

The Development and Validation of the
OD-Tools MQ



Technical Manual

Abstract

This paper provides an in-depth overview of the OD-Tools Motivation Questionnaire (MQ) and its theoretical foundations. The MQ synthesizes classical motivation theories, such as Maslow's hierarchy of needs, Herzberg's two-factor theory, McClelland's achievement motivation theory, and insights from Deci and Ryan's self-determination theory, under the overarching framework of psychological contracts. The MQ consists of 15 employee needs that enable the construction of all notable motivation models using these needs scales as basic building blocks. Another key innovation of the MQ model is the development of unique composite indices: The Employee Leaving Risk Indicator, the Burnout Risk Indicator, the Individual Sustainable Motivation Index (IMI), and the Organizational Motivation Index (OMI). These indices provide aggregated metrics for measuring sustainable motivation and organizational motivational capital. The paper includes a range of analyses to examine the questionnaire's psychometric properties and validity, such as means and response distributions, internal consistency, correlation tables, and criterion validity based on various studies.

The theoretical foundations of the MQ

The importance of workplace motivation is well known, yet the abundance of models and theories can be overwhelming for the layperson. MQ aims to distill the most significant factors identified by scientific research into one questionnaire, providing managers and human resources professionals with a comprehensive solution for measuring and increasing motivation. Not only have the authors of MQ integrated various theories, they have also simplified and tailored them for business applications. The following section introduces the theories encompassed by MQ.

Workplace motivation can be defined as "a set of energetic forces that originate within individuals, as well as in their environment, to initiate work-related behaviors and to determine their form, direction, intensity and duration" (Pinder, 2008). The authors of MQ translated this definition into business speak, defining workplace motivation as "the fuel of performance."

How does employee motivation occur through cognitive and behavioral processes? Although Victor Vroom's expectancy theory (Vroom, 1964) and Locke and Latham's goal-setting theory (Locke & Latham, 1990) are considered foundational answers and have contributed to our understanding of the process of motivation, their narrow focus has kept these theories in the realm of academic work and power point slides. They are intellectually fascinating, but due to their narrow focus, they cannot serve as a "Swiss army knife" model for managers facing all sorts of problems. Recognizing this, the authors of MQ set out to develop a motivation model that encompasses all the critical motivation factors the modern workplace.

Psychological contracts

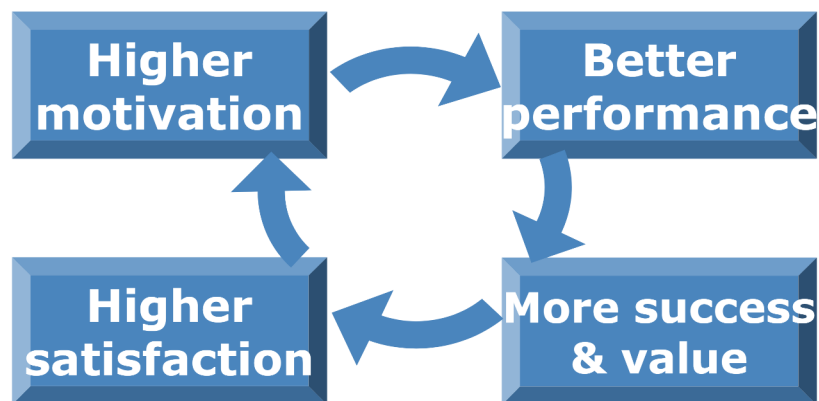
The goal of MQ is to offer businesses a practical and all-inclusive tool, and the concept of the "psychological contract" aligned best with this objective as the overarching theoretical framework for MQ. Among the various works on psychological contracts, the following ideas are reflected in the MQ most prominently. Levinson et al (1962) saw psychological contracts as encompassing employee expectations, and they argued that these expectations are being based on needs. Schein (1980) emphasized that the outcomes (positive or negative) of the psychological contract depend on the degree of

match between employees and organizations in terms of expectations and their fulfillment.

Rousseau (1995) contributed by emphasizing the subjective nature of psychological contracts. She emphasized the importance of employees individual perceptions, underscoring that psychological contracts reside "in the eye of the beholder." Conway and Briner further delved into the question of "What do employees really expect from work?" in their book, *Understanding Psychological Contracts at Work: A Critical Evaluation of Theory and Research* (Conway & Briner, 2005).

The MQ was developed to enable the application of these theories by accurately mapping the factors and status of the psychological contract based on measurement and data at both the individual and group levels. MQ aims to raise the awareness of both the employees and employers about employee's expectations. This awareness helps employers retain and engage their workforce and helps employees align their goals and actions with their needs.

Researchers of the psychological contract theory discuss positive and negative motivational cycles. The process of motivation can be illustrated by the following graphic:



If the job offers an environment that matches employees' needs and expectations, it will lead to higher motivation at work. This leads to better performance, which leads to higher productivity, more value creation, more rewards, and appreciation. These lead to greater job satisfaction, especially if the rewards align with the employee's needs. All of these factors fuel the positive motivational cycle, strengthening the psychological contract. MQ aims to provide a tool for employees and employers to enhance this positive cycle.

Maslow's Hierarchy of Needs

In search of a compelling answer to the question, "What do employees really expect from their work?", the authors of MQ integrated various theories about employee needs. Out of these, Maslow's hierarchy of needs (1943) is the most widely recognized and influential. This theory posits that humans have five levels of innate needs arranged in a hierarchy. The five levels of the hierarchy are:

- **Physiological Needs:** The most basic human needs essential for survival, including food, water, shelter, and sleep. In the workplace, these needs are typically met through adequate compensation that provides a living wage.

- **Safety Needs:** The need for security, stability, and protection from physical and emotional harm. This is fulfilled in the workplace through factors such as job security, health benefits, a safe work environment, and clear policies.
- **Social Needs:** The need for belonging, love, and acceptance. This psychological need can be satisfied through a positive, collaborative work environment, social relationships, and a sense of community within the organization.
- **Esteem Needs:** The need for recognition, respect, and self-worth. This level is satisfied by factors such as a meaningful job title, promotions, praise, and public acknowledgment of achievements.
- **Self-Actualization Needs:** The highest level of the hierarchy, representing a person's desire to achieve their full potential and grow as an individual. In the workplace, this can be addressed by providing challenging work, learning opportunities, and autonomy in one's role.

The levels provide an intuitive structure to organize the 15 specific needs of the MQ model. Incorporating the levels of Maslow's hierarchy into the MQ report should not be understood as a hierarchy with a linear staircase-like progression, where one level must be fully satisfied before motivation can shift to the next level. Maslow himself also noted, that for some individuals, the need for creative fulfillment could supersede even the most basic needs. He also observed that people could be satisfied or partially satisfied on different levels at the same time.

Herzberg's Motivation-Hygiene Theory

Building on Maslow's work, psychologist Frederick Herzberg (1959) developed his influential two-factor theory. This model emerged from research that asked hundreds of professionals to describe moments when they felt exceptionally good or bad about their jobs. Herzberg's key finding was that the factors causing job satisfaction were distinct from those causing dissatisfaction, and he defined and explained these two categories of factors.

The first category, **Hygiene Factors**, consists of extrinsic, environmental elements that, when absent or insufficient, cause job dissatisfaction. Their presence, however, does not necessarily lead to high levels of satisfaction. Examples of hygiene factors include salary, job security, company policies, working conditions, and interpersonal relationships with managers and peers. Herzberg likened these to "medical hygiene," which operates to remove health hazards from the environment but does not in itself make someone healthy. Simply put, improving hygiene factors only prevents dissatisfaction; it does not generate motivation.

The second category, **Motivators**, consists of intrinsic, psychological factors that are directly related to the content of the work itself. These factors drive job satisfaction and a desire for better performance. Examples include a sense of achievement, recognition, the work itself, responsibility, and opportunities for advancement and growth. These factors are essential for an individual to feel truly fulfilled and happy at work.

Herzberg's theory led to the concept of job enrichment, which advocates for making a job more interesting and challenging, and laid the foundation for the extrinsic and intrinsic motivation concept, which plays a prominent role in MQ.

McClelland's Acquired Needs Theory

David McClelland proposed a theory of motivation based on three primary needs that he believed were learned or "acquired" from life experiences and culture: the need for Achievement (nAch), the need for Affiliation (nAff), and the need for Power (nPow). This contrasts with Maslow's framework, which viewed needs as innate and hierarchical. The three needs are defined as follows:

- **Need for Achievement (nAch):** Individuals with a high nAch are driven by a desire to excel and succeed at challenging tasks. They prefer to work independently on projects with a moderate (about 50%) chance of success, as this allows them to attribute success to their own abilities rather than luck. They are motivated by personal accomplishment and a desire for excellence rather than external rewards.
- **Need for Affiliation (nAff):** Individuals with a strong nAff are motivated by a desire for close interpersonal relationships and a sense of connection. They thrive in collaborative environments and seek acceptance and belonging within a team.
- **Need for Power (nPow):** Individuals with a high nPow are driven by the desire to influence, teach, or lead others. This need can manifest in two ways: a desire for personal power or a desire for institutional power that benefits the entire organization.

These needs were incorporated into MQ's needs model. McClelland's work also pioneered new areas of application. One such area is selection, where McClelland promoted identifying candidates' motivational drivers to enhance person-job fit. In the domain of learning and development, McClelland developed an achievement motivation training program that effectively enhanced participants' work performance. The authors of MQ drew inspiration from these novel business applications of motivational science.

Self-Determination Theory (SDT)

This theory was developed by psychologists Edward Deci and Richard Ryan (2000), to provide a contemporary framework for understanding human motivation. The theory posits that all humans have three innate, universal psychological needs that, when satisfied, foster high-quality, "autonomous" motivation and well-being. These three psychological needs are:

- **Autonomy:** The need to feel a sense of choice and control over one's life and actions. This does not mean independence from others, but rather a sense of personal volition where an individual's actions align with their integrated self.
- **Competence:** The need to feel effective and capable in one's activities. This involves a sense of mastery and the belief that one has the skills to influence important outcomes.
- **Relatedness:** The need to feel a sense of belonging and connection with others through caring, supportive relationships.

SDT suggests that when these needs are met, individuals are driven by intrinsic motivation, leading to enhanced performance, persistence, and creativity, especially in complex tasks. SDT provides a roadmap for leaders to cultivate "high-quality motivation" by creating an environment that supports autonomy, competence, and relatedness, leading to greater engagement and performance. Ideas from SDT appear in many popular business books in various repackaged forms. Dan Pink (2009) is one such

prominent popularizer of the concept, adding purpose—doing meaningful work—as an important motivator.

These needs were incorporated into MQ's needs model. Another concept taken from SDT is that of extrinsic and intrinsic motivators. This concept complements Herzberg's dual factors and provides a deeper explanation of their mechanism. The connection between intrinsic motivation, well-being, and sustainable motivation has also been further explored and incorporated into the MQ.

The MQ Model

The objective of the model development was to capture the most typical and universal employee needs at work with terms that managers can intuitively understand. Another goal was to identify the Needs that are the "basic building blocks" of the complex motivation mix of people. For example, the need for promotion is an important need for many employees, but in the MQ model, it is viewed as a complex need, and it is decomposed into its basic building blocks, a range of more basic needs: the need for Materials, Recognition, Status, and Power. Need for responsibility similarly can be decomposed to need for Recognition, Status, Autonomy, Challenge, Achievement, and Learning.

Eventually, 15 such basic needs "building blocks" were determined through a literature review combined with focus-group discussions. Thanks to the integrative model development approach, the 15 resulting needs can be used to construct all previously introduced classic theories of motivation. It's just like building various objects from a large LEGO set. The following table shows the list of the 15 needs with their definitions, and indicates their categories according to SDT and Maslow's need levels.

Need	Definition	SDT	Maslow
Material	To get more material rewards: more money and benefits	Extrinsic	Security
Job security	To belong to a strong organization and to have long term guarantee for job	Extrinsic	Security
Harmony	To be accepted by others and have harmonious relations	Extrinsic	Social
Recognition	To gain recognition from superiors	Extrinsic	Social
Status	To gain high respect and admiration from others	Extrinsic	Self-esteem
Power	To have decision making power and control based on one's title and position	Extrinsic	Self-esteem
Environment	To work in a modern, well equipped, stylish environment	Extrinsic	Self-esteem
Work-life balance	To have sufficient free time for family, friends and hobbies	Extrinsic	Self-esteem
Autonomy	To have a high degree of freedom in one's work	Intrinsic	Self-esteem
Joy-of-work	To do what one likes to do and to enjoy the process of working	Intrinsic	Self-actualization
Challenge	To experience the excitement of difficult tasks and stretch assignments	Intrinsic	Self-actualization

Need	Definition	SDT	Maslow
Achievement	To produce results	Intrinsic	Self-actualization
Learning	To gain skills and knowledge	Intrinsic	Self-actualization
Excellence	To pursue high, internalized standards of excellence	Intrinsic	Self-actualization
Purpose	To serve a good cause and the society	Intrinsic	Self-actualization

The MQ questionnaire also measures satisfaction related to the 15 needs. For example, since there is a scale called "Materials," which measures the prominence of the need for material rewards as a motivator, therefore there is also a scale called "Materials Satisfaction," which measures the current level of satisfaction with material rewards. There is a satisfaction scale for each needs scale, doubling the number of primary scales from 15 to 30.

The 15 Needs are displayed according to Maslow’s classic hierarchy and according to the categories of Extrinsic-Intrinsic Needs in the report. The display of Need scales is based on practical considerations, not on factor analytic methods. The authors followed this approach because the primary use of OD-Tools MQ is corporate learning and development, and not academic research. Therefore, it builds on the classic, well-known, intuitive models which many managers are already familiar with.

Additional Primary Scales

MQ also includes 4 additional primary scales: Positivity, Perceived Control, Output of Energy, and Output of Ability, resulting in 34 primary scales in total. These four additional scales, beyond the 15 needs and 15 satisfactions, emerged from discussions with subject matter experts, and they have been confirmed to carry important information regarding the condition of the psychological contract, as evidenced by their presence in a considerable body of academic research.

The **Positivity** scale measures positive affectivity, which is a subset of the trait called optimism. This scale reflects individual differences in positive emotional experience. High levels of Positivity are marked by frequent feelings of cheerfulness, enthusiasm, and energy.

The **Perceived Control** scale (referred to as the Locus of Control scale in psychology), measures the degree to which people believe they have control over the outcomes of events at work and in their lives as opposed to external forces beyond their control. Perceived control is an important aspect of a proactive mindset.

These two individual attributes have been recently validated as the most important individual characteristics that predict employee engagement at work in a meta-study of Young, et al. (2018), based on 114 independent data sets (n = 44,224). Employee engagement is typically viewed as a function of organizational conditions because abundant evidence shows that it is strongly influenced by systemic factors. At the same time, the above study proves there is also an individual difference in the capacity of employees to be engaged. MQ can measure these important individual differences and can help in selecting employees who are more likely to become engaged in their work.

The concepts of "**Output of Energy**" (the current utilization of one's time and energy at work), and "**Output of Ability**" (the current utilization of one's abilities at work) play a central role in the Job Demands–Resources (JD-R) model of Bakker and Demerouti

(2007) and the Person-Job Fit (P-J Fit) model used in many studies (Edwards, 1991). According to the theory, low Output of Ability is a sign of poor P-J Fit; high Output of Ability is a sign of strong P-J Fit; employees with extremely high Output of Ability (score of 9 – 10) require support (on the job coaching, teamwork) to be sustainable. According to the theory, the combination of these factors can contribute to the following outcomes:

- High Output of Energy due to high demands (e.g., workload, pressure) + Poor P-J Fit (ability misfit) -> Energy Depletion (mental & physical exhaustion) -> Burnout & Health Problems.
- High Output of Energy due to high demands (e.g., workload, pressure) + Strong P-J Fit (ability as a personal resource) -> Motivation (willingness to invest energy) -> Excellent Performance & Personal Growth, but with a risk of Burnout & Health Problems.
- Low Organizational Resources (e.g., lack of autonomy, poor support, poor management) -> Low Output of Energy (boredom, lack of purpose) -> Disengagement & Low Output of Ability.
- High Organizational Resources (e.g., autonomy, feedback, support, effective leadership) -> High Output of Energy (vigor, enthusiasm) -> High Work Engagement & High Output of Ability.

These considerations are addressed and expanded in the secondary (composite) scales of MQ. It is important to note that a result from one scale alone is insufficient for drawing far-reaching conclusions. A more valid analysis on the employees' motivational status is provided by the combination of the factors: the scores on the 15 needs and satisfaction scales, and the scores on the four extra scales in their entirety.

Employee Motivation and Employee Engagement

These concepts are often discussed together because they overlap to a degree. Both are about human energy at work, and both contribute to high performance. The key differences lie in the models, assessment tools, reports, and their application. Employee Engagement models focus on the organization and assess its effectiveness as an engaging workplace. Employee Engagement is assessed through anonymous surveys that provide group reports, and the follow-up is organizational development. Employee Engagement does not consider individual differences. Motivation models, however, focus on the mental forces inside the individuals. Motivation assessments, such as MQ, provide individual reports and can be followed up with validation interviews, coaching sessions, or motivational dialog. Individual results can also be aggregated to provide a group-level analysis, but the main value is the detailed analysis of the individual motivation. The two concepts complement each other but cannot substitute for each other. Long before the employee engagement concept was popular, Schein (1980) already illuminated the relationship between these two approaches.

“We cannot understand the psychological dynamics if we look only to the individual’s motivations or only to the organizational conditions and practices. The two interact in a complex fashion that demands a systems approach”.

The ideal situation is when a highly motivated individual works in an engaging organization, where the organization’s systems and practices enhance the employees commitment to their job, sustain their drive to complete their tasks, creating a powerful cycle of sustained, high-quality contribution.

Secondary (Composite) Scales of MQ

The core MQ reports use only Primary Scales. To provide more utility, four secondary scales have been constructed from the primary scales. While the primary scales coupled with a discussion with the person are the recommended method for analyzing motivation on the individual (the micro) level, the secondary scales enable analysis on the team or organization (macro) level: sorting/ranking employees, and making practical comparisons between individuals, teams, units or organizations.

The secondary scales were created using the Decision Matrix Analysis method, not psychometric considerations. The formulas were defined by an expert panel of HR Subject Matter Experts and the MQ authors. The secondary scales serve as an orientation tool to be followed up by interviews, not as a sole basis for decisions.

Burnout Risk is displayed in the Healthy Motivation section of the individual pdf report (optional content), while Promotion Need, Critical Satisfaction Gap and IMI are shown only when the results are exported in an xls format.

"Satisfaction of Top Five Needs" in the following formula means the sum of the satisfaction scores of the 5 highest scoring needs. The high scores indicate that these needs are especially important for the individual. The highest scoring needs differ by people. The need "Excellence" is not included in the Top Five Needs in this formula, because a low excellence satisfaction score is prevalent and not detrimental to sustainable motivation.)

In the following formula, the scale names (e.g., Status, Power, Challenge, etc.) refer to the need scales. When referring to satisfaction scales, the word "satisfaction" is always written, for example, "Status Satisfaction," "Power Satisfaction," and so on.

1.

Promotion Need = Status + Power + Challenge + Achievement - 2*(Status Satisfaction + Power Satisfaction + Challenge Satisfaction) - 4* Output of Ability

This secondary scale brings together the promotion-related needs and perceived conditions in one indicator. Of course, this scale reflects only the motivational factors based on MQ, without including performance, competency, and organizational needs.

2.

Critical Satisfaction Gap (Employee Leaving Risk) = Material - 3*(Recognition Satisfaction + Output of Ability) - Satisfaction of Top Five Needs

This secondary scale combines the needs and conditions that typically motivate employees to change their jobs. MQ doesn't have direct questions about explicit desire or actual behavior of changing jobs.

3.

Burnout Risk = Output of Energy - Positivity - 2*Work-Life Balance Satisfaction

Burnout Risk can be reduced by reducing workload, increasing mental and physical resilience, and improving work-life balance.

4.

Individual Sustainable Motivation Indicator (IMI) = Positivity + Perceived Control + Harmony + Joy-of-work + Challenge + Achievement + Learning + Excellence + Purpose + 3*(Harmony Satisfaction + Recognition Satisfaction + Work-Life Balance Satisfaction + Output of Ability) + Satisfaction of Top Five Needs

IMI brings together the most important factors identified as drivers of employee retention, engagement, and sustainable motivation. The average value of employees' IMI in an organization is the Organizational Motivation Index (OMI). OMI was created to be a measure of the effectiveness of motivational practices in organizations.

The IMI scores are standardized using percentile rank scores (you can find a quick introduction to percentile rank scores here: https://en.wikipedia.org/wiki/Percentile_rank). IMI scores range from 1% - 99%. For example, an IMI score of 82% means the employee has a higher IMI score than 82% of the population. The population sample used for standardization combined all participants who took the latest version of MQ (v3.2) at the time of creating the scale (n=5299); they are white-collar employees from a wide range of industries and geographical regions.

Organizational practices to improve OMI:

- Hire more positive and intrinsically motivated people;
- Hire good team players;
- Train leaders in praising well, in igniting intrinsic motivation, in fostering a positive team climate (e.g. by implementing OD-Tools' Golden Key solution);
- Train leaders to become better motivators and conduct Motivational Dialogs (Golden Key);
- Promote work-life balance and healthy, sustainable performance;
- Provide learning, growth, and career development opportunities to employees.

The history and significance of MQ

The development of MQ started in Shanghai in 2004. Lead authors: Friedemann Demmer, Gabor Nagy. The work started with a literature review and comparative analysis of motivational theories, followed by in-depth discussions with an international team of business psychologists and HR consultants. The authors decided to integrate the classic models, and they embarked on the journey of creating the questionnaire items from scratch. The first versions of the questionnaire were very creative and colorful, and the questionnaire went through many iterations to finally reach a coherent and mature state with good psychometric properties. The team developed the English and Chinese versions simultaneously, making modifications to the items based on the data collected using item analysis and correlation analysis.

Target group

Besides its intercultural roots, another notable feature of MQ is the corporate environment in which it was developed. It was not developed by using student samples. Instead, the developing authors themselves used it in corporate training and high-stakes HR consulting and assessment center projects, refining it based on feedback and data gained from workplace application. It is important to note that MQ was designed with **white-collar employees** in mind. White-collar employees are professionals who perform commercial, technical, scientific, creative or administrative work that primarily requires intellectual rather than physical effort. Most of the data and use cases come from this segment. Furthermore, the underlying theories have predominantly been

researched with white-collar participants. Therefore, extra caution should be exercised when considering the use of MQ for other job types: make sure the MQ model covers the variables of interest, and the content of the MQ questionnaire is relevant to the job in question. With that being said, MQ has been used with nurses in a project to increase retention, and there may be many other situations in which MQ could be useful outside the realm of white-collar jobs.

To support effective application in organizations, MQ is complemented by an interview guide and two training programs: "Self-Motivation Skills for Professionals" and "Motivational Tools for Managers."

Another consideration in developing the MQ questionnaire was to use plain language and common workplace expressions, making it easy to understand and translate. High face and content validity were accomplished through feedback from subject matter experts and multiple revisions.

MQ distinguishes itself through a deliberate synthesis of classical motivation theories, including Maslow's Hierarchy of Needs, Herzberg's Two-Factor Theory, McClelland's Achievement Motivation Theory, and insights from Deci and Ryan's Self-Determination Theory, under the overarching framework of psychological contracts. Its ambition is to provide a complete picture of employees' motivations by measuring 34 independent scales. The median length of questionnaire completions is 15 minutes, thanks to an extensive process of psychometric optimization. Another feature is its business orientation, to ensure that the results are easy to understand and apply. This is achieved by displaying results according to well-known concepts, such as Maslow's hierarchy and extrinsic/intrinsic motivators.

Another key innovation of the MQ model is its development of unique composite indices to support business applications: Promotion Need, Critical Satisfaction Gap (Employee Leaving Risk), Burnout Risk, Individual Sustainable Motivation Indicator (IMI). The means of the latter in a group referred to as the Organizational Motivation Index (OMI), which provides aggregated metrics for sustainable motivation and the motivational capital of a unit or the entire organization.

Response patterns and report validity

The report has a Statistical Data section with information on Test length (the time participants took to complete the questionnaire), Fastest Blocks, Slowest Blocks, Median Block Lengths. The questionnaire consists of 126 items grouped into 18 blocks (7 items / block).

Participants work through questionnaires at different speeds due to habit, reading speed, interest, mood, or external conditions such as very limited time. If the test is completed too quickly, participants may not be able to read and consider the questions carefully. **The median MQ test length is 15 minutes 38 seconds** (n=13276), and test lengths under 8 minutes are questionable, most likely done in a hasty manner. The median block length is 50 seconds, and Fastest Blocks under 20 seconds are suspicious.

The most likely reason for very long completion times and Slowest Blocks is that the completion process has been interrupted. Interruptions are not ideal because the participants' focused state of mind is less likely to be maintained. Such reports need to be evaluated with extra care, but the long time itself does not necessarily indicate a problem.

Test length, Fastest Blocks, Slowest Blocks, Median Block Lengths, and scores must be considered in combination to evaluate the likely validity of the report.

Example 1. The following Statistical Data raised suspicion about the validity of a report. Could this participant accurately complete MQ in under 8 minutes? Let's take a closer look.

Test length: 00:07:31
 Fastest Blocks: Q11: 00:12; Q09: 00:14; Q08: 00:15
 Slowest Blocks: Q14: 00:32; Q13: 00:32; Q16: 00:29
 Median Block Length: 00:25

The block times are very short but fairly even, the differences between block times look normal. The participant may have done some work, not just clicked through.

SELF-ACTUALIZATION Needs			
Purpose	5		6
Excellence	4		5
Learning	5		8
Achievement	6		4
Challenge	4		5
Joy of Work	5		6

SELF-ESTEEM Needs			
Autonomy	4		6
Work-life balance	4		4
Environment	4		6
Power	4		5
Status	4		7

SOCIAL Needs			
Recognition	4		5
Harmony	3		5

SECURITY Needs			
Job security	4		5
Material	4		5

When we look at the report, we can see that all scores are similar, it looks like the person always chose responses in the middle of the Likert scale. It may be that someone has a very balanced profile in terms of their needs, but it is extremely unlikely that the satisfaction scores show a very similar pattern at the same time.

Combined with the very short completion time, this report can be considered invalid.

Example 2. In this case, the very similar scores on all scales raised suspicions. Is it possible that a participant has barely any truly low and truly high scores?

Why are the Need for Achievement and Need for Learning the lowest scoring intrinsic needs?



Test length: 00:21:51
 Fastest Blocks: Q15: 00:47; Q18: 00:53; Q09: 00:54
 Slowest Blocks: Q11: 01:31; Q13: 01:27; Q08: 01:19
 Median Block Length: 01:10

The block times are fairly even, this participant worked at a steady and slow pace. Probably read all the items carefully and spent time thinking about the responses.

The feedback session with this participant revealed that he was a 60-year-old technician, a reliable and valuable employee, but without high career ambitions. The participant stated that he completed the questionnaire as honestly and accurately as he could and confirmed that the profile was an accurate representation of his needs and satisfaction.

This case illustrates that a profile with very similar scores on all scales can be valid and accurate.

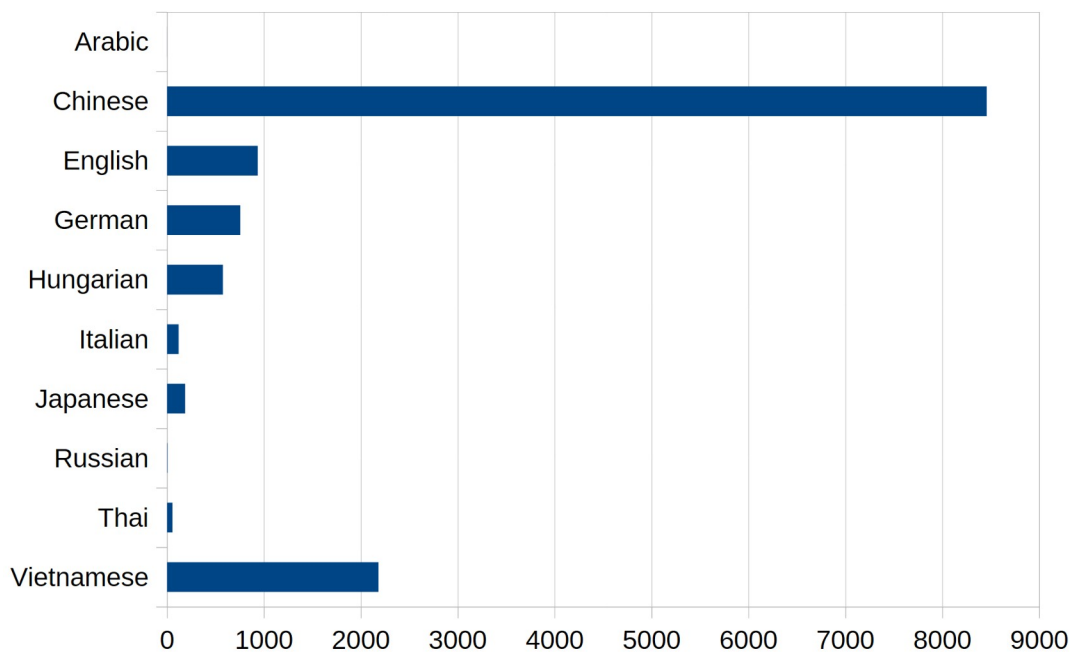
Descriptive Statistics of Primary Scales

The exported dataset includes all available MQ responses since 1st January 2018 until the 27th September 2025 (13592 responses). All data came from professional settings: training programs, recruitment, organizational diagnostics, coaching, and a small part from client demo and technical testing. The list of user organizations, where the data was obtained from, can be seen in Annex 1. Many of the listed organizations are consulting companies that have carried out projects for larger organizations. The exact number of data source organizations is unknown, but it is estimated to be over 150.

The first step was data cleaning: responses with completion time below 5 minutes (316 responses, which is 2,3% of the total responses) were deleted from the dataset. These responses were almost certainly completed too quickly to provide accurate answers. After removing these invalid responses, 13276 responses remained.

MQ is available in the following languages: Arabic; Chinese; English; German; Hungarian; Italian; Japanese; Russian; Thai; Vietnamese.

Number of respondents by language version:



The descriptive statistics section focuses on three of the largest datasets: Chinese, Vietnamese, and English. Some sections of this paper are based on the entire dataset, while validity studies used smaller subsets, which are described in specific sections.

The MQ questionnaire uses a 6-point Likert-type scale for its items, with anchors ranging from “Strongly Disagree” to “Strongly Agree.” Responses are scored from 1 to 6, and the scores for the negatively keyed items have been inverted.

Chinese dataset (n = 8458)

Descriptive Statistics of the 15 Needs Scales and the 4 Special Scales:

Scale	No. of Items	Range	Means	Standard Deviation	Cronbach's Alpha
Material	5	5 - 30	22.0	4.3	0.74
Job security	5	5 - 30	20.6	3.6	0.58
Harmony	5	5 - 30	22.8	3.2	0.51
Recognition	5	5 - 30	22.3	3.6	0.73
Status	5	5 - 30	18.8	3.9	0.63
Power	5	5 - 30	20.1	4.0	0.74
Environment	5	5 - 30	20.3	3.5	0.56
Work-life balance	5	5 - 30	18.9	3.7	0.66
Autonomy	5	5 - 30	20.5	3.4	0.59
Joy-of-work	5	5 - 30	19.4	3.6	0.63
Challenge	5	5 - 30	20.2	4.0	0.78
Achievement	5	5 - 30	21.4	3.9	0.76
Learning	5	5 - 30	22.1	3.2	0.61
Excellence	5	5 - 30	23.4	3.5	0.75
Purpose	5	5 - 30	22.1	3.7	0.71
Positivity	5	5 - 30	21.8	3.4	0.59
Perceived Control	6	6 - 36	24.3	4.0	0.55
Output Energy	4	4 - 24	14.6	2.9	0.51
Output Ability	4	4 - 24	13.5	2.6	0.36

Vietnamese dataset (n = 2182)

Descriptive Statistics of the 15 Needs Scales and the 4 Special Scales:

Scale	No. of Items	Range	Means	Standard Deviation	Cronbach's Alpha
Material	5	5 - 30	19.2	4.6	0.75
Job security	5	5 - 30	21.1	4.2	0.67
Harmony	5	5 - 30	22.5	3.2	0.47
Recognition	5	5 - 30	24.0	3.3	0.71
Status	5	5 - 30	19.4	4.1	0.71
Power	5	5 - 30	20.7	3.4	0.57
Environment	5	5 - 30	21.5	3.5	0.54
Work-life balance	5	5 - 30	21.0	3.4	0.51
Autonomy	5	5 - 30	23.5	3.5	0.58
Joy-of-work	5	5 - 30	22.8	3.4	0.66
Challenge	5	5 - 30	21.4	4.0	0.79
Achievement	5	5 - 30	23.6	3.5	0.73
Learning	5	5 - 30	22.6	3.1	0.55
Excellence	5	5 - 30	25.0	3.1	0.74
Purpose	5	5 - 30	22.4	3.6	0.65
Positivity	5	5 - 30	21.2	3.4	0.54
Perceived Control	6	6 - 36	27.7	3.8	0.61
Output Energy	4	4 - 24	14.0	2.8	0.50
Output Ability	4	4 - 24	15.3	2.8	0.45

English dataset (n = 936)

Descriptive Statistics of the 15 Needs Scales and the 4 Special Scales:

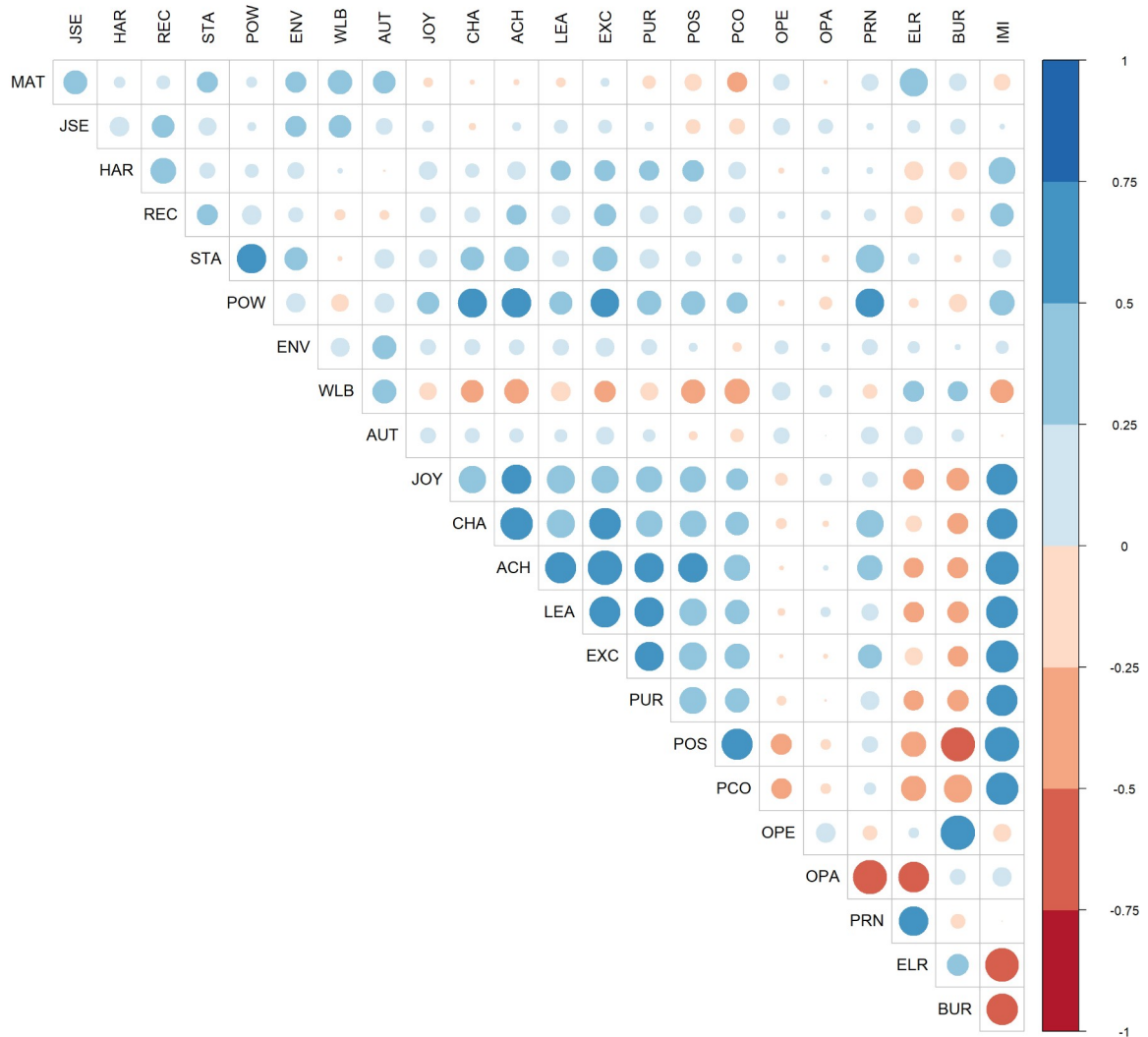
Scale	No. of Items	Range	Means	Standard Deviation	Cronbach's Alpha
Material	5	5 - 30	19.8	4.7	0.75
Job security	5	5 - 30	20.7	4.4	0.69
Harmony	5	5 - 30	22.6	3.1	0.45
Recognition	5	5 - 30	22.1	3.7	0.74
Status	5	5 - 30	18.4	4.5	0.74
Power	5	5 - 30	21.3	3.5	0.61
Environment	5	5 - 30	21.3	3.5	0.54
Work-life balance	5	5 - 30	22.5	3.4	0.56
Autonomy	5	5 - 30	23.4	3.2	0.61
Joy-of-work	5	5 - 30	22.7	3.2	0.64
Challenge	5	5 - 30	21.4	4.0	0.81
Achievement	5	5 - 30	23.2	3.7	0.78
Learning	5	5 - 30	21.5	3.6	0.65
Excellence	5	5 - 30	24.5	3.2	0.73
Purpose	5	5 - 30	22.1	3.5	0.61
Positivity	5	5 - 30	21.1	3.4	0.54
Perceived Control	6	6 - 36	25.8	4.2	0.61
Output Energy	4	4 - 24	15.3	3.2	0.64
Output Ability	4	4 - 24	14.8	3.3	0.58

Discussion

Developing psychometric tools requires striking a careful balance between efficiency, as measured by the length of the questionnaire (the number of the items), and the need for sufficient standard deviation and reliability. All of this must be achieved under the non-negotiable requirement of accuracy, or validity, which is verified through feedback sessions and by comparing the data with information from outside the questionnaire. The descriptive statistics for the MQ indicate how the authors approached achieving this balance by prioritizing a shorter questionnaire. Using as few items per scale as possible was important given the MQ's comprehensive scope. The satisfaction scales are not included in the above tables because they consist of only two items. Annex 2 contains the histograms of all MQ scales based on the full dataset (n = 13,276).

Inter-Scale Correlation Matrix

Chinese dataset (n = 8458)

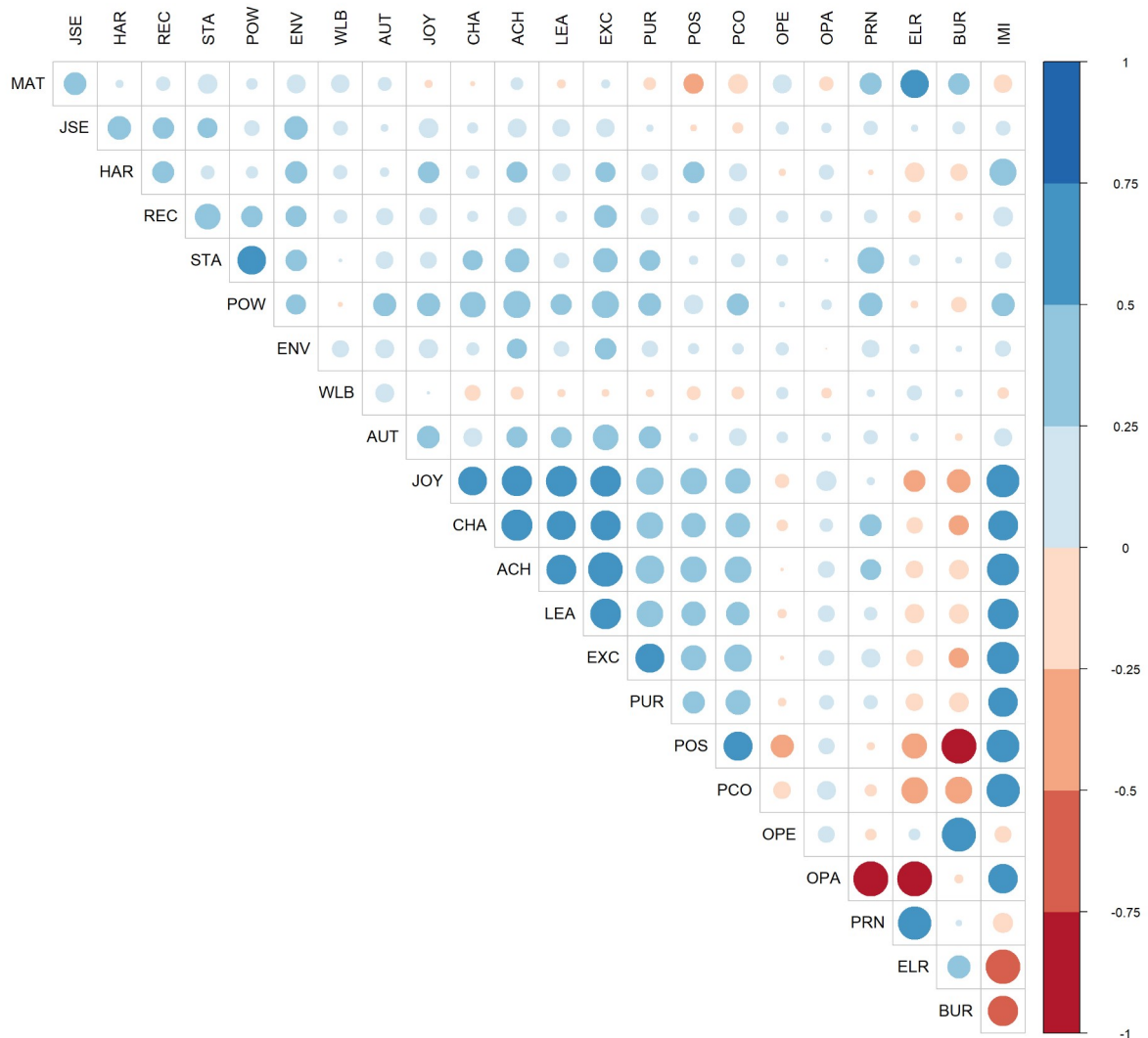


MAT=Material; JSE=Job security; HAR=Harmony; REC=Recognition; STA=Status; POW=Power; ENV=Environment; WLB=Work-life balance; AUT=Autonomy; JOY=Joy-of-work; CHA=Challenge; ACH=Achievement; LEA=Learning; EXC=Excellence; PUR=Purpose; POS=Positivity; PCO=Perceived Control; OPE=Output of Energy; OPA=Output of Ability; PRN=Promotion Need; ELR=Employee Leaving Risk; BUR=Burnout Risk; IMI=Individual Sustainable Motivation Index.

Blue represents positive, red represents negative correlations. Larger disc sizes and darker colors represent stronger correlations.

The correlations provide insight into how the needs cluster, and which scales have systematic relationships among each other.

Vietnamese dataset (n = 2182)

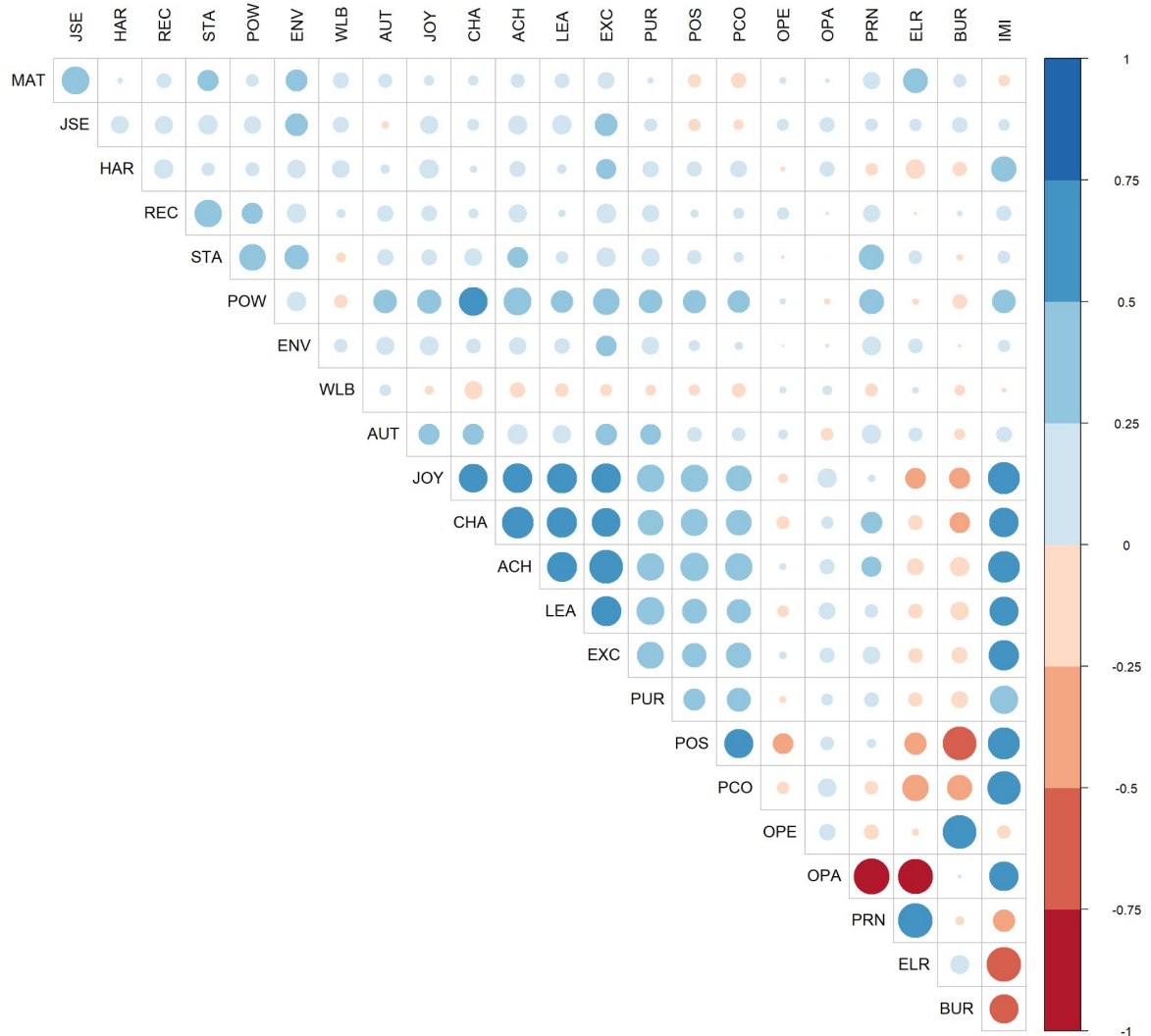


MAT=Material; JSE=Job security; HAR=Harmony; REC=Recognition; STA=Status; POW=Power; ENV=Environment; WLB=Work-life balance; AUT=Autonomy; JOY=Joy-of-work; CHA=Challenge; ACH=Achievement; LEA=Learning; EXC=Excellence; PUR=Purpose; POS=Positivity; PCO=Perceived Control; OPE=Output of Energy; OPA=Output of Ability; PRN=Promotion Need; ELR=Employee Leaving Risk; BUR=Burnout Risk; IMI=Individual Sustainable Motivation Index.

Blue represents positive, red represents negative correlations. Larger disc sizes and darker colors represent stronger correlations.

The correlations provide insight into how the needs cluster, and which scales have systematic relationships among each other.

English dataset (n = 936)



MAT=Material; JSE=Job security; HAR=Harmony; REC=Recognition; STA=Status; POW=Power; ENV=Environment; WLB=Work-life balance; AUT=Autonomy; JOY=Joy-of-work; CHA=Challenge; ACH=Achievement; LEA=Learning; EXC=Excellence; PUR=Purpose; POS=Positivity; PCO=Perceived Control; OPE=Output of Energy; OPA=Output of Ability; PRN=Promotion Need; ELR=Employee Leaving Risk; BUR=Burnout Risk; IMI=Individual Sustainable Motivation Index.

Blue represents positive, red represents negative correlations. Larger disc sizes and darker colors represent stronger correlations.

The correlations provide insight into how the needs cluster, and which scales have systematic relationships among each other.

The comparison of the correlation tables from the three language samples reveals that the main trends are strikingly similar. This supports the hypothesis that the psychological principles behind workplace motivation are universal.

Additional Significant Relationships

MQ collects detailed, comprehensive information on motivational factors in the workplace. By working with these variables, we can perform analyses that provide further insight into the principles of workplace motivation. The correlations below are based on the entire dataset (n = 13,276). Considering the large international sample from more than 150 companies, the results below are empirically very robust and may spark interest for further research.

Drivers of Employee Satisfaction

We can create a proxy scale for Employee Satisfaction by adding up all satisfaction scores. The following table shows the correlation between the MQ scales (the Needs and the four Additional Scales) and the proxy Employee Satisfaction:

MAT	JSE	HAR	REC	STA	POW	ENV	WLB	AUT	JOY
-0.36	-0.1	0.29	0.21	-0.02	0.24	0.00	-0.16	0.00	0.40

CHA	ACH	LEA	EXC	PUR	POS	PCO	OPE	OPA
0.28	0.39	0.29	0.35	0.26	0.56	0.59	-0.17	0.26

MAT=Material; JSE=Job security; HAR=Harmony; REC=Recognition; STA=Status; POW=Power; ENV=Environment; WLB=Work-life balance; AUT=Autonomy; JOY=Joy-of-work; CHA=Challenge; ACH=Achievement; LEA=Learning; EXC=Excellence; PUR=Purpose; POS=Positivity; PCO=Perceived Control; OPE=Output of Energy; OPA=Output of Ability.

We find that people who are driven by Joy, Achievement, Excellence, and who have the attitudes of Positivity and Perceived Control tend to report the higher level of overall Employee Satisfaction.

Sustainable motivation sources

The following table shows the correlations between Needs and Satisfaction scores related to the specific needs (for example, respondents’ need for status is correlated with the satisfaction related to respondents’ status). Positive correlations (green cells) indicate “sustainable” motivation sources, meaning those needs become stronger as satisfaction grows. Negative correlations (red cells) indicate needs that tend to lose their relative importance as satisfaction increases.

MAT	JSE	HAR	REC	STA	POW	ENV	WLB	AUT	JOY	CHA	ACH	LEA	EXC	PUR
-0.5	-0.08	0.38	0.22	-0.08	0.37	-0.14	0.07	-0.08	0.42	0.19	0.24	0.26	0.22	0.41

MAT=Material; JSE=Job security; HAR=Harmony; REC=Recognition; STA=Status; POW=Power; ENV=Environment; WLB=Work-life balance; AUT=Autonomy; JOY=Joy-of-work; CHA=Challenge; ACH=Achievement; LEA=Learning; EXC=Excellence; PUR=Purpose.

The sustainable motivation sources, as identified by the correlations in the table above, can be also interpreted using Herzberg’s terminology: Needs with higher correlation values can be viewed as Motivators, while Needs with low or negative correlations function as Hygiene Factors.

Indicators of mental health

Since Positivity and Perceived Control are behaviors and attitudes often associated with mental health, we can create a "Mental Health" secondary scale by adding them. While it is far from a comprehensive measure of mental health, we can use it as a proxy. Assuming Maslow is correct, we should observe a positive correlation between intrinsic needs and our "Mental Health" proxy scale. Here are the calculated correlations:

MAT	JSE	HAR	REC	STA	POW	ENV	WLB	AUT	JOY	CHA	ACH	LEA	EXC	PUR
-0.25	-0.12	0.25	0.2	0.13	0.35	0.06	-0.26	0.03	0.44	0.44	0.53	0.44	0.49	0.38

MAT=Material; JSE=Job security; HAR=Harmony; REC=Recognition; STA=Status; POW=Power; ENV=Environment; WLB=Work-life balance; AUT=Autonomy; JOY=Joy-of-work; CHA=Challenge; ACH=Achievement; LEA=Learning; EXC=Excellence; PUR=Purpose.

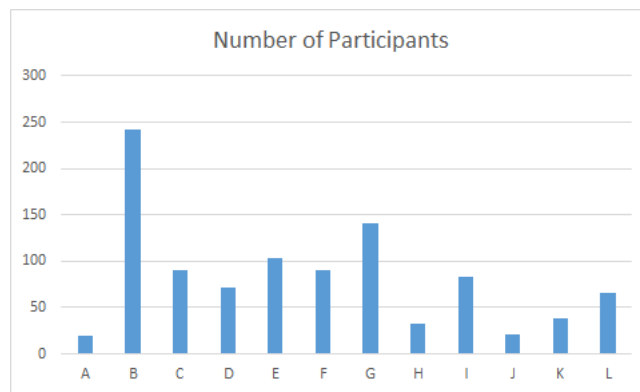
The results are fundamentally aligned with Maslow’s observation that fully functioning people who exhibit the highest mental health are driven by higher level Needs. However, we find that in the work setting, the drive for Power (a need for decision making authority and influence) is also significantly correlating with mental health. The results can be viewed as confirmation of the integration of Maslow's and McClelland's theories, providing a more complete picture. The results suggests that the mentally healthiest people at work tend to have both high intrinsic motivation and career ambitions in terms of position and influence.

MQ validity study 1.

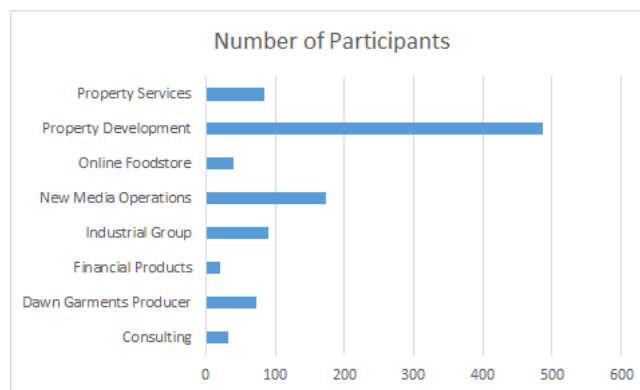
A study from 2023 examined the correlation between MQ scores and job performance. A consulting firm collected MQ and Trait-Map scores and Performance Appraisal results from a total of 1000 employees in 12 companies. MQ along the Trait-Map Personality Assessment was used in organizational development projects. The performance ratings were given by the direct supervisor as part of the companies' regular performance management process. Performance ratings were provided in 3 grades: High, Medium, Low. The Performance Appraisal processes were completely independent of the psychometric assessment results.

Participant background

Number of employees per company (companies are represented by A, B, C, etc.):



Number of employees per industry:



All data are from Jiangxi Province, China. Company F is government-owned (9% of participants), the other participants work in the private sector. There are 213 managers in the dataset, and 560 non-managers (the others are unknown). Additional information such as gender, age, department, job type, or job title could not be obtained.

Results 1.

Based on the full data set, the following scales are significantly correlated with Performance (the non-significant scales are grayed out and also included for reference):

	Scales	r	p
1	RecognitionS	0.192	0
2	Achievement	0.149	0
3	Excellence	0.143	0
4	Autonomy	0.123	0
5	IMI	0.11	0.001
6	Environment	0.099	0.002
7	Status	0.098	0.002
8	Power	0.098	0.002
9	Output of Energy	0.098	0.002
10	JoyS	0.091	0.004
11	StatusS	0.089	0.005
12	Challenge	0.087	0.006
13	PowerS	0.085	0.007
14	AutonomyS	0.085	0.007
15	JobSecurityS	0.081	0.01
16	AchievementS	0.078	0.014
17	Positivity	0.074	0.019
18	ExcellenceS	0.067	0.035
19	Materials	0.058	0.067
20	PerceivedControl	0.056	0.078
21	Purpose	0.053	0.094
22	Joy	0.05	0.113
23	HarmonyS	0.038	0.231
24	Recognition	0.036	0.261
25	Harmony	0.033	0.295
26	Learning	0.033	0.304
27	ChallengeS	0.025	0.434
28	LearningS	0.02	0.531
29	Work-Life BalanceS	-0.015	0.644
30	PurposeS	-0.017	0.593
31	MaterialsS	-0.029	0.361
32	JobSecurity	-0.031	0.329
33	Work-Life Balance	-0.034	0.287
34	Output of Ability	-0.034	0.279
35	EnvironmentS	-0.076	0.017

Pearson correlation values are shown in column r, Significance (2-tailed) in column p.

p < 0.05 is considered as statistically significant and p < 0.001 (less than one in a thousand chance of being wrong) as highly significant.

N=1000

S denotes satisfaction scales.

Discussion

First, it can be concluded that there is a significant correlation between performance and numerous MQ scales across companies and jobs. The correlation values are moderate or low, but the significance is high.

RecognitionS (Satisfaction with Recognition by Direct Supervisor) has the highest correlation with Performance. The RecognitionS scale measures the perceived amount of recognition employees received from their direct supervisors. In this study, Performance ratings were determined by direct supervisors. The connection between these two set of numbers is obvious: they both have something to do with how satisfied direct supervisors are with their employees. Therefore, it is not surprising that RecognitionS is the most highly correlated scale.

The MQ scales Need for Achievement, Need for Excellence, Need for Autonomy are signs of intrinsic motivation, and are widely recognized as drivers of performance, so finding them as significantly correlated is consistent with theory. IMI and Positivity are also significantly correlated as expected.

Based on theory, the other Intrinsic Needs scales (Need for Purpose, Joy, and Learning) and Perceived Control were also expected to be significantly correlated with Performance. However, this is not the case in this data set, and investigating the reason for this is beyond the scope of this study.

It can also be concluded that none of the MQ scales are significantly negatively correlated with Performance.

Results 2.

In case of the Managers, the following scales are significantly correlated with Performance (the non-significant scales are grayed out and also included for reference):

	Scale	r	p
1	RecognitionS	0.264	0
2	Achievement	0.244	0
3	Perceived Control	0.234	0.001
4	IMI	0.216	0.002
5	Challenge	0.208	0.002
6	Power	0.197	0.004
7	Excellence	0.194	0.004
8	PowerS	0.18	0.008
9	Job securityS	0.165	0.016
10	Autonomy	0.164	0.016
11	Joy-of-workS	0.158	0.021
12	Positivity	0.143	0.037
13	StatusS	0.142	0.038
14	Status	0.128	0.062
15	AutonomyS	0.128	0.063
16	Purpose	0.127	0.064
17	HarmonyS	0.125	0.07
18	Environment	0.124	0.071
19	ExcellenceS	0.102	0.139
20	Harmony	0.081	0.238
21	AchievementS	0.079	0.248
22	Joy-of-work	0.074	0.281
23	Learning	0.067	0.327
24	Output Energy	0.067	0.328
25	Recognition	0.06	0.382
26	LearningS	0.045	0.513
27	ChallengeS	0.042	0.543
28	Material	0.021	0.758
29	PurposeS	-0.007	0.924
30	Work-life balanceS	-0.03	0.663
31	Output Ability	-0.033	0.629
32	MaterialS	-0.038	0.578
33	Job security	-0.057	0.411
34	EnvironmentS	-0.096	0.164
35	Work-life balance	-0.096	0.161

Pearson correlation values are shown in column r, Significance (2-tailed) in column p.

p < 0.05 is considered as statistically significant and p < 0.001 (less than one in a thousand chance of being wrong) as highly significant.

N=213

S denotes satisfaction scales.

Discussion

First, it can be concluded that there is a significant correlation between Performance of managers and numerous MQ scales. The correlation values are moderate or low, but the significance is high.

RecognitionS (Satisfaction with Recognition by Direct Supervisor) has the highest correlation with Performance, for the same reason as explained for the full dataset.

The MQ scales Need for Achievement, Need for Excellence, Need for Autonomy are significantly correlated with Performance similarly as in the full dataset, but in this segment we also have Perceived Control, Need for Challenge, Need for Power, and Positivity as well. These findings are expected and consistent with theory. We find that IMI is also highly correlated with performance as expected.

Based on theory, the other Intrinsic Needs scales (Need for Purpose, Joy, and Learning) were also expected to be significantly correlated with Performance. However, this is not the case in this data set, and investigating the reason for this is beyond the scope of this study.

Both datasets confirm that the complex IMI scale is significantly correlated with Performance. It can also be concluded also for the Manager segment that none of the MQ scales are significantly negatively correlated with Performance.

Validity study 2.

MQ scores correlated with Assessment Center results

The following study is based on a dataset of 111 junior and middle managers in an MNC. The managers participated in a leadership Assessment Center to assess their readiness for promotion. The AC consisted of an In-Basket Exercise, a Team Game with Leaderless Group Discussion, a Role Play, a Presentation Exercise, and a Behavioral Event

Interview. Participants also completed three psychometric inventories: Trait-Map® Personality Assessment, EQ-SWOT Emotional Intelligence Questionnaire, and OD-Tools MQ. Scoring of the AC was independent of the psychometric test scores.

Method of analysis:

The participants were divided into two groups based on their AC total scores: Lower scoring group (80% of participants); Higher scoring group (the top 20%). The psychometric results' differences between the groups were analysed using independent samples t-tests to determine statistical significance.

The significance value indicates the probability that the difference in means is due to coincidence. The smaller the significance value, the more significant the trend. Depending on the purpose of the study, the cut-off value of significance (the required value used to determine statistical significance) may be set at less than 0.1 (the chance of coincidence is less than 10%); less than 0.05 (the chance of coincidence is less than 5%); or less than 0.001 (the chance of coincidence is less than 0.1%). The following table shows the differences in MQ scores between the two groups (the difference is calculated by subtracting the means of the Lower scoring group from the means of the Higher scoring group), and the statistical significance of the difference. The statistically significant differences (scales where the significance value is less than 0.1) are highlighted in green.

Scale	Means - Lower scoring group	Means - Higher scoring group	Difference of means	Significance
Materials	6.721	6.545	-0.175	0.75442
MaterialsS	4.658	4.364	-0.294	0.49166
JobSecurity	6.928	6.136	-0.792	0.08715
JobSecurityS	7.207	7.227	0.02	0.95504
Harmony	7.766	7.682	-0.084	0.80105
HarmonyS	8.045	8	-0.045	0.90576
Recognition	7.568	7.182	-0.386	0.28455
RecognitionS	8.234	8.045	-0.189	0.53696
Status	6.072	6.409	0.337	0.29795
StatusS	6.423	6.727	0.304	0.43505
Power	6.784	7.909	1.125	0.00493
PowerS	4.486	5.273	0.786	0.0768
Environment	6.495	6.909	0.414	0.23005
EnvironmentS	6.441	6.455	0.013	0.9732
Work-Life-Balance	5.063	4.909	-0.154	0.76297
Work-Life-BalanceS	7.117	7	-0.117	0.80008
Autonomy	5.712	6.227	0.516	0.2152
AutonomyS	7.441	6.955	-0.487	0.15773
Joy	5.766	6.318	0.552	0.13264
JoyS	7.477	8.045	0.568	0.10995
Challenge	7.054	7.636	0.582	0.17262
ChallengeS	7.64	7.955	0.315	0.35746
Achievement	6.847	7.727	0.88	0.04769
AchievementS	6.703	7.182	0.479	0.2001
Learning	6.892	7.364	0.472	0.20278
LearningS	7.405	7.455	0.049	0.9009
Excellence	7.243	7.955	0.711	0.02812
ExcellenceS	5.784	6.409	0.625	0.053
Purpose	7.45	7.955	0.504	0.11278

PurposeS	7.856	8.136	0.281	0.40869
Positivity	7.135	7.864	0.729	0.03512
OPE-Output of Energy	6.171	6.455	0.283	0.48138
OPA-Output of Ability	6.369	6.182	-0.188	0.5849
Perceived Control	7.288	7.773	0.484	0.28951
PN-Promotion Need	5.36	5.682	0.321	0.3186
Satisfaction Gap (Employee Leaving Risk)	4.577	4.682	0.105	0.7329
Burnout Risk	4.459	4.273	-0.187	0.69115
Individual Sustainable Motivation Index	64.604	71.409	6.805	0.22799

Discussion

The result shows that significant differences between the two groups’ MQ scores exist.

The Lower scoring group has a significantly higher need for Job security than the Higher scoring group.

The Higher scoring group has a significantly higher need for Power, Achievement, Excellence than the Lower scoring group. The Higher scoring group has also significantly higher score on Positivity than the Lower scoring group.

It is consistent, that the Higher scoring group has a higher need for Intrinsic, and lower need for the Extrinsic motivation factors compared to the Lower scoring group.

These differences are in the expected directions, but the differences are often smaller than statistically significant. The reason for the small differences may be that the participants in these ACs were high performers who were eligible for promotion, and their participation was a recognition of their performance. They were all highly motivated to do well on the AC, so the AC results are more a reflection of their differences in ability than their differences in motivation.

Gender Effects Analysis

Description of the data

A total of 9509 anonymous MQv3.2 respondent responses were exported in March 2024. This data comes from motivation/retention development projects and organizational diagnosis/development projects in Europe and Asia. The respondents are all working adults in white-collar jobs, and the dataset represents a wide range of industries and jobs. 272 respondents completed MQv3.2 in less than 6 minutes, and their data was removed from the analysis. The dataset contained another 1105 respondents without gender information, and their data was also removed. Only language versions with larger respondent numbers have been included in the analysis. In the end, 531 responses in English, 481 in German, 5736 in Simplified Chinese, and 1249 in Vietnamese were used.

Methodology

The analysis was performed separately for the four language groups (English, German, Simplified Chinese, and Vietnamese). The means of raw scores were calculated for female and male participants respectively for the 15 MQ Needs scales; for the relevant 15 MQ Satisfaction scales (denoted by an S at the end of the scale name); and for the additional primary scales (Positivity, Output of Energy, Output of Ability, Perceived Control) and secondary scales (PromotionNeed, EmployeeLeavingRisk, BurnoutRisk, IMI), and the results are displayed in the columns Means Female and Means Male.

Then the difference of female and male means was calculated by subtracting the male means from the female means, and the result is shown in the Difference column. If the female means is higher than the male means, the Difference is a positive number; if the male means is higher, then the Difference is a negative number.

The means and differences were calculated from the scale raw scores, not from standardized scores. This is beneficial for accuracy, but it makes the numbers difficult to interpret, because the scales consist of different number of items (Needs scales consist of 5 items, Satisfaction scales consist of 2 items, and the other scales have varying number of items). In order to determine if a difference is small or big, Student's T-Test for Independent Samples was used to calculate the significance of the differences, as shown in column Sig. (2-tailed; equal variance of the compared datasets was not assumed).

The Sig. number indicates the probability that a result (in this case, a difference in means) is a coincidence. Sig. < 0.05 (less than 5% chance of being a coincidence, highlighted with light green) is considered as statistically significant, and Sig. < 0.001 (less than 0,1% chance of being a coincidence, highlighted with vivid green) as highly significant. A smaller Sig. indicates a higher significance of the result, in our case showing that there is a greater difference by gender.

We also display the difference as a percentage of the scale standard deviation to illustrate the magnitude of the difference between the gender means. Scale STD represents the standard deviation of the scale and is calculated as the average standard deviation of the male and female data sets. The % of STD column shows the difference as a percentage of the standard deviation, calculated as $\text{Difference} / \text{Scale STD} \times 100$.

English data set

Female n=269, Male n=262, total n=531. This is a geographically and culturally diverse dataset, primarily from Malaysia, Singapore, and the United Kingdom. STD stands for Standard Deviation. The “% of STD” shows the difference compared to the scale’s STD.

Scales	Means Female	Means Male	Difference	Sig.	Scale STD	% of STD
Material	20.58	20.313	0.267	0.499	4.54	6
MaterialS	5.881	5.863	0.018	0.917	2.046	1
Job security	21.316	20.718	0.598	0.137	4.616	13
Job securityS	8.665	8.622	0.043	0.79	1.872	2
Harmony	22.454	22.393	0.06	0.825	3.138	2
HarmonyS	9	9.08	-0.08	0.555	1.565	-5
Recognition	22.394	21.355	1.039	0.001	3.622	29
RecognitionS	8.896	9.076	-0.18	0.305	2.024	-9
Status	18.617	18.179	0.438	0.261	4.478	10
StatusS	8.446	8.897	-0.451	0.006	1.868	-24
Power	21.078	21.939	-0.861	0.004	3.403	-25
PowerS	7.993	8.656	-0.664	0	1.945	-34
Environment	21.517	21.595	-0.079	0.785	3.314	-2
EnvironmentS	8.108	7.744	0.364	0.034	1.972	18
Work-life balance	22.487	21.908	0.579	0.045	3.313	17
Work-life balanceS	8.305	8.187	0.118	0.475	1.898	6
Autonomy	23.48	23.599	-0.12	0.662	3.152	-4
AutonomyS	8.112	8.344	-0.232	0.136	1.79	-13
Joy-of-work	22.892	22.889	0.003	0.991	3.063	0
Joy-of-workS	9.201	9.519	-0.318	0.042	1.8	-18
Challenge	21.007	22.481	-1.473	0	3.748	-39
ChallengeS	8.914	9.344	-0.429	0.004	1.728	-25
Achievement	23.022	23.481	-0.459	0.134	3.518	-13
AchievementS	8.323	8.191	0.133	0.396	1.798	7
Learning	21.695	21.977	-0.282	0.35	3.469	-8
LearningS	8.428	8.706	-0.279	0.104	1.972	-14
Excellence	24.628	24.721	-0.093	0.725	3.051	-3
ExcellenceS	7.026	7.053	-0.027	0.868	1.895	-1
Purpose	22.32	22.095	0.224	0.438	3.329	7
PurposeS	9.186	9.218	-0.032	0.821	1.614	-2
Positivity	21.041	21.344	-0.303	0.288	3.278	-9
Output Energy	15.379	14.996	0.383	0.172	3.225	12
Output Ability	14.197	14.676	-0.479	0.1	3.347	-14
Perceived Control	25.416	26.164	-0.748	0.033	4.026	-19
PromotionNeed	-23.77	-26.416	2.647	0.143	20.716	13
EmployeeLeavingRisk	-90.651	-93.221	2.571	0.132	19.596	13
BurnoutRisk	-22.271	-22.721	0.45	0.499	7.651	6
IMI	367.62 1	372.88 2	-5.261	0.087	35.391	-15

The female respondents scored significantly higher in Need for Recognition and Work-life balance; and Satisfaction with the Environment. The male respondents scored significantly higher in Need for Power and Challenge, in Satisfaction with their Status, Power, Joy of work, Challenge, and Perceived Control.

German data set

Female n=240, Male n=241, total n=481. This dataset is from Germany.

Scales	Means Female	Means Male	Difference	Sig.	Scale STD	% of STD
Material	16.504	17.282	-0.778	0.037	4.064	-19
MaterialS	7.392	7.726	-0.334	0.119	2.346	-14
Job security	18.458	18.942	-0.484	0.197	4.098	-12
Job securityS	9.725	9.768	-0.043	0.815	1.995	-2
Harmony	23.633	22.178	1.455	0	3.129	47
HarmonyS	9.496	9.465	0.031	0.823	1.522	2
Recognition	21.95	21.718	0.232	0.519	3.943	6
RecognitionS	7.796	7.83	-0.034	0.874	2.345	-1
Status	14.763	15.535	-0.772	0.054	4.379	-18
StatusS	8.879	8.631	0.248	0.168	1.972	13
Power	20.233	21.61	-1.377	0	3.758	-37
PowerS	8.067	8.353	-0.286	0.135	2.092	-14
Environment	20.892	21.689	-0.797	0.02	3.752	-21
EnvironmentS	8.808	8.469	0.339	0.093	2.212	15
Work-life balance	23.558	22.199	1.359	0	3.654	37
Work-life balanceS	8.613	8.531	0.082	0.643	1.924	4
Autonomy	24.979	24.797	0.182	0.52	3.101	6
AutonomyS	8.733	8.664	0.069	0.669	1.78	4
Joy-of-work	21.508	20.842	0.666	0.02	3.138	21
Joy-of-workS	9.338	9.29	0.048	0.808	2.127	2
Challenge	19.383	20.983	-1.6	0	4.063	-39
ChallengeS	9.225	9.515	-0.29	0.093	1.882	-15
Achievement	23.321	23.116	0.205	0.537	3.636	6
AchievementS	8.754	8.759	-0.005	0.975	1.807	0
Learning	21.071	20.639	0.432	0.119	3.032	14
LearningS	8.817	8.938	-0.121	0.491	1.924	-6
Excellence	23.171	23.419	-0.248	0.414	3.319	-7
ExcellenceS	7.904	7.996	-0.092	0.568	1.758	-5
Purpose	21.171	20.232	0.939	0.009	3.922	24
PurposeS	9.267	9.087	0.18	0.294	1.874	10
Positivity	20.458	20.585	-0.127	0.707	3.693	-3
Output Energy	15.1	14.892	0.208	0.557	3.877	5
Output Ability	13.417	13.535	-0.118	0.674	3.085	-4
Perceived Control	25.263	25.51	-0.247	0.515	4.169	-6
PromotionNeed	-28.308	-25.892	-2.416	0.204	20.828	-12
EmployeeLeavingRisk	-92.192	-90.884	-1.308	0.443	18.667	-7
BurnoutRisk	-22.583	-22.755	0.172	0.829	8.722	2
IMI	362	359.66	2.34	0.445	33.493	7

The female respondents scored significantly higher in Need for Harmony, Work-life balance, Joy of work and Purpose. The male respondents scored significantly higher in Need for Material, Environment, Power and Challenge.

Simplified Chinese data set

Female n=2493, Male n=3243, total n=5736. This dataset is from the People’s Republic of China. The statistical significance of the differences are greater than in the previous samples (probably due the much larger sample size), so it is more practical to focus on the differences expressed as percentage of STD. Differences greater than 20% are highlighted with blue in this table.

Scales	Means Female	Means Male	Difference	Sig.	Scale STD	% of STD
Material	21.883	21.253	0.63	0	4.242	14.844
MaterialS	6.261	6.469	-0.208	0	1.938	-10.748
Job security	20.722	20.213	0.509	0	3.621	14.043
Job securityS	8.327	8.457	-0.13	0.006	1.799	-7.252
Harmony	22.681	23.145	-0.464	0	3.124	-14.851
HarmonyS	9.567	9.658	-0.091	0.033	1.614	-5.654
Recognition	22.373	22.357	0.016	0.863	3.577	0.458
RecognitionS	8.675	9.256	-0.582	0	1.796	-32.389
Status	18.345	19.169	-0.825	0	3.879	-21.262
StatusS	8.17	8.431	-0.261	0	1.665	-15.699
Power	19.554	20.948	-1.394	0	3.932	-35.459
PowerS	6.798	7.327	-0.529	0	2.057	-25.733
Environment	20.35	20.233	0.117	0.211	3.537	3.316
EnvironmentS	7.76	7.891	-0.131	0.009	1.888	-6.923
Work-life balance	19.376	18.22	1.156	0	3.668	31.508
Work-life balanceS	8.11	8.073	0.037	0.478	1.937	1.885
Autonomy	20.704	20.199	0.505	0	3.318	15.226
AutonomyS	8.251	8.333	-0.082	0.075	1.735	-4.727
Joy-of-work	19.289	19.634	-0.345	0	3.576	-9.644
Joy-of-workS	8.329	8.759	-0.43	0	1.805	-23.836
Challenge	19.314	21.154	-1.84	0	3.855	-47.738
ChallengeS	8.379	8.778	-0.398	0	1.732	-22.988
Achievement	20.693	22.295	-1.602	0	3.78	-42.389
AchievementS	7.369	7.78	-0.411	0	2.005	-20.506
Learning	21.967	22.338	-0.371	0	3.155	-11.754
LearningS	8.179	8.502	-0.323	0	1.84	-17.574
Excellence	22.884	24.084	-1.199	0	3.402	-35.259
ExcellenceS	6.648	7.47	-0.822	0	2.013	-40.822
Purpose	21.832	22.753	-0.921	0	3.584	-25.69
PurposeS	8.555	9.003	-0.448	0	1.769	-25.304
Positivity	21.446	22.293	-0.846	0	3.392	-24.946
Output Energy	14.687	14.358	0.328	0	2.865	11.463
Output Ability	13.511	13.362	0.149	0.03	2.585	5.764
Perceived Control	24.247	25	-0.752	0	4.002	-18.795
PromotionNeed	-22.834	-18.953	-3.88	0	17.395	-22.306
EmployeeLeavingRisk	-85.397	-88.724	3.327	0	15.502	21.462
BurnoutRisk	-22.98	-24.081	1.102	0	7.708	14.292
IMI	354.664	365.866	-11.202	0	34.984	-32.021

There are statistically significant differences in almost every scale between the genders. The female respondents scored most significantly higher in Need for Work-life balance and Employee Leaving Risk. The male respondents scored significantly higher in Need for Status, Power and Challenge, Achievement, Excellence, Purpose; and Satisfaction with Recognition, Power, Joy of work, Challenge, Achievement, Excellence, Purpose; and Promotion Need, IMI.

Vietnamese data set

Female n=573, Male n=676, total n=1249. This dataset is from Vietnam.

Scales	Means Female	Means Male	Difference	Sig.	Scale STD	% of STD
Material	18.866	19.367	-0.501	0.049	4.474	-11.203
MaterialS	6.092	5.976	0.116	0.279	1.889	6.151
Job security	20.398	21.567	-1.169	0	4.155	-28.124
Job securityS	9.15	9.112	0.038	0.694	1.682	2.24
Harmony	22.405	22.922	-0.517	0.003	3.033	-17.036
HarmonyS	9.202	9.256	-0.053	0.543	1.549	-3.453
Recognition	24.398	23.664	0.734	0	3.295	22.267
RecognitionS	9.147	9.185	-0.038	0.72	1.882	-2.036
Status	19.297	19.503	-0.206	0.378	4.113	-5.015
StatusS	8.667	8.629	0.038	0.674	1.592	2.385
Power	20.703	20.611	0.092	0.627	3.344	2.762
PowerS	8.141	7.802	0.34	0.001	1.866	18.201
Environment	21.417	21.67	-0.253	0.208	3.532	-7.163
EnvironmentS	8.955	8.71	0.245	0.02	1.859	13.159
Work-life balance	21.501	20.862	0.638	0.001	3.261	19.575
Work-life balanceS	8.682	8.564	0.119	0.202	1.641	7.236
Autonomy	23.878	23.025	0.853	0	3.416	24.96
AutonomyS	7.991	7.91	0.082	0.413	1.75	4.658
Joy-of-work	22.904	22.91	-0.006	0.975	3.273	-0.176
Joy-of-workS	9.202	9.442	-0.24	0.017	1.768	-13.564
Challenge	20.689	22.265	-1.575	0	3.824	-41.195
ChallengeS	8.567	8.793	-0.226	0.019	1.687	-13.38
Achievement	23.372	23.957	-0.585	0.002	3.372	-17.36
AchievementS	7.867	7.695	0.172	0.111	1.903	9.042
Learning	22.534	22.808	-0.274	0.118	3.076	-8.895
LearningS	9.03	9.031	-0.001	0.989	1.812	-0.077
Excellence	24.887	25.232	-0.346	0.045	3.041	-11.369
ExcellenceS	6.461	6.623	-0.162	0.145	1.952	-8.303
Purpose	22.258	22.562	-0.304	0.124	3.469	-8.758
PurposeS	9.548	9.296	0.252	0.006	1.609	15.67
Positivity	21.393	21.374	0.018	0.92	3.195	0.576
Output Energy	13.951	13.851	0.101	0.53	2.826	3.557
Output Ability	15.185	15.371	-0.186	0.244	2.814	-6.622
Perceived Control	27.921	27.68	0.241	0.255	3.733	6.455
PromotionNeed	-27.429	-25.596	-1.833	0.075	18.115	-10.12
EmployeeLeavingRisk	-97.647	-97.382	-0.266	0.795	17.974	-1.479
BurnoutRisk	-24.806	-24.651	-0.155	0.694	6.953	-2.235
IMI	378.53 1	381.91 7	-3.387	0.086	34.67	-9.768

The female respondents scored significantly higher in Need for Recognition, Work-life balance, Autonomy; and Satisfaction with Power, Environment and Purpose. The male respondents scored significantly higher in Need for Material, Job security, Harmony, Challenge, Achievement, Excellence; and Satisfaction with Joy of work, and Challenge.

Discussion

It can be concluded that there are statistically significant differences between the genders in their motivational factors and satisfaction as measured by the OD-Tools MQ instrument in all data sets.

It is consistent in all data sets, that women have significantly higher need for Work-life balance, and men have significantly higher need for Challenge. This is consistent with the traditional gender roles (such as in cultures influenced by Christianity or Konfucianism). It was also hypothesized that women would have higher needs for Recognition and Harmony, and men would have higher needs for Status and Power. This trend was generally found, but not always to a statistically significant degree, and not in all data sets.

Even the statistically most significant differences are not huge in absolute terms, no difference greater than 50% of the scale standard deviation was found. This could be due to the fact that MQ user companies have relatively progressive leaders and humanistic management principles (otherwise they would not introduce such a motivation questionnaire), and such companies tend to make efforts to reduce gender bias in their HR practices.

Conclusion

The current version of MQ represents more than 20 years of development and numerous iterations, with ongoing refinement. Beyond the theoretical underpinnings and psychometric considerations, this paper also includes some findings that may spark interest in further research. We hope this paper has provided valuable insights into the properties of the OD-Tools Motivation Questionnaire and thank you for your interest.

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Annex 1. User and Client Organizations :

3L
3M Tax
Abicor Binzel
Action Coach Japan
ActiveX
AECOM
Art Beauty BOD
ATI
B-Coaching
BCF Group
C-TALENTS
Cal Scan
CeDR Corporate Consulting Sdn Bhd
Cesvim
CGN China
Cognitive Dimensions
Deutsche Hochschule für Gesundheit und Sport
DHR PARTNER
Directions Consulting
Dr WonderSmile
Dr. Franco Ferreri
E.G.O.
EAI
Efaflex
emz-Hanauer
Engelmann.Training
EOD VietNam
EPLAN
FES Partners
Flamingo
GENIO DEMO
GenTalents
GIUSEPPE BUCCHERI
GO TRUONG THANH TTF
GreenSun Japan
Hanada
HEIW (Health Education and Improvement Wales)/WCPPE
HIMA
Hoài Văn Trịnh
Hörmann
HPM
HRO Shanghai
HROne
HSBC
Humanfield
INTOMIND Coaching & Consultancy
IPA
Jackie Linh
JPK
JSC
K&G
Krankenpflege Beinert
KUKA
Kulcs-soft
LOC TROI GROUP
LPKF
Lufthansa
MANN+HUMMEL
MEDIC BAC LIEU
MindfulHR
Mobifone
Mwalimu National SACCO
NgaNguyen
Ngọc Thảo Trịnh
Nisseiken Inc
Nu-Insight
OBC One Business Connection
ODIS Inc.
OMRON
Ovid Assessment Central
PASONA Thailand
PAWLIK ASIA
Peakforce Training & Coaching
PHAT TRIEN SAI GON
PhongHuynh
PKL International
Projektforum Rhein Ruhr GmbH
PTM
PVG
QUEST ACADEMY
Reitz
RHILZ
ROSSI
SAI GON FORD
Sharing is Caring
Sievert
SinoWesternCoaching
SprinGO New
Stadler
STYL
Success Partner
SUCCESS TRAINING
Teamworkbound Pte Ltd
TF 株式会社
TH Food Chain
Thai Meiji Food
THOMAS KIEFER GmbH
Tic Tac Toe Consulting
TLD
Uliving
Unipec GmbH
ursula moll Beratung & Coaching
Valoro Consulting
Varbau
VietCoach
VIETTEL SOFTWARE

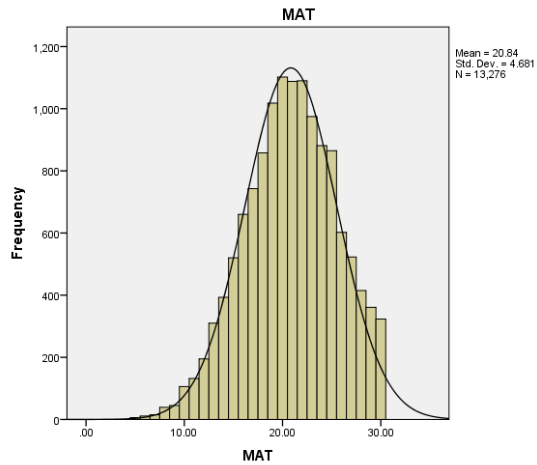
VNHR_Hà Nội
VNPT Vinaphone
Wachstum für Mensch und Organisation GmbH
WCTC
Weldstone
World Academy for the Future of Women
WS PARTNER
YCompass
Zeon Advanced Polymix
ZYS
上海星茁国际贸易
上海纳宇电气有限公司
上海绿地集团江西申江置业有限公司
中瓴律所
中科创建投集团
中粮黄海粮油工业有限公司
中至集团
中航直升机
中鹰黑森林项目
临空城投
九江数字产业公司
亚一明昊（深圳）人力资源有限公司
仟得
仟得文化
余江工业园
佳伶服饰
佳兴集团
保利集团
北京红果
华邦
南华医药
南崇置业
南昌师范大学
南昌慧思教育
南昌经开区
厚成人力
厚成人力资源集团
吉成物业
和略咨询

喜马拉雅
嘉福物业
土地测绘
城投集团
培睿咨询
季季红火锅
安福城控集团
平安银行
成都地铁
成都朗润公司
才到云
搜浪
新东方
新力物业
新和源
柏荟医疗集团
江西万宝医药包装
江西中江鹏实业有限公司
江西云擎科技
江西威路科技
江西惠科人力
江西瑞森医疗科技公司
江西绿色产业集团
江西青控建设工程有限公司
江钨硬合金公司
浙江云逸致新文化传媒有限公司
浙江华远汽车科技股份有限公司
浙江锦峰纺织机械有限公司
湖南鑫政集团
科岳科技集团
科岳集团
紫星服务
耶雪米商务咨询上海有限公司
荣府餐饮管理有限公司
蒙牛乳业
融云北极星
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鲜润家
黄庆仁栈华氏大药房

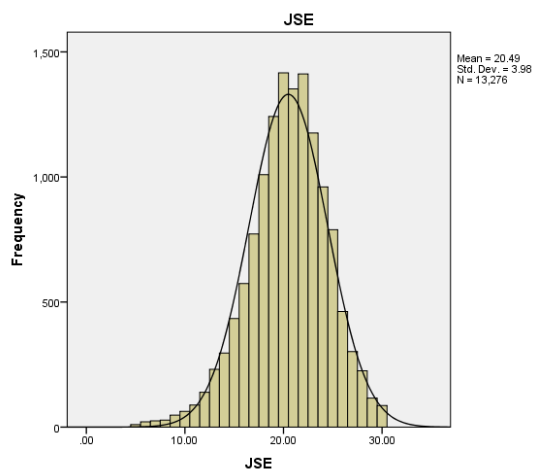
Annex 2. Frequency distribution charts

Histogram of the MQ scales based on the full dataset (n = 13276), starting with the Needs scales:

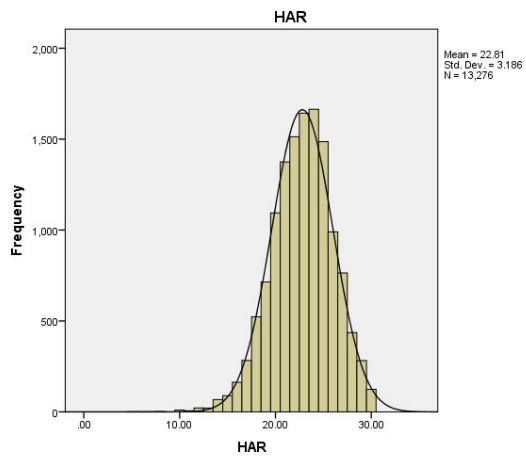
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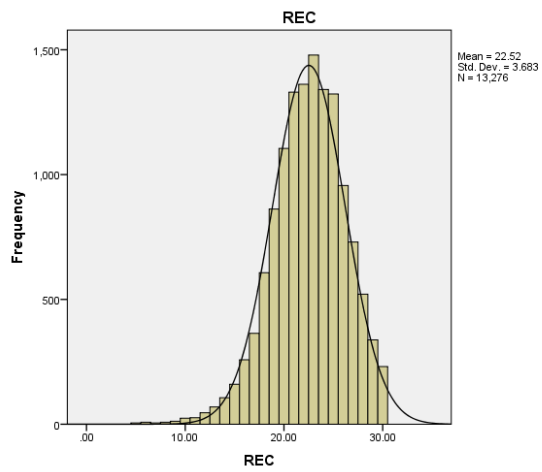
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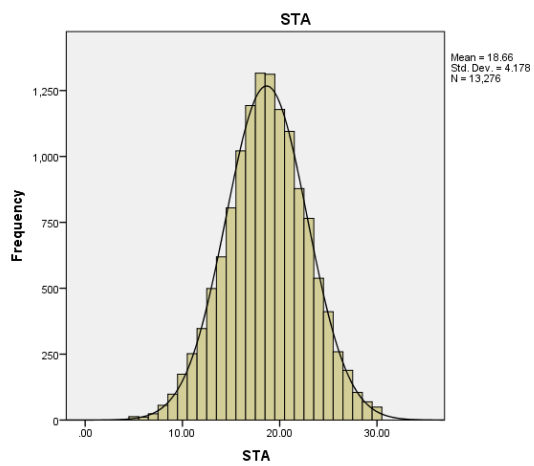
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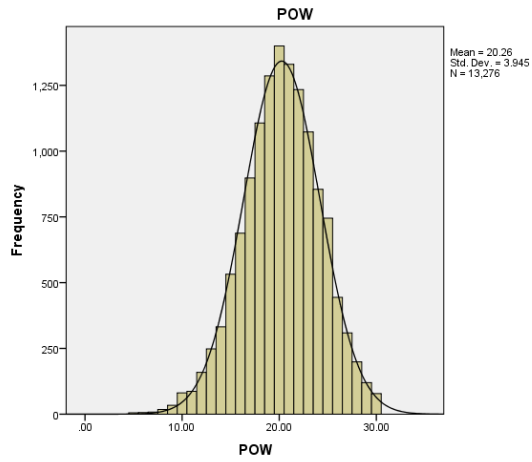
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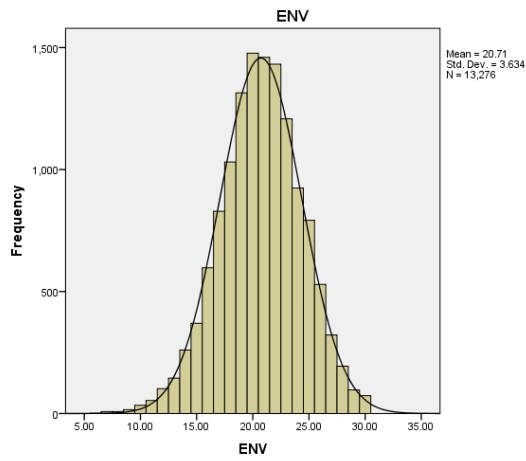
Status



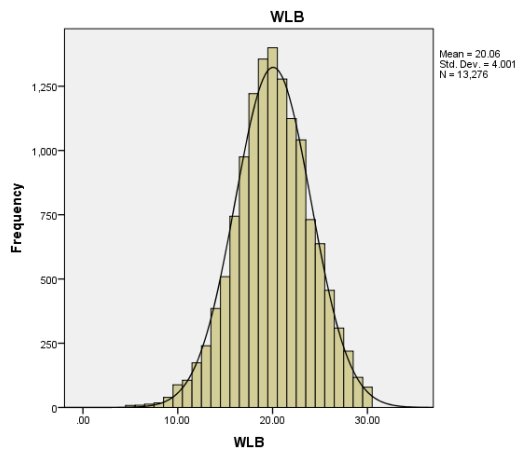
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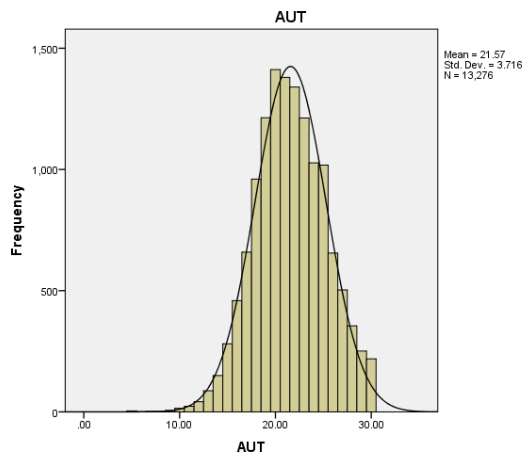
Environment



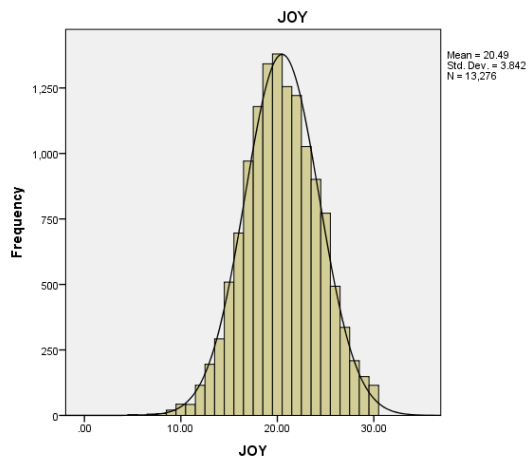
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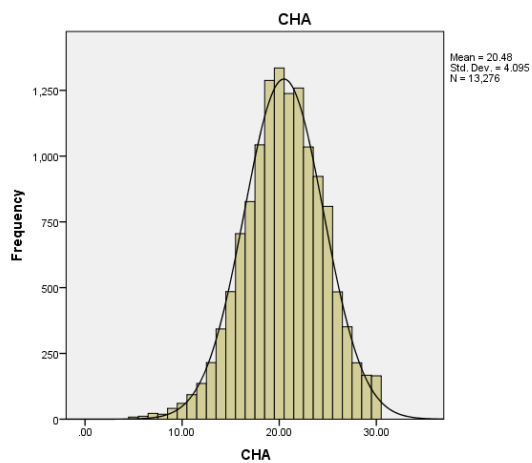
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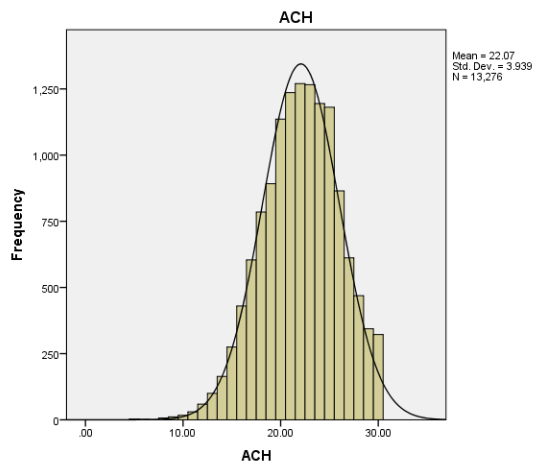
Joy-of-work



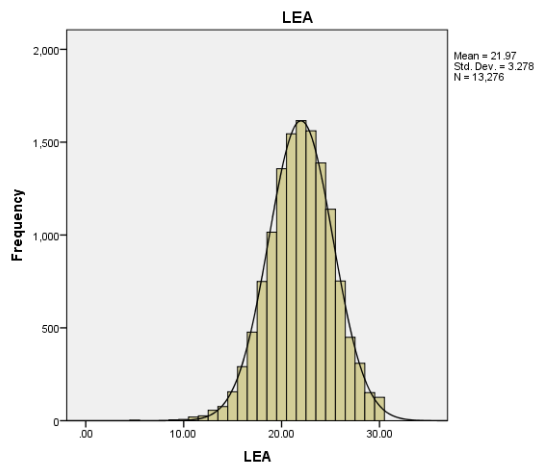
Challenge



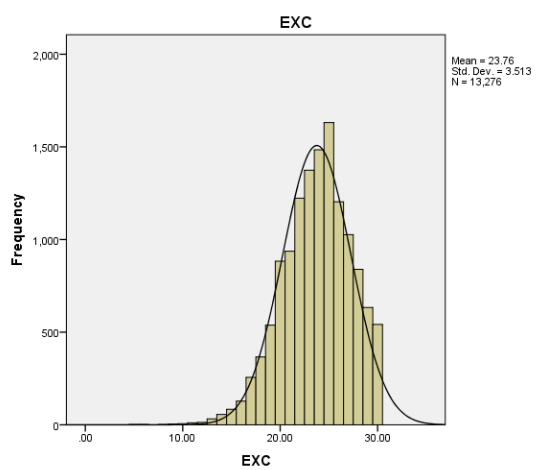
Achievement



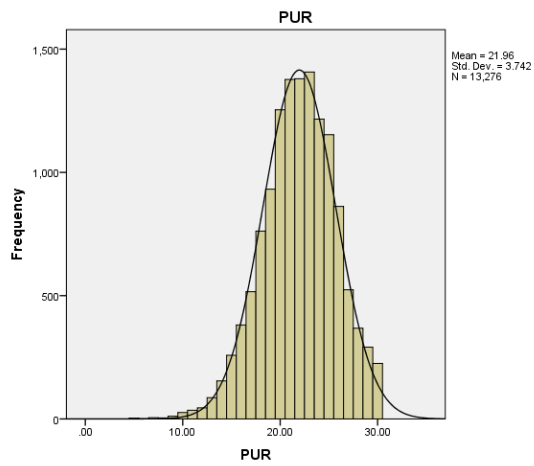
Learning



Excellence

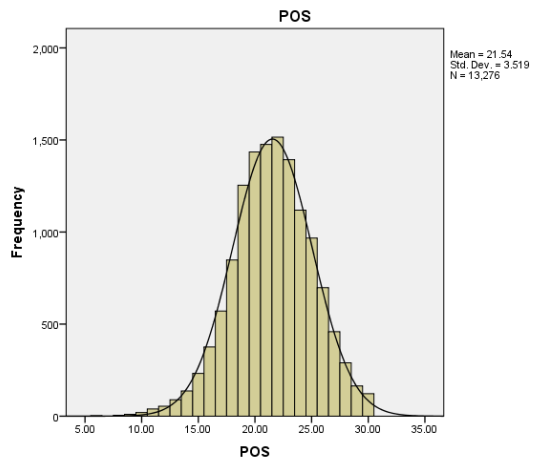


Purpose

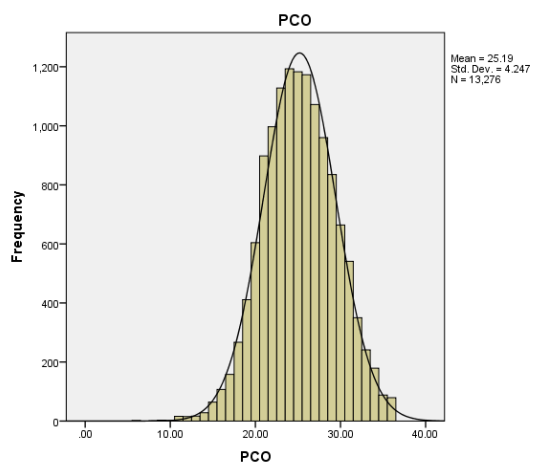


Additional primary scales:

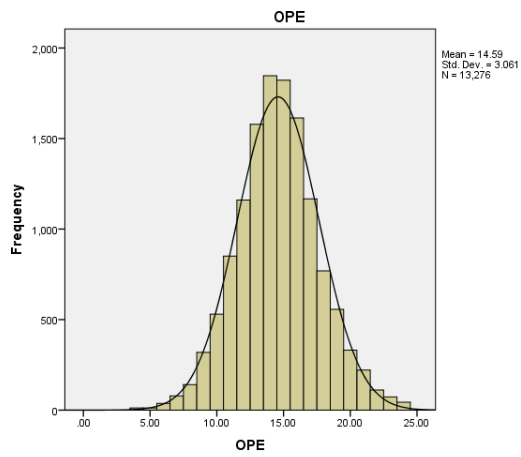
Positivity



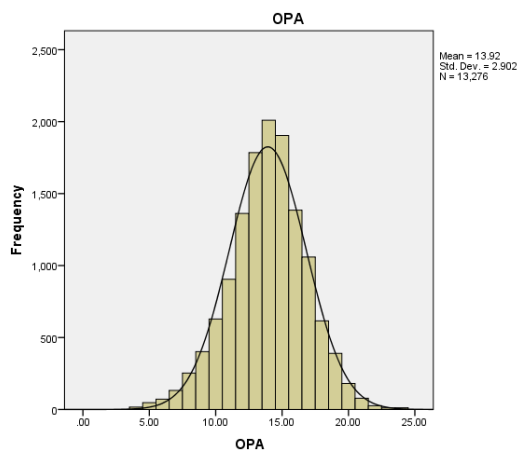
Perceived Control



Output of Energy

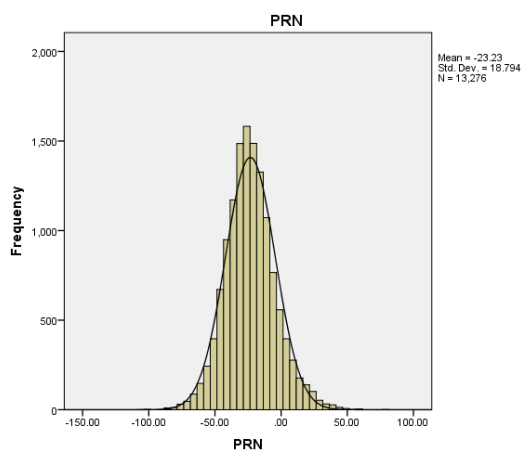


Output of Ability

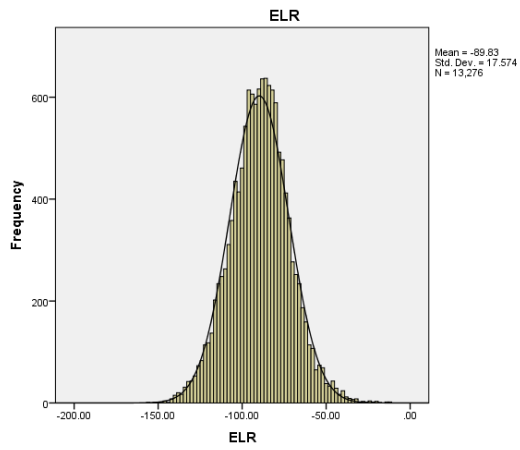


Composite (secondary) scales:

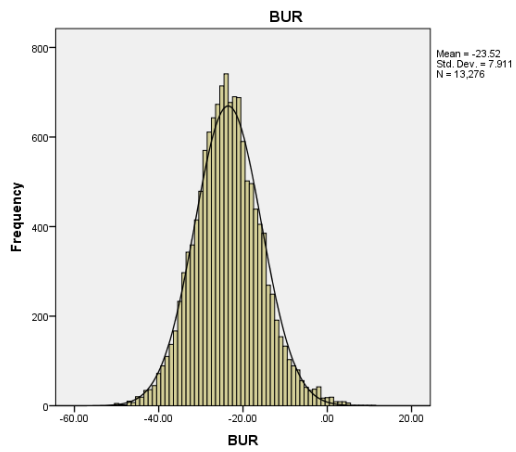
Need for Promotion



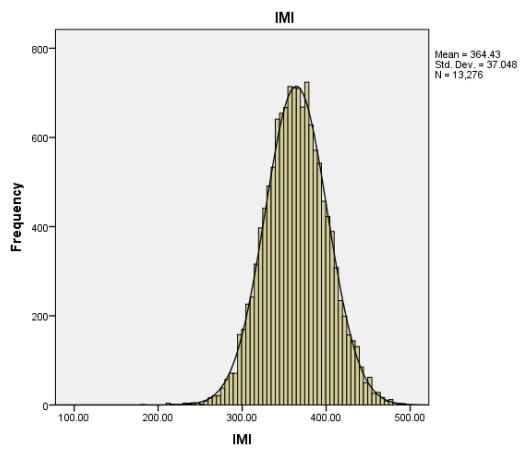
Employee Leaving Risk



Burnout Risk

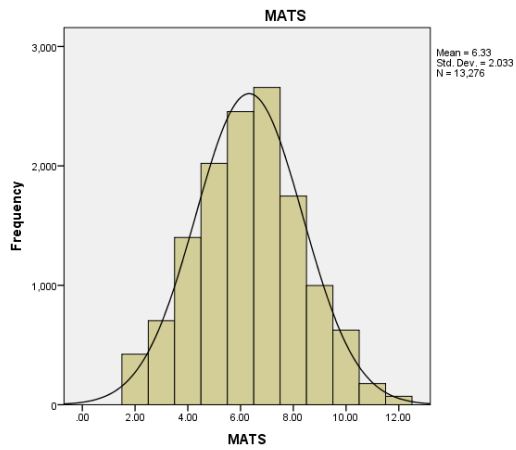


IMI

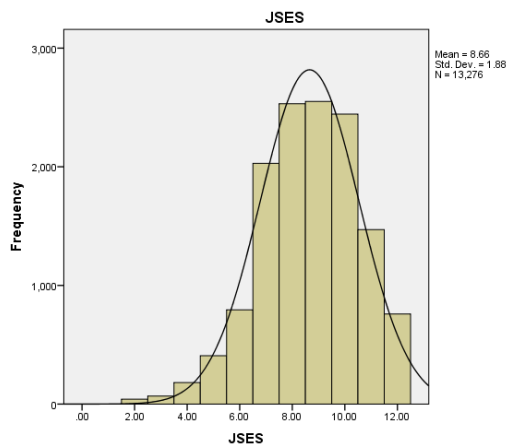


Satisfaction scales:

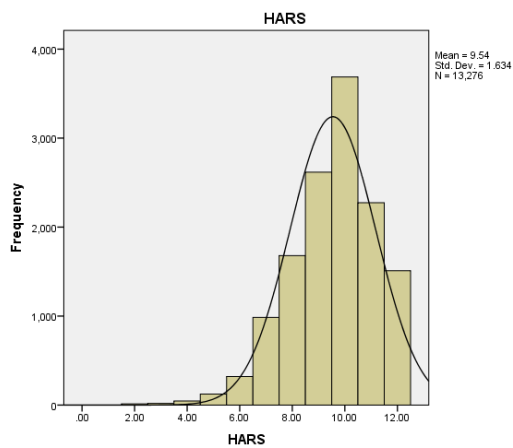
Material Satisfaction



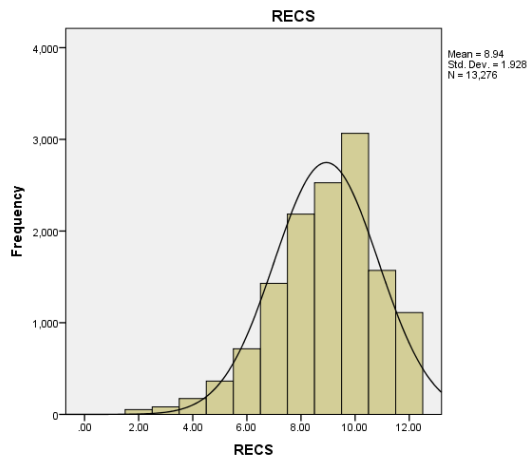
Job security Satisfaction



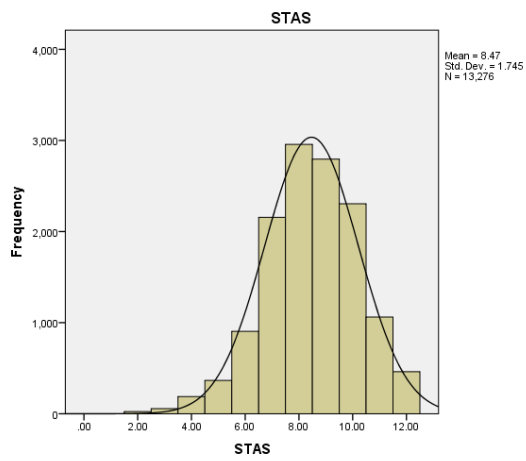
Harmony Satisfaction



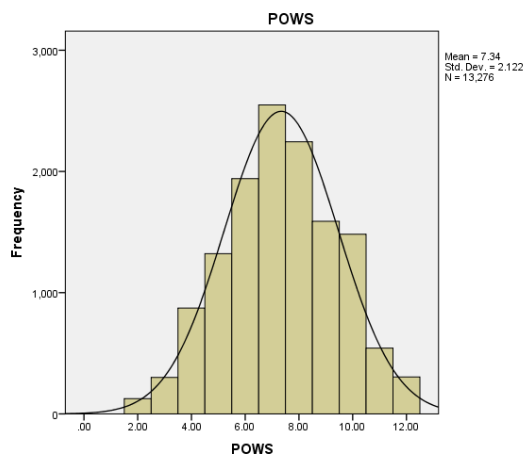
Recognition Satisfaction



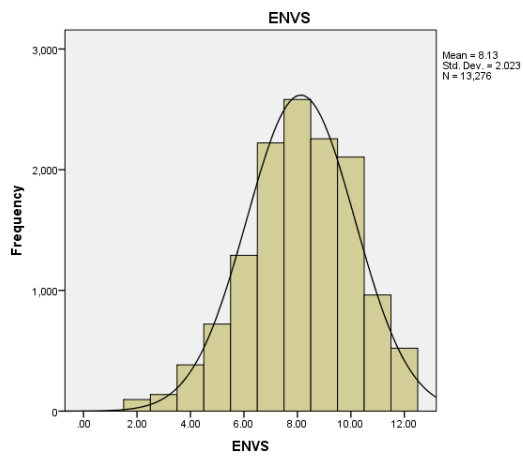
Status Satisfaction



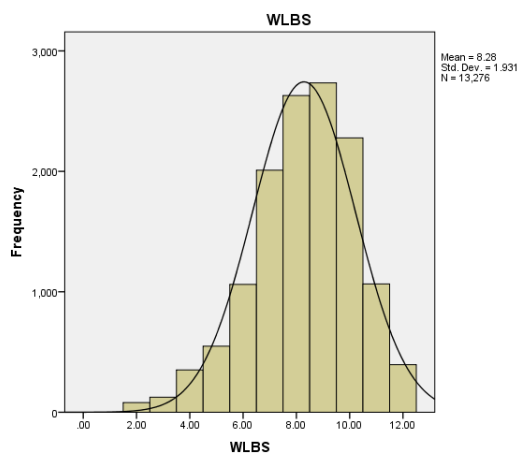
Power Satisfaction



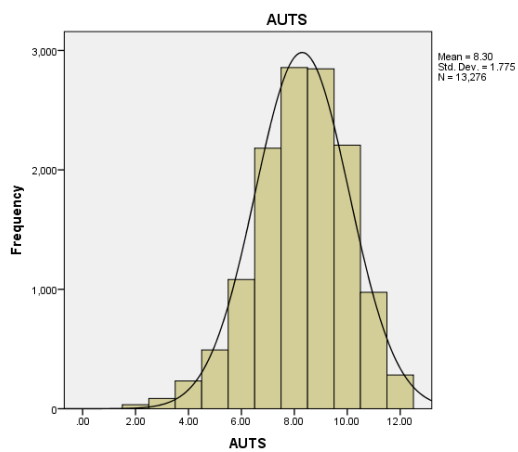
Environment Satisfaction



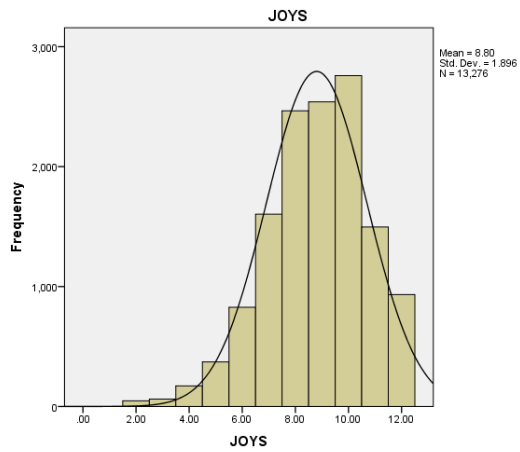
Work-life balance Satisfaction



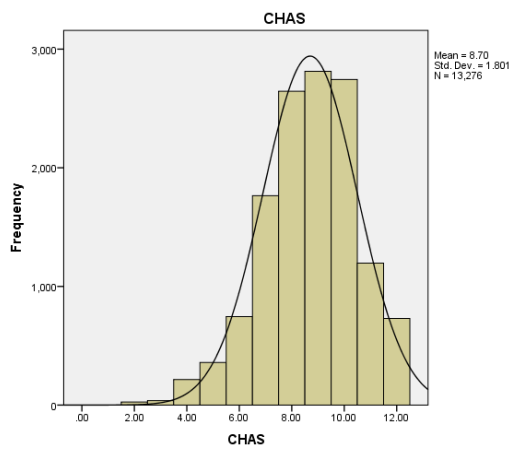
Autonomy Satisfaction



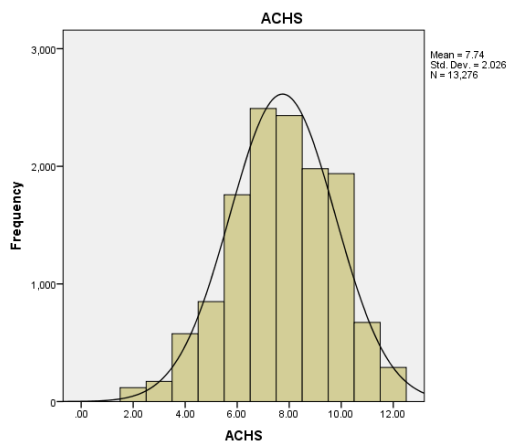
Joy-of-work Satisfaction



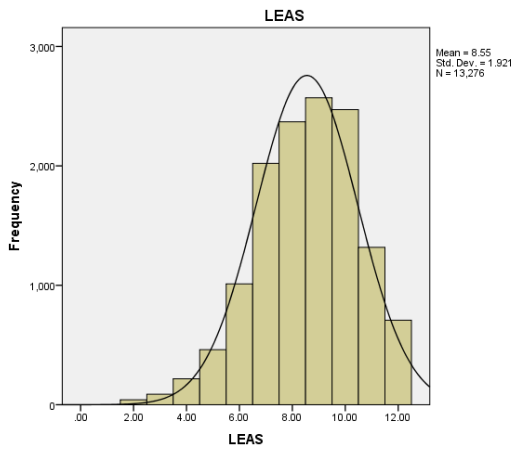
Challenge Satisfaction



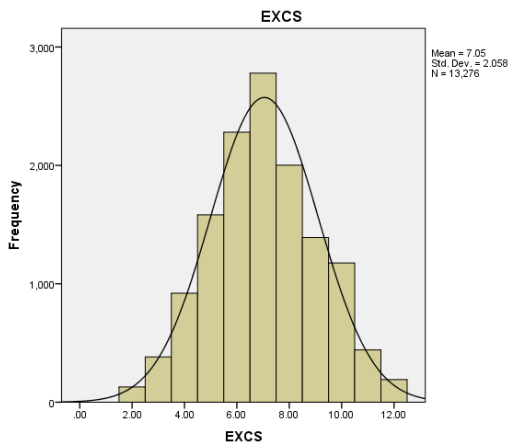
Achievement Satisfaction



Learning Satisfaction



Excellence Satisfaction



Purpose Satisfaction

