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Review

# Maximizing versus satisficing in the digital age: Disjoint scales and the case for "construct consensus"

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ABSTRACT

A question facing us today, in the new and rapidly evolving digital age, is whether searching for the best option – being a maximizer – leads to greater happiness and better outcomes than settling on the first good enough option found – or "satisficing." Answers to this question inform behavioural insights to improve well-being and decision-making in policy and organizational settings. Yet, the answers to this fundamental question of measurement of the happiness of a maximizer versus a satisficer in the current psychological literature are: 1) conflicting; 2) anchored on the use of the first scale published to measure maximization as an individual-difference, and 3) unable to describe the search behaviour of decision makers navigating the digital world with tools of the 21st century - apps, smartphones or tablets, and most often all of them. We present, based on a review and analysis of the literature and scales, a call to stop the development of more maximization scales. Furthermore, we articulate the argument for a re-definition of maximizing that balances the face validity of the construct and the relevance to decision making in an age of digital tools so that future scales are useful for future choice architects and researchers.

## 1. Maximizing versus satisficing: from models to humans

In the first definition of maximizing and satisficing (Simon, 1955, 1956), maximizing is not the trait of a human decision maker, but of a 'model', and represents the search for the very best solution among those that can be computed. As such, maximizing is not to be found in the real world, and is a property of rational decision models (von Neumann & Morgenstern, 1944). On their own, humans (and non-human animals) do not, and cannot, maximize. Rather, they satisfice, seeking satisfactory, or good enough, solutions instead of optimal ones because of the complexity of the world, the limitations of human unaided information processing, and time pressure, to name a few reasons.

Simon's seminal distinction between maximizing and satisficing happened at a time where faith in individual difference research and the ability of personality tests to predict behaviour reliably was at an historical low (Mischel, 2004). It is not surprising that it took almost half a century for this distinction to anthropomorphize and become accepted, and published, as an individual difference or trait (Schwartz et al., 2002).

Schwartz et al.'s Maximization Scale (MS) is the first in the history of decision making research and is of fundamental importance. According to this scale, maximization is a human trait: there are maximizers and satisficers. Maximizers are those who consistently attempt to find the "best" solution (which demands an exhaustive search of the options), while satisficers consistently attempt to find a solution that is satisfactory or "good enough" (which can be met by a non-exhaustive search). For example, a maximizer would look for a holiday resort by comparing all hotels available at a particular tourist destination, spending lots of time and effort trying to find the very best price, location, and room. A satisficer, on the other hand, would consider what is acceptable, and search only until he or she encounters the first one that exceeds this threshold of acceptability. This scale has 13 items, such as: "When I watch TV, I channel surf, often scanning through the available options even while attempting to watch one program.", "I treat relationships like clothing: I expect to try a lot on before I get the perfect fit.", "No matter what I do, I have the highest standards for myself." Answers are on a seven-point scale, ranging from 1 (completely disagree) to 7 (completely agree). High scores on the measure reflect a tendency to maximize, while low scores reflect a tendency to satisfice. Thus, in Schwartz's conceptualization, maximizing and satisficing are opposite ends of a continuum (Schwartz, 2004; Schwartz et al., 2002).

Findings based on the use of this scale have first established a

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**Table 1**
Summary of maximizing-satisficing scales evolved in the last 15 years.

| Scales | Authors | Number of items | Number of constructs for Max Construct | N constructs for Sat Construct | Satisficers, as measured by this scale, have better outcomes |
|---|---|---|---|---|---|
| MS | Schwartz et al. (2002) | 13 | 1 | 0, Sat is opposite of Max | 1 |
| MS-6 | Nenkov et al. (2008) | 6 | 3 | 0 | 1 |
| MTS | Diab et al. (2008) | 9 | 1 | 0 | 0 |
| MMS | Lai (2010) | 5 | 1 | 0 | 0 |
| MI | Turner et al. (2012) | 34 | 2 | 1 | 1 |
| Revised MS | Weinhardt et al. (2012) | 8 | 3 | 0 | 1 |
| Revised- MTS | Weinhardt et al. (2012) | 6 | 1 | 0 | 1 |
| Relational MS | Mikkelson and Pauley (2013) | 15 | 1 | 0 | 1 |
| Refined MS | Richardson et al. (2014) | 10 | 3 | 0 | 1 |
| MTS-7 | Dalal et al. (2015) | 7 | 1 | 0 | 1 |
| DMTI | Misuraca, Faraci, et al. (2015) | 29 | 2 | 2 | ? |
| FMS | Newman et al. (2017) | 16 | 3 | 0 | 1 |

relationship between the tendency to maximize (versus satisfice) and personal well-being with the conclusion that maximizers are less happy than satisficers. In particular, maximizers experience less life satisfaction, happiness, optimism, and self-esteem than satisficers. They also experience more regret, depression, and tendency towards perfectionism than satisficers (Schwartz et al., 2002). As Schwartz and colleagues put it, "happiness is a matter of choice."

The negative connotation of being a maximizer and the notion that happiness is associated with satisficing stirred and attracted considerable subsequent research. Using the original MS, researchers found that maximizers are less satisfied with their decisions and with their lives in general than satisficers. They regret their choices more; they are less happy, less optimistic and more depressed (e.g., Chang et al., 2011; Dar-Nimrod, Rawn, Lehman, & Schwartz, 2009; Iyengar, Wells, & Schwartz, 2006; Purvis, Howell, & Iyer, 2011).

Based on this initial research, a "focus on satisficing" was recommended as a tool for choice architecture in an important review of behavioural insights to improve well-being and decision-making in policy and organizational settings (Johnson et al., 2012). Getting the construct and findings right is therefore of great theoretical, methodological and practical importance.

A few years after its publication, the Maximization Scale started to be subject to thorough methodological scrutiny. It has now been replaced by many better scales, some developed with the contribution of the authors of the original scale itself. However, researchers seemed not to follow this methodological scrutiny, and, many scales later, the original conclusion ("satisficers are happier than maximizers") has been confirmed and disconfirmed several times leading to substantial confusion among the results.

The proliferation of scales after the MS is due to a number of reasons (Lai, 2010; Turner, Rim, Betz, & Nygren, 2012), from desire to establish reliability and theoretical validity (Nenkov, Morrin, Schwartz, Ward, & Hulland, 2008) to the aim of encompassing the multi-dimensional nature of a maximizing decision behaviour (Diab, Gillespie, & Highhouse, 2008). As a result, different dimensions of the scale have been suggested as key predictors of well-being, leading to conflicting empirical results and confusion as to what is the 'right' scale for capturing maximizing behaviour.

Next we provide a theoretical review of the maximizing scales available in the literature to date, with a view to make future researchers aware of the menu available, differences between the existing scales, and inconsistency between empirical results (Table 1).

## 2. One concept, many scales

The table overleaf summarises the discrepancy and evolution of scales over the past 15 years. Nenkov et al. (2008) were the first to examine the factor structure of the Maximization Scale and found that the maximization construct in this scale is divided into three separate factors, or sub-constructs. One factor (labelled *alternative search*) reflects the tendency to explore a large number of options (e.g., "When I am in the car listening to the radio, I often check other stations to see if something better is playing, even if I am relatively satisfied with what I am listening to."). Another factor (labelled *decision difficulty*) represents the difficulty associated with choosing and making decisions (e.g., "Renting videos is really difficult. I am always struggling to pick the best one."). The third factor (labelled *high standards*) reflects the maximizers' tendency to search for the best alternative, and hold high standards for themselves and things in general (e.g. "I never settle for second best."). All three factors were positively correlated with regret. Furthermore, the decision difficulty and alternative search factors were negatively correlated with happiness and optimism, and positively correlated with depression. The high standards factor, instead, was not correlated to any of these three variables (see Table 2).

Nenkov et al.'s (2008) analyses on the psychometric properties of the Maximization Scale revealed some problematic items, which were eliminated from the subsequent scale. A shortened 6-item version of the Maximization Scale was shown to have superior psychometric properties compared to the original 13-item scale, and was thus recommended by the authors for future use (MS-6).

In the same period of Nenkov et al.'s (2008) work, Diab et al. (2008) proposed an alternative measure of the tendency to maximize versus the tendency to satisfice. Based on the assumption that the maximization behaviour is one-dimensional, internally consistent and that 10 out of the 13 items of the Maximization Scale diverged from Simon's original conceptualization of maximizing as choice goal (general tendency to pursue the identification of the optimal alternative), the authors developed a nine-item Maximizing Tendency Scale (MTS) which consists of the three items of the "high standards" factor of the Maximization Scale (e.g., "No matter what I do, I have the highest standards for myself."), plus an additional six items that emphasize the decision makers' goal to maximize the outcomes of their decisions (e.g., "No matter what it takes, I always try to choose the best thing."). Thus, the MTS measured only one factor reflecting the conceptualization of maximizing as "the general tendency to pursue the identification of the optimal alternative" (Diab et al., 2008, p. 365). Findings by using this new, theory-based, measure showed that maximizers *are* happier than satisficers, and the tendency to maximize is not correlated with life dissatisfaction or with maladaptive style.[1] The authors concluded that the interpretation of maximizers as less happy than satisficers is wrong, and due to poor measurement of the core construct (Diab et al., 2008).

[1] Adaptive or maladaptive decision making styles were measured according to the Decision Making Style Inventory (Nygren, 2000; Nygren & White, 2002). An example of a person with an "adaptive decision making style" is one who, when shopping for a branded product like a perfume, would switch to a substitute when the preferred brand is not available at a store, whereas the maladaptive would not.