixon & Christoff, 2012; Rovelli & Allegretta, 2023).

Furthermore, current research highlighted that – in addition to the value attributed to the reward – the choice to perform high or low repetition behaviors with different degrees of monotony also depends on other factors, such as the likelihood of the reward occurring, the expenditure of energy required, and the ability to delay the reward gratification (Balconi & Angioletti, 2020, 2022; Peters & Büchel, 2010; Wallis & Kennerley, 2010). Before, different experimental tasks have been created to investigate the effort to obtain a reward on decision-making processes and, among them, the Effort-Expenditure for Rewards Task (EEfRT) is one of the most widely used (Treadway et al., 2009). The EEfRT comprises a sequence of repeated trials that require participants to choose whether to engage in a high- or low-effort task to receive monetary rewards of different amounts (Salamone et al., 1994).

Based on these theoretical premises and the advantages and disadvantages of choosing a more or less repetitive behavior, some questions could occur: are there individual differences underlying the choice to proceed with more repetitive and monotonous behaviors versus preferring less monotonous and less repetitive behaviors? Which constructs are relevant in inducing a particular choice? Do decision-making styles, personality traits, and reward sensitivity play a key role to the same extent, or does one turn out to be more important than the others in the decision-making process?

To explore individual characteristics related to decision-making processes, several self-report questionnaires were developed, such as the General Decision-Making Style (GDMS) (Scott & Bruce, 1995), the 10-item Big Five Inventory (BFI) (Guido et al., 2015) and the Maximisation Scale (MS) (Schultz et al., 1990). The GDMS was developed to explore the different individual decision-making style, which can be defined as rational, intuitive, dependent, avoidant, and spontaneous, depending on the type of information seeking to decide. The 10-item BFI, on the other hand, investigates the trait of personality in terms of extraversion, agreeableness, conscientiousness, emotional stability, and openness. The MS assesses the individual tendency to search for different alternatives or to constantly seek the best option in decision-making.

Alongside these questionnaires designed to explore individual differences closely related to decision-making processes, some studies have also used the Behavioral Inhibition and Activation Systems scale (BIS/BAS) (Carver & White, 1994) to explore individual characteristics in reward contexts (Balconi & Angioletti, 2020, 2022; Cassioli et al., 2022; Fernandez & Lighthall, 2019; Van den Berg et al., 2011). According to Van den Berg and colleagues, indeed, the subscale of Reward Responsiveness (BAS RR) (Van den Berg et al., 2010), represents a reliable psychometric tool for investigating the motivational tendency of reward responsiveness.

Interestingly, this approach was employed not only with healthy individuals but also in clinical settings, supporting the effectiveness of this type of questionnaire in reward contexts (Balconi et al, 2019, 2018). Moreover, previous studies have also combined individual differences exploration (through BIS/BAS) with a neuroscientific perspective (Balconi, Angioletti, Fronda, 2023; Balconi & Crivelli, 2010; Balconi et al., 2009, 2017).

To study how and what kind of different decision-making styles, personality traits, and reward sensitivity explain the personal predisposition to prefer more repetitive tasks over less repetitive ones, it might be useful to cluster the population and identify specific groups that share the same characteristics (Bonds-Raacke, 2006; Jiménez et al., 2018). Indeed, it seems probable that groups of individuals with comparable decision-making methods and personality traits will act similarly to one another and, thus, promote similar behaviour.

In terms of real-world organizational applications, this study can be helpful in characterizing the factor associated with junior professionals' decision to select a more or less repetitive job/task. It also helps to assign them to the best job position, minimizing the chance of assigning them to a position that would cause their resignation. To do so, it is crucial to first investigate which specific factors influence these choices in basic research contexts.

Within the decision-making framework, the purpose of this study is to

explore the tendency to prefer more repetitive and time-prolonged behaviors (but also highly rewarding) over those that are less repetitive (but also less rewarding) in a sample of junior professionals, as well as its relationship with individual differences.

To achieve this goal, in this study, a newly designed behavioral task was proposed to a sample of junior professionals (young adults who are working or approaching the world of work), together with a set of self-report questionnaires (i.e., the GDMS, 10-item BFI, MS and BAS RR) administered to explore their individual differences in decision-making styles, personality profiles and reward responsiveness.

The newly designed behavioral task measures the tendency to reinforce by a series of trial which require participants to choose between a high repetition (but highly rewarding) or a low repetition (but low rewarding) option to accomplish a simple goal. Moreover, the high repetition options were so-called because they require to perform a repetitive and automatic action (to press the space bar repetitively) for a longer time compared to the low repetition ones, which instead were shorter and less tiring. Additionally, each of these options had an associated economic value, with the high repetition option having a greater reward and the low repetition option having a lower reward. In this sense, therefore, those who chose the high repetition behavior performed the same action for a larger time window and received a greater economic reward than those who opted for the low repetition behavior and who, therefore, repeated the same action for a shorter time, while also receiving a smaller reward.

For each trial, response times (RTs) and the kind of decision made between the two options (high repetition vs low repetition) were recorded. RTs were collected to measure the amount of cognitive workload needed to select an option, emphasizing the cognitive cost of the decision-making process (Kramer, 2020; Rovelli et al., 2023).

Based on the evidence that the decision regarding which specific behaviour to carry out depends on personal traits that also influence the value assigned to a potential reward, it is expected to find both a choice trend towards high repetition options and one towards low repetition options.

In addition, it is hypnotized to be able to detect different clusters of decision-makers based on their tendency to prefer high repetition and monotonous options compared to low repetition and less monotonous options, which is influenced by the value attributed to the reward associated with each option, as a weighing between the type of action required and the amount of reinforcement. From this point of view, it could be hypothesized that we would find a large group of individuals who prefer to perform repetitive and monotonous tasks for a prolonged time as they are associated with greater reward. However, it is conceivable that there is also a significant number of subjects

who instead prefer less repetitive, less monotonous, and more variable tasks, although associated with a smaller incentive. In addition, it is appropriate to expect to identify an intermediate group as well, leaning toward one or the other option (high repetition vs low repetition) depending on the goal to be achieved.

Additionally, it could be supposed that these emerging profiles could be related to different decision-making styles, personality traits and reward responsiveness levels. Specifically, it was hypothesized that in people who prefer to perform repetitive and monotonous tasks for a prolonged time because they are associated with greater reward, are more responsive to reward (i.e. high score in BAS RR) and make this choice automatically. However, when this choice is made consciously (i.e. a high score in the BFI consciousness subscale, a low score in the GDMS avoidant subscale) the time increases. On the other hand, people who prefer to perform less repetitive and less monotonous tasks, although associated with less reward (i.e. low score in BAS RR), are less responsive to reward. Since performing less repetitive and less monotonous tasks implies being able to diversify among different activities, it might be assumed that those who quickly decide to favor this type of option also have more dynamic and extroverted personalities (i.e., a high score in the BFI extraversion subscale), as they are always looking for new stimuli.

2. Method

2.1 Sample

A total of 107 healthy participants have been involved in this study and participated without receiving any compensation. However, despite the absence of financial rewards as a result of participating in the study, the entire selected sample was highly motivated to take part in this research protocol because, although with some limitations, it represents a first possible attempt to validate an assessment phase to obtain a better match between personal characteristics and job position. Knowing, in fact, personal characteristics and one's predisposition to perform more or less repetitive tasks, allows one to better understand what the job position to be filled may be, depending on the different job description. The sample was constituted of young adults who are working or approaching the world of work, here identified as junior professionals, with an average age of 27.86 years old [SD age = 13.19] and without severe levels of depression, neurological or psychiatric disorders, and cognitive deficits, as well as being in therapy with psychoactive drugs that could alter cognitive or decision-making abilities. All participants had normal or

corrected-to-normal vision and were right-handed. A written informed consent form was completed by each participant. This study and the research protocol (TD-a.a.2022-2023) followed the Declaration of Helsinki's guiding principles (2013) and received ethical approval by the Ethics Committee of the Department of Psychology of the Catholic University of the Sacred Heart in Milan, Italy and according to the GDPR - Reg. UE 2016/679 and its ethical guidelines.

2.2 Experimental procedure

The entire experimental procedure lasted approximately 15 minutes and took place in a quiet dedicated room, with a monitor placed about 80 cm away from participants' eyes, sat on a comfortable chair. To the participants was administered a newly designed behavioral task (Figure 1) via a web-based experiment management platform (PsyToolkit, version 3.4.4) (Stoet, 2010, 2017).

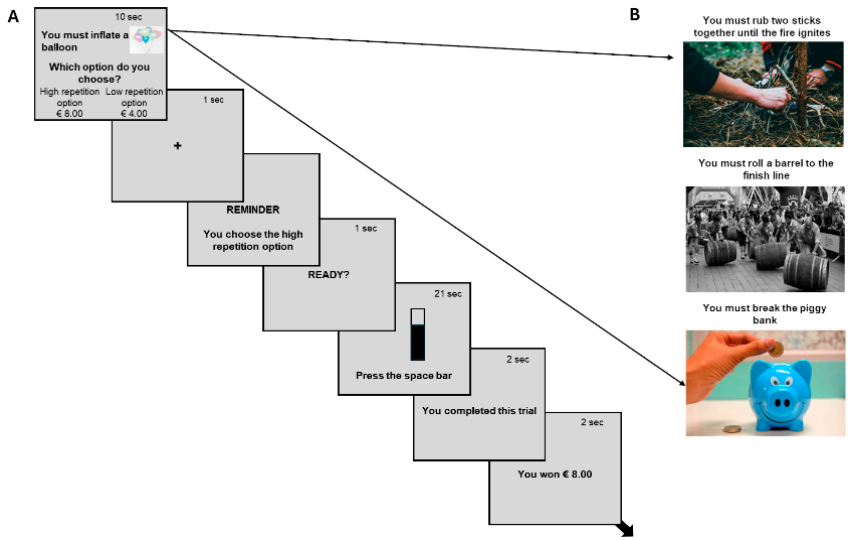

Figure 1. Newly designed behavioral task. (A) Graphic representation of all steps of the new behavioral task, along with their duration and (B) example of sample stimuli

Going to specific, the reason behind the development of this novel behavioural task was to investigate the tendency to prefer more repetitive and more monotonous options compared to less repetitive and less monotonous options, when the first type of decision is associated with a higher economic reward.

The task was composed of different trials that started with an explanation of the specific goal to be achieved (e.g., inflate a balloon, rub two sticks together until the fire ignites) and a request to choose, within 10 seconds, whether to perform the more repetitive and monotonous (high repetition task) or less repetitive and less monotonous (low repetition task) option for reaching the goal. Each option was also associated with a specific economic reward. After the decision, a 1-second fixation cross, a reminder of the action to be taken to complete the task for 5 seconds and a 1-second "Ready" screen were shown to participants.

Indeed, the high repetition and monotonous option involved pressing the space bar 64 times to obtain a reward of € 8,00, while the low repetition and less monotonous option required the subject to press the space bar 17 times for a € 4,00 reward. Participants could win the economic reward associated with each trial if they press the space bar the required number of times within the predetermined time. A virtual "bar", whose level increased as the space bar was pressed, was displayed on the screen to highlight the participant trial's progress.

At the end of each trial or of the predetermined time, a 2-second feedback screen was shown to participants informing them about whether they had achieved the specific goal of the session. Additionally, a second 2-second feedback screen was presented if the participant successfully performed the trial, displaying the phrase "You won" and the winning amount according to the high repetition and monotonous versus low repetition and less monotonous choice made for that trial.

After the task, the BIS/BAS, and specifically the BAS RR subscale, was administered to investigate the individual predisposition to the anticipation or occurrence of a reward. Finally, self-report data through GDMS, 10-item BFI and MS questionnaire were collected to explore decision-making styles and individuals' personality traits.

This task permitted us to study not only the individual behavior about the specific trial but also the trends in the type of choice, the number of times the high repetition and low repetition option is chosen and the RTs to make the choice

2.3 Self-report measures

The Behavioral Inhibition and Activation Systems (BIS/BAS) (Carver & White, 1994; Leone et al., 2002), the General Decision-Making Style (GDMS) (Gambetti et al., 2008; Scott & Bruce, 1995), the 10-item Big Five (BFI) (Guido et al., 2015), and the Maximization Scale (MS) (Nenkov et al., 2008; Schultz et al., 1990) questionnaires were administered to explore decision-making styles and individual traits of the entire sample.

2.3.1 The behavioral inhibition and activation systems (BIS/BAS)

The BIS/BAS questionnaire (Carver & White, 1994; Leone et al., 2002) is used to assess the sensitivity to rewarding or aversive stimuli, the anxiety/impulsivity dimension of personality and the tendency to establish more approach or avoidance goals (activation or inhibition of an action tendency), through a 24-item (20 score-items and four fillers). For each item, the individual indicates his or her degree of agreement and disagreement using a 5-step Likert scale. Based on the individual response to each item, two total scores (BIS and BAS total) and three BAS subscales (Reward Responsiveness – BAS RR; Drive – BAS D; Fun Seeking – BAS FS) were calculated. Specifically, the BAS RR represents a subscale consisting of five items and is employed to observe individuals' responses and the impact of possible rewards.

Given the hypothesis of the current study which is focused on reward-mechanisms, only the BAS RR mean scores were considered.

2.3.2 General Decision-Making Style (GDMS)

The GDMS (Gambetti et al., 2008; Scott & Bruce, 1995) is a self-report questionnaire composed of 25 items with a 5-point Likert-type scale and designed to investigate the individual decision-making style, which can be identified as rational, intuitive, dependent, avoidant, and spontaneous. Indeed, the rational style identifies an individual's predisposition to exhaustively research all information and evaluate possible consequences, while a person with an intuitive style decides based on more global aspects and feelings. The dependent style, on the other hand, is typical of those who prefer to receive suggestions and indications before choosing, and the avoidant style of people who tend not to make decisions. Finally, a person with a spontaneous style tends to want to conclude the decision-making process as quickly as possible.

2.3.3 10-item Big Five Inventory (BFI)

The 10-item BFI (Guido et al., 2015), on the other hand, represents the short version of the Big Five questionnaire and is designed to assess in a short amount of time the individual trait personality in terms of extraversion, agreeableness, conscientiousness, emotional stability, and openness. Extraversion trait indicates an internal disposition to orient one's interests toward the outside world, while agreeableness defines an individual predisposed to act cooperatively and be likeable. Conscientiousness trait, on the other hand, refers to a tendency to be responsible and organized, while emotional stability refers to a predisposition for consistency, stability, and self-regulation of emotional

responses. Finally, the openness trait identifies an individual open to new intellectual, cultural, and aesthetic experiences and disposed to be imaginative.

2.3.4 Maximization Scale (MS)

Finally, the MS (Nenkov et al., 2008; Schultz et al., 1990) is a self-report scale administered to explore the individual tendency to constantly search for the best option by comparing themselves with others or settling for a good enough option with a good level of personal satisfaction. Specifically, responding to 13 items on a 7-point Likert-type scale, an individual is described according to three subscales: alternative search, decision difficulty, and high standards.

2.4 Data analysis

Firstly, to explore in the entire sample the tendency to prefer more repetitive and monotonous options over less repetitive and less monotonous options when given a choice among them, one-way ANOVA was applied to the behavioral data with Choice (2: high repetition, low repetition) as the independent variable and mean scores and RTs as dependent variables.

Secondly, to explore the possibility of a latent clustering structure that distinguishes different types of decision-makers based on their inclination to prefer options with high or low repetition, an agglomerative hierarchical cluster analysis was performed by Ward's method and using Euclidean distance as a measure of similarity. Scores of options with high repetition were standardized and used as clustering variables. The optimal number of clusters was determined by visually inspecting the dendrogram and the distribution of the number of options with high repetition.

The profile of participants constituting the four identified clusters was explored with descriptive analysis focusing on the standardized behavioural (mean scores and RTs), and self-report data (BASRR, GDMS, BFI and MS scores).

Thirdly, to test whether there were significant differences in terms of self-report data (BAS RR, GDMS, BFI and MS) between the four clusters, a set of one-way ANOVAs were applied considering the Cluster (four levels: Cluster1, Cluster2, Cluster3, Cluster 4) as the independent variable and the standardized self-report data (BAS RR score, GDMS, BFI and MS subscales scores) as the dependent variable.

For all ANOVAs, in cases of significant effects, pairwise comparisons were applied to the data and Bonferroni correction was used to reduce multiple comparisons potential biases. Additionally, the Greenhouse–Geisser epsilon was adopted to correct the degrees of freedom if needed. Furthermore, the size of statistically significant effects has been estimated by computing eta squared (η^2)

indices and the statistical significance was set at $\alpha = 0.05$.

Finally, in each cluster, correlational analyses (Pearson correlation coefficients with $\alpha = 0.05$) were applied between the standardized behavioral data collected during the task (mean scores and RTs), the BAS RR scores, and each of the subscale's scores of the GDMS, BFI and MS, to better profile the inherent characteristics of each group, in terms of propensity to reinforce, decision-making styles, and individual traits.

3. Results

3.1 Behavioral results

From the ANOVA test on the behavioral data, a significant main effect for the factor Choice was found [$F(1,107) = 98.546$, $p \leq .05$, $\eta^2 = .482$], with higher scores for the high repetition compared to the low repetition options (Figure 2).

No significant differences were obtained for the RTs.

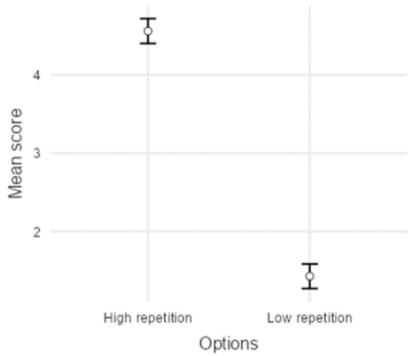

Figure 2. Behavioral data. The graph displays the higher behavioral scores for the high repetition options compared to the low repetition options. Bars represent the Standard Error (SE) of ±1

3.2 Cluster

Considering the arborization of the dendrogram, the four-cluster solution was selected because it clearly identified a different inclination in different groups to prefer options with high or low repetition. Specifically, cluster 1 consists of

those who only and exclusively make choices that require them to perform tasks with high repetition for a longer time and that, however, are associated with higher rewards. Cluster 2, on the other hand, encompasses those who tend, in most of their choices, to prefer the option with high repetition, greater monotony and higher reward. Those who, on the other hand, show an intermediate profile and who, therefore, sometimes prefer the option with high repetition and sometimes the option with low repetition constitute cluster 3. Cluster 4, finally, represents the group of those who tend to prefer tasks with low repetition and lower monotony, but that are also associated with lower reward.

3.2.1 ANOVA applied to cluster results

For the ANOVAs test performed on Cluster and self-report data (BAS RR, GDMS, BFI and MS) a statistically significant main effect of the Cluster factor was found for the Extraversion score at the GDMS [$F(3,74) = 2.926$, $p = .040$, $\eta^2 = .110$].

The pairwise comparisons highlighted that Cluster 2 had significantly higher scores for the BFI Extroversion dimension than participants in Cluster 1 ($p = .05$), with MC2 = .543 and MC1 = -.198 (Figure 3).

No other significant differences were obtained.

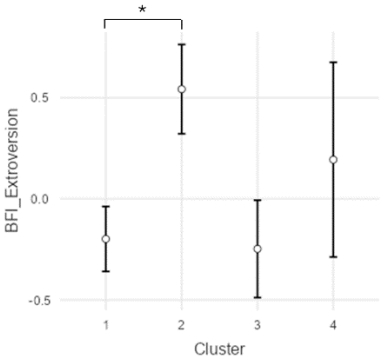

Figure 3. Self-report (GDMS) data. The graph represents the distribution of the mean scores of the Extroversion subscale of the GDMS in the different four clusters. Bars represent the Standard Error (SE) of ±1, while asterisks (*) denote statistically significant differences with $p < 0.05$

The descriptive statistics of the standardized behavioral (mean scores and RTs of high repetition vs low repetition option) and self-report (BAS RR, GDMS, BFI and MS subscales) data in each cluster are reported in Table 1.

Table 1. Descriptive statistics (mean and standard deviation) of the behavioral and self-report measures across the four clusters emerging from cluster analysis

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Cluster size	46	32	22	7
High repetition option	.87 (.00)	.02 (.30)	-1.12 (.27)	-2.34 (.30)
RTs High repetition option	-.04 (.63)	.03 (.96)	-.09 (.79)	.60 (3.26)
Low repetition option	-	-.01 (.31)	1.14 (.28)	2.30 (.23)
RTs Low repetition option	-	.12 (1.17)	-.15 (.82)	-.07 (.65)
BAS RR	.16 (.73)	.02 (1.04)	-.16 (1.21)	-.63 (1.47)
GDMS - Rational	.20 (.91)	-.16 (1.10)	-.43 (.91)	1.38 (.00)
GDMS - Intuitive	-.06 (.85)	-.11 (1.10)	.31 (1.10)	-.45 (2.13)
GDMS - Dependent	.02 (.88)	.02 (1.03)	-.18 (1.20)	1.23 (.80)
GDMS - Avoidant	.10 (1.04)	-.27 (1.20)	.08 (.66)	.08 (.90)
GDMS - Spontaneous	-.17 (.98)	-.09 (.80)	.41 (1.19)	.58 (.95)
BFI – Extraversion	-.19 (.88)	.54 (1.17)	-.25 (.91)	.19 (.74)
BFI – Agreeableness	-.15 (1.01)	-19 (.90)	-.09 (1.09)	.85 (.63)
BFI-Conscientiousness	-.02 (.91)	-.09 (1.23)	-.12 (.90)	1.09 (.33)
BFI - Emotional stability	-.16 (.92)	.31 (1.09)	-.22 (.98)	.78 (.95)
BFI – Openness	.18 (1.03)	-.13 (.96)	-.30 (.83)	.16 (.85)
MS – Alternative search	-.20 (.90)	-.12 (1.09)	.49 (1.02)	.57 (.88)
MS – Decision difficulty	.04 (1.06)	-.18 (.92)	.04 (1.03)	.62 (.73)
MS – High standards	-.07 (.89)	-.20 (1.18)	.23 (.91)	1.27 (1.39)

3.3 Correlation between behavioral and self-report data

For correlational analyses applied between the behavioral data (mean scores and RTs of high repetition vs low repetition option), the BAS RR scores, and each of the subscale's scores of the GDMS, BFI and MS, the following significant results were found.

First, in Cluster 2, a positive correlation between the high repetition choices RTs and the BFI Conscientiousness (r = .625, p = .004) (Figure 4a) and BFI emotional stability (r = .702, p = .001) was detected (Figure 4b).

Also, always in Cluster 2, negative correlations were found between the high repetition choices RTs and the GDMS avoidant decision-making style (r = -.519, p = .027) (Figure 5a) and the MS alternative search subscale (r = -.482, p = .043) (Figure 5b).

Secondly, in Cluster 4, a negative correlation between the low repetition choices RTs and the BFI extraversion subscales (r = -.986, p = .014) was found.

No other significant correlations were observed for the other cluster.

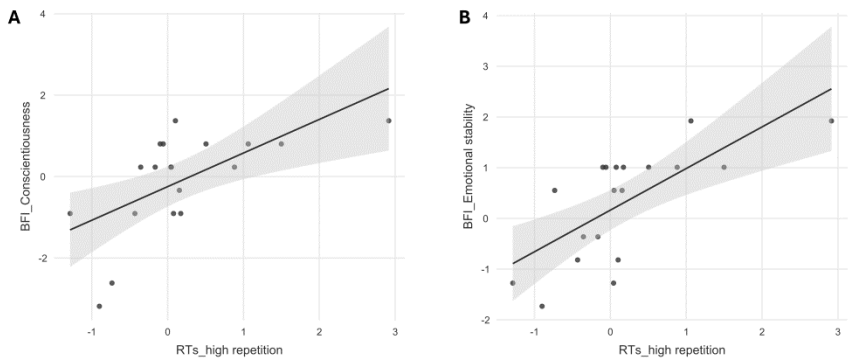

Figure 4. Positive correlations between behavioral and self-report data in Cluster 2. The scatter plots display for Cluster 2 (A) a positive correlation between the average RTs in high repetition options and the Conscientiousness subscale of the BFI and (B) a positive correlation between the average RTs in high repetition options and the Emotional Stability subscale of the BFI

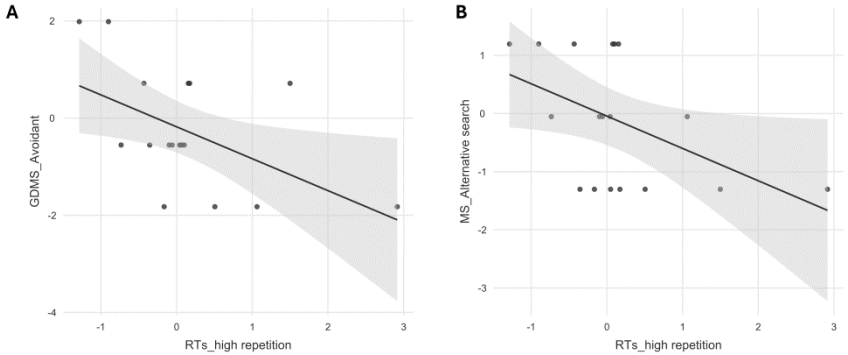

Figure 5. Negative correlations between behavioral and self-report data in Cluster 2. The scatter plots display for Cluster 2 (A) a negative correlation between the average RTs in high repetition options and the Avoidant subscale of the GDMS and (B) a negative correlation between the average RTs in high repetition options and the Alternative Search subscale of the MS

4. Discussion

Current study examined the behavioral correlates of a task proposing the decision between the selection of high repetition and monotonous (but high rewarding) and low repetition and less monotonous (but less rewarding) options. Results derived from the analysis of a sample of junior professionals indicated that participants prevalently choose high repetition options compared to low repetition options. Secondly, based on the choice of high repetition options the sample has been divided into four clusters of participants. Thirdly each cluster of professionals presents distinct characteristics in terms of personality profiles and decision-making styles: indeed significant correlations between behvaioral data and personality profiles, and decision-making styles will be discussed below.

Starting from the first result, the analysis on the behavioral outcomes supported our hypothesis and showed that junior professionals seemed to prefer the high repetition compared to the low repetition options, probably given the inner probability of the first options to obtain a higher reward. According to research on the EEfRT, people are generally more eager to engage in effortful tasks in exchange for benefits (Hughes et al., 2015; Treadway et al., 2009). Our findings support this evidence and show that this is true even in situations when the activity may be tedious and alienating due to repetition. Therefore,

even if "it can be boring and tiring", it appears that the majority of our sample rationally tends to select the "most advantageous" alternative (with the biggest expected benefit).

Secondly, the results of the cluster analysis displayed the presence of four main clusters based on the prevalence of choice of the more repetitive task within junior professionals. Thanks to this cluster analysis it was possible to identify four profiles of junior professionals. Cluster 1 is composed of professionals who seem to decide to repeat out of mere reward, here named the "reward seekers". In Cluster 2, renamed "the temporizers", professionals' decision to perform repetitive tasks has been linked to personality traits and to the time spent to decide. Indeed, Cluster 3 is composed of intermediate profiles of decision-makers who tend to vary their choice and balance the selection of repetitive options with less repetitive ones (i.e., the "balancers"). Finally, Cluster 4 consisted of junior professionals that can be considered as "outsiders", since they choose prevalently low repetition (and low rewarding) options. In the following paragraphs, a detailed description of each of the four clusters is given to provide an understanding of the characteristics of those who compose that particular cluster and highlight unique individual differences in terms of decision-making styles and personality profiles.

4.1 Cluster 1 - the "reward seekers": decide to repeat out of mere reward?

The first Cluster (Cluster 1) is composed of 46 subjects who always prefer the high repetition options. In fact, in all six available trials, all subjects in the cluster choose the high repetition option. The high numerosity of this Cluster highlights that most junior professionals assign a high value on the possibility of obtaining an economic reward and, to obtain it, are willing even to perform repetitive tasks over a long period and incur even in the possibility of developing a sense of boredom. It might be suggested that the propensity of this first Cluster of junior professionals to be "reward seeker" can determine the outcome of the preceding ANOVA.

If in the workplace it seems obvious that the economic reward is one of the important rewards in motivating adherence to a certain type of task, it also becomes important to evaluate in further research how this data is also complemented by other types of motivations and profound drivers in juniors professionals.

4.2 Cluster 2 - the "temporizers": not serial repeaters at all

The second cluster (Cluster 2), instead, is composed of 32 subjects, who prefer, in most trials, the high repetition option. Specifically, the high repetition option is chosen by nineteen subjects in five out of six trials and by thirteen

subjects in four out of six trials.

Regarding this second Cluster, data also showed that this group of junior professionals - which tend to prefer highly repetitive options - seem to score highly in the BFI-Extroversion subscale compared to Cluster 1. Extraversion refers to the tendency to be sociable. A person exhibiting higher levels of Extraversion are more likely to be assertive, active, talkative, and experienced (John & Srivastava, 1999). It is therefore possible that a lesser choice of highly repetitive options observed in Cluster 2 compared to Cluster 1, is connected to being more extroverted and also preferring the possibility of engaging in less monotonous tasks.

Moreover, correlational results showed that, in Cluster 2, the BFI Conscientiousness and BFI Emotional stability subscale scores positively correlate with RTs for high repetition choices. This means that professionals with high levels of Conscientiousness and Emotional Stability personality trait, in this Cluster, take more time to select a highly repetitive choice.

This result might suggest that having a more conscientious personality trait or greater emotional stability could represent a sort of "protective" factor, leading the subject to carefully consider the choice he or she is making. In this perspective, then, these personality traits could perhaps lead the individual to carefully consider balancing the cognitive cost of repetition and the value of the reward. Despite this evidence, however, the high repetition option is still preferred, but perhaps it is selected more consciously in individuals with a more conscientious personality trait or greater emotional stability.

On the other hand, always in this cluster of professionals (Cluster 2), scores in the GDMS Avoidant style and MS Alternative Search subscales are negatively correlated with RTs choice in preferring the high repetition option. Individuals with this decision-making style are characterized by a tendency to postpone, avoid making a decision and search for multiple alternatives instead of choosing.

Based on the meaning that the literature attributes to the GDMS avoidant style in decision-making (Gambetti et al., 2008; Scott & Bruce, 1995) and MS Alternative Search profile, it could be suggested that individuals with this decision-making profile as a predisposition to avoid making decisions, and this may lead junior professional to answer quickly, spontaneously, and automatically prioritizing the possibility of getting a high reward and without paying attention to the possible feeling of boredom that the repetition of a task might entail.

Conversely, it is interestingly to point out the other side of the coin that is that professionals who show lower levels of GDMS Avoidant decision-making style and MS Alternative Search, can be less avoidant and more focus, so that they know how to bear and ponder the weight of the decision and are able to take longer to reflect and decide whether to engage in a more repetitive task.

Therefore, junior professionals belonging to Cluster 2 choose repetitive options a little less than cluster 1, and in particular, the choice of these options is pondered more slowly and therefore probably more consciously by those who have high levels of conscientiousness, and emotional stability as a personality trait, as well as a lower avoidant and alternative search decision-making style. These interpretations could be confirmed by future studies with statistical regression approaches

4.3 Cluster 3 - the "balancers": virtue lies in variety and balance

What does belong to Cluster 3 mean for junior professionals?

In the third cluster (Cluster 3), composed of 22 individuals, sixteen subjects chose the repetitive option for three out of six trials, while six subjects chose it for two over six trials.

Therefore, junior professionals in Cluster 3 can be considered as "balancers", displaying an intermediate profile for which they choose half the time to give space to repetitiveness and boredom, in exchange for a high reward, while half the time they choose less boring tasks, albeit with less profit. Therefore, these professionals prefer adopting a diversification strategy between tasks and this should be taken into account during the selection process.

4.4 Cluster 4 - the "outsiders": let's not repeat so as not to get bored

The fourth cluster (Cluster 4) is composed of 7 professionals, five of whom chose the high repetition option only for one trial and the remaining two professionals never opt for the high repetition task. In this cluster, therefore, there is a clear prevalence of choice of the low repetition option and for this reason, junior professionals belonging to this group can be considered outsiders.

Although Cluster 4 consists of only a few subjects, it is still very interesting because it provides information on how the choice between high-repetition and low-repetition options is not influenced by reward for a given subsample of junior professionals. This cluster prefers to perform less repetitive and less monotonous tasks at the expense of lower rewards. In this sense, therefore, it could be inferred that cluster 4 assigns higher value to the possibility of diversifying their tasks or to other factors (perhaps learning or challenges) and trying to avoid the monotony and boredom resulting from repeating the same task several times, even if it is more rewarding.

The correlations highlighted how junior professionals belonging to this Cluster who show high scores in the Extraversion subscale of the BFI also show a quicker choice in preferring low repetition options. Since the trait of

extroversion characterizes a personality defined by sociability, talkativeness, and excitability it could be inferred that these people are always looking for new stimuli and experiences to feel satisfied and fulfilled. The choice of less repetitive tasks, on the other hand, would seem to go in this direction, as they allow the subject not to be bored, to experience more variability and also to improve the ability to generate new innovative ideas (Sun & Yao, 2012). Based on this, then, it is possible to infer that individuals with more extroverted personalities are inclined to choose the low repetition option almost automatically, without thinking about it too much and giving less weight to the reward. A possible interpretation can be that what matters to these people is not the economic reward but the opportunity to devote themselves as quickly as possible to different activities that can bring them gratification and new stimulation.

At last, differently from what was hypothesized, there were no differences in the BAS RR subscale between the clusters and no clusters significantly correlated with the BAS RR scores. This lack of result can be explained by the fact that we are considering only economic reward as a gain for the behavioral task, and we did not include other types of reward (such as social reward), while the BAS RR subscale measures indeed the sensitivity to reward as a broader construct. In this sense, then, it could also be that the propensity for economic reward does not significantly affect the overall construct analyzed of BAS RR in this sample. Future studies should consider administering a scale and questionnaire specifically aimed at measuring the sensitivity to economic reward. In addition, future research could implement more complex protocols involving different rewards for performing a given task, such as economic rewards, social rewards, and organizational rewards (i.e. corporate benefits).

Additionally, it could be that individual differences in reward responsiveness were partially obscured by the presence of other intervening factors, such as differences in individual style or personality traits, which played a more predominant role. Indeed, it is relevant to point out that the statistical analysis found no significant differences in the BAS RR subscale between the clusters and no clusters significantly correlated with the BAS RR scores, but the descriptive statistics reported that there is a variability in the mean score of the BAS RR scale among the different clusters.

Furthermore, the clustering itself, which was done considering the typology of the individual's choice to the several task trials, may also be a contributing factor to the lack of significance. Therefore, it cannot be excluded that different results, including the formation of other groups that might differ in the BAS RR scale, would result from clustering based on a different variable (e.g., the response to a self-report measure or the time taken to make your choice).

5. Conclusion

To conclude, this work showed that the majority of junior professionals seem to prefer highly repetitive tasks (in exchange for a greater reward) than less boring but also less rewarding task.

However, a cluster approach proves highly valuable in distinguishing between subsamples of junior professionals and identifying four distinct clusters of decision-makers. Cluster 1 is composed by professionals who seem to decide to repeat out of mere reward, here named the "reward seekers". In Cluster 2, renamed "the temporizers", professionals' decision to perform repetitive tasks has been linked to personality traits and to the time spent to decide. To Cluster 3 belong the intermediate profiles of decision-makers who tend to vary their choice and balance the selection of repetitive options with less repetitive ones (i.e., the "balancers"). Finally, Cluster 4 consisted of junior professionals that can be considered as "outsiders", since they choose prevalently low repetition (and low rewarding) options.

Each cluster of professionals exhibits unique individual differences in terms of decision-making styles and personality profiles (except for reward responsiveness as a personality trait).

Despite the innovative nature of this study and the practical implication aspects, some limitations should be noted. First, it may be appropriate to consider a sample that compares the current group of young professionals with a more professionally established group. Having a more articulate work background with more professional expertise might affect sensitivity to reward, which might be assigned a lower value in favor of the ability to perform less repetitive and less boring tasks.

In addition, it might be interesting to compare professionals with different specialization to investigate whether there are differences related to job type.

With this work we suggest the added value of combining self-report data measuring individual differences, with behavioral data - which derive from the execution of realistic cognitive psychology tasks and allow to simulate how a professional would behave in each situation - even during the selection interviews in the organizational field.

Furthermore, evaluating junior professionals decision-making profiles in choosing which tasks to carry out is extremely relevant in company selection processes, as it allows you to assign the new resource to the best job position

Data Availability

The data presented in this study are available on request from the corresponding author due to ethical reasons for sensitive personal data protection (requests will be evaluated according to the GDPR - Reg. UE 2016/679 and its ethical guidelines).

Ethic Statement

The participants all signed written informed consent. The study was approved by the Ethics Committee of the Department of Psychology, Catholic University of the Sacred Heart, Milan, Italy, and conducted in conformity with the Decaration of Helsinki. The research followed the tenets of the World Medical Association Declaration of Helsinki on Ethical Principles for Medical Research Involving Human Subjects.

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Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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