Try or give-up game:

The basic game includes 20 rounds (per condition), 12 trials per round. On every round 2 matrices of 3X4 unmarked keys are shown

R=number of rounds. Initial setting: R=20

T=number of trials per round.

Initial setting: T=12

The blue matrix represents "give-up" choices, and the gray matrix represents “try” choices. In each trial, participants are asked to select one key, and their trial's payoff is presented on the selected key. Sides and colors should be randomly determined at the experiment’s onset for every participant and stay the same throughout the experiment. The specific colors are not important, only that the two matrices will have two distinct bright colors.

Basic payoff structure: The "give-up" keys’ values are MH with probability P(MH) or ML otherwise (with probability 1-P(MH)). The value of keys on the “try” matrix is H with probability P(H) and L otherwise (with probability 1-P(H)). The first selection of a key (exploration) bares a cost C, so that the final payoff includes the key value minus C. On any further selection of a familiar key (exploitation) this cost is not reduced. In other words, C is the exploration cost. In the guidance conditions, the guide can give punishment (-F) or reward (+F) which is added to or subtracted from the final payoffs (key value minus exploration cost, if the cost is relevant).

Accordingly, the final payoffs are: Exploration of "give-up" keys (a "give-up" key that is selected in the first time)= (MH-C, P(MH); ML-C)[[1]](#footnote-1) and exploration of “try” keys (first selection)= (H-C, P(H); L-C). Once the key type is determined (i.e. for "give-up" keys MH/ML for “try” keys H/L), which occurs with the first selection of any key, it will remain the same (MH/ML/H/L) until the end of the round. Exploitation of each key type yields the value of this type (e.g. exploitation of L keys will yield payoff of L). F can be added to or subtracted from the final payoffs above.

Initial setting:

C =2

L = ML = 1;

H = 12;

P(H) = 0.1;

MH = 2;

P(MH) = =0.5;

F = 3;

Basic payoff structure (g=1):explore "give-up" = (0,0.5;-1); **exploit MH=+2;** exploit ML=+1; explore “try” = (+10,0.1;-1), exploit L=+1, exploit H=+12.

Guidance conditions:

g=2: Punishing "give-up" selections: every time a "give-up" key is selected, F points are subtracted from the final trial's payoff. Accordingly, when exploring "give-up" keys (first selection of a give-up key) the payoff structure = (-3,0.5;-4); exploit MH=-1; exploit ML=-2; explore “try” (first selection of a "try" key) = (+10,0.1;-1). **Exploit L=+1**; Exploit H=+12.

g=3: Punishingexploitation of L results: every time an "L" key is selected, F points are subtracted from the final trial's payoff. An "L" key is one of the two key types in the "try" matrix (the other one is "H"). At first selection, the key type is determined, and if it was determined to yield outcome "L", the next time it will be selected, it will be considered exploitation of L, and then, in this game, F points will be reduced. Accordingly, the resulting final payoff structure is:

explore "give-up" = (0,0.5;-1); **exploit MH=+2;** exploit ML=+1; explore “try” = (+10,0.1;-1), exploit L=-2, exploit H=+12.

g=4: Punishing"give-up" selections & exploitation of L results: this game is combination of g=2 and g=3. That is, F points are subtracted from the final trial's payoff both for every selection of a "give-up" key and for every exploitation of an L key (a key from the "try" matrix that was determined to yield L in previous trials).

Accordingly, the resulting final payoff structure is:

explore "give-up"= (-3,0.5;-4 ); exploit MH=-1; exploit ML=-2; **explore “try”** = (+10,0.1;-1). Exploit L**=-**2; Exploit H = +12.

g=5: Rewarding exploration of new “try” keys: every time a new "try" key is selected, F points are added to the final trial's payoff. Notice here it is only first selection of "try" keys. Repeated selection of "try" keys (exploitation of L or H) are not rewarded. Accordingly, the resulting final payoff structure is:

explore "give-up" = (0,0.5;-1); exploit MH=+2; exploit ML=+1; **explore “try”** = (+13,0.1;2), exploit L=+1, exploit H=+12.

g=6: Rewarding every “try” selection: every time a "try" key is selected, F points are added to the final trial's payoff. Here the reward of F points is given for selection of any "try" key, regardless of whether it is a first selection or repeated selection. Thus, the resulting payoff structure is:

explore "give-up" = (0,0.5;-1); exploit MH=+2; exploit ML=+1; explore “try” = (+13,0.1;2), **exploit L**=+4, exploit H=+15.

Total of G games. Initial setting: G=2. g=1 is always played first. The second game is one of the 5 guidance conditions (randomly allocated to each participant). A variable Order run sequentially from 1 (for the first game played) to G (the last game played).

Forms (experiment’s screens):

A general note: All forms should be maximized to appear on the whole computer screen, without the ability to minimize the window. Alternatively, a black background screen can appear on the whole computer screen and the forms will appear on it.

1. Subject\_Number: this screen includes an open text box in which subjects can type in their Prolific ID (which includes both letters and numbers), gender (male/female, radio buttons without default are preferred) and age (usually we give an open text box in which subjects can type a number but not letters). At the bottom of the screen a “next” button should appear. Important: subjects should not be allowed to continue if one of the details above is missing. The variables ID (subject’s serial number), Gender (1 for male 0 for female) and Age should be written in every output line in the next screens.
2. Consent form (if they click I consent they go forward, if they click Quit the study should exit):

“The current study examines how people make repeated decisions. If you choose to take part, you will play G games, each includes many rounds of choices between multiple options. You will receive CoinSign ShowUp for completing this study. In addition, you will be able to earn bonuses based on your performance. You will only be eligible for compensation if you have completed the tasks in full. There is no partial payment if you do not complete the study. You will not be penalized if you choose to withdraw from the study without completing it, but you will not be compensated either.

Your participation in this research is voluntary. You may discontinue participation at any time.

If you have read and understood the information provided, and would like to take part in this study press I CONSENT or click QUIT to exit."

1. General\_Instructions: “welcome aboard! This study consists G games; each game will be played for many rounds which will consist of several trials. The final payment in this experiment depends on your performance in the games. After finishing playing the games, one round will be randomly chosen and the sum of payoffs you obtained in this randomly selected round will be added to or subtracted from an initial bonus of CoinSign InitialBonus, where every ExchangeRatio points earned equals 1 CoinSign. Accordingly, you should try to maximize your payoffs in every round in every game you play to increase your earnings.“

This text is not final, so it is important to make it easy to change (this is true for all texts in this experiment, since it might be that we will use Hebrew in some cases, and also when we will run a more complex version, the instructions will be changed as well). At the bottom of the screen a “Games’ instructions” button should appear.

1. Game\_Instructions: ““In the next screen you will see two sets of unmarked keys. In each trial you will be asked to press a key and your payoff for that trial will be displayed on the key you selected. Each round of will consist of T trials and you will be informed when a new round begins and when the keys are changed. You will play this game for a total of R rounds.

You will play G games like this. Each game has a unique payoff structure and you will be informed when the current game is finished and a new game is about to begin. Remember – your task is to obtain the higher amount of payoffs in every round to increase your earnings. Press –Start First Game – to begin.”

1. Main\_Game: on top of the screen(centered):

“You are on trial number t out of T trials in this round (Round number r out of R rounds in this game – Game number order).”

Note: order, r, and t are variables that changes through the task (in contrast to G, R, T, which are determined only once before the experiment).

In the middle: the matrices (similar to the ones presented in the previous page). The specific UI is not important. Only that the size of the keys and their color will allow clear presentation of numbers on them and that the center of the screen will be exactly between the two matrices.

After selection of a key, the related payoff is presented in black on the selected key for S second. Initial setting: S=1 second. During that time, all keys should be disabled. The result of the current trial should be written into the “per-trial” output file (see instructions for output files below). After S seconds, the payoff disappears (all keys are unmarked again), and a new trial begins (i.e. t=t+1).

1. Between\_Rounds: This screen should appear just after t=T (after the last trial in a round is over). “You just finished a round. In the next screen you will play this game again. The payoff structure is the same, but all keys have been reset and rearranged within each set (i.e. assigned to different locations at random)”. At the bottom of the screen a “start next round” button should appear. The results of the round just ended should be written into the “per-round” output file (see instructions for output files below). This can be done here (in the between\_rounds screen) or after t=T and just before the between\_round screen appears.
2. Between\_Games: This screen appears after r=R and t=T (after the last trial in the last round). Now Order=Order+1 and g is randomly determined. This screen should be in a unique color (e.g. red). “This game is now over (i.e., you have encountered all rounds and trials associated with it). You will now play the next game. Notice that although it appears the same (two sets of multiple keys), the payoff structure can be different.” At the bottom of the screen a “start game Order” button should appear. The results of the game just ended should be written into the “per-game” output file (see instructions for output files below).
3. End\_Games: “Thanks you for participating in this study! One round you played has been selected at random. You earned XXX points in this round. Thus your bonus payment is CoinSign [InitialBonus +(XXX/ExchangeRatio)]. Please press the key bellow to get your Prolific completion code”

Variables that are fixed for all participants (their values are determined apriori, with the ability to change the values in something like a config file/ admin page):

G, R, T, S, H, P(H), L, MH, P(MH), ML, C, F, CoinSign , ShowUp, InitialBonus, ExchangeRatio

Initial setting: G=2; R=20; T=12; S=1 (sec); H=12; P(H)=0.1; L=1; MH=2; P(MH)=0.5; ML=1; C=2; F=3; CoinSign=£; ShowUp=1.5; InitialBonus=1; ExchangeRatio=30;

Output files (what variables every row should include), preferably txt with comma delimitation or CSV:

Per trial: ID, gender, age, Order, g, r, t, GiveUp (1=a GiveUp matrix key, 0= a Try matrix key), Explore (1=selecting a key for the first time in this round; 0=otherwise), KeyType (1= H or MH key, 0=L or ML key), ExploreL (1= if GiveUp=0 and Explore=1 and KeyType=0), ExploitL (1= if GiveUp=0 and Explore=0 and KeyType=0, zero otherwise), KeyNumber[[2]](#footnote-2), KeyValue (H/L/MH/ML), Cost (1= if C was implemented because Explore=1, 0=if C was not implemented because Explore=0), PayNoFeedback (KeyValue-Cost), Feedback (+F/0/-F), FinalPay (KeyValue-Cost+Feedback).

Total number of rows=total number of trials in the experiment=T\*R\*G

Per round: ID, gender, age, Order, g, r, SumKeyValue (sum of KeyValue over all T trials), SumPayNoFeedback (sum of PayNoFeedback over all T trials), SumFinalPay (sum of FinalPay over all T trials), High (1=if an H key was found; 0= if it was not found), Thigh (trial’s number of when the high value matrix key was found, 0= if it was not found), GiveUpTotal (sum of GiveUp over all T trials), ExploreTotal (sum of Explore over all T trials), ExploitLTotal (sum of ExploitL over all T trials), ExploreLTotal (sum of ExploreL over all T trials)

Total number of rows=total number of rounds in the experiment= R\*G

Per game: ID, gender, age, Order, g, MeanSumKeyValue (average of SumKeyValue over all R rounds), MeanSumPayNoFeedback (average of SumPayNoFeedback over all R trials….. [and so on and so forth: averages of all the remaining variables in the per round output file, over all R rounds within a game).

Total number of rows=total number of games=G

1. (X,P;Y) means getting X with probability P, Y otherwise (with probability 1-P). [↑](#footnote-ref-1)
2. Every key should have a unique number. A suggestion: GiveUp keys starts on the top left side 1-3, second row 4-6, 3rd row 7-9, last row 10-12. Try keys in the same way but 101-112. [↑](#footnote-ref-2)