WHY ADOPT THESE SCALES? A SYSTEMATIC REVIEW OF THE MOST USED SCALES ON EXPATRIATION STUDIES IN THE PAST TEN YEARS

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Abstract

Systematic review of scales used in the expatriation field following the PRISMA guidelines. Through multiple correspondence analysis, to disclose choices of criteria, a typology of measurement scales in the past ten years (2006-2016) in terms of psychometric properties, and other descriptive criteria, was created, with the aim of assist in operational decisions of future studies, contribute to reduce the number of new scales and allow the comparison of the existing ones, besides contributing to the overall enlargement of the expatriation field. Through multiple hierarchical regression, the psychometric properties that allowed to predict a greater number of citations (total and when comparing subsequent periods) were investigated.

This paper aims to identify the common constructs used on Expatriation, what are the most used scales to measure used constructs, changes in the use of scales on a time range, and to understand what are the tendencies in the thematic. It follows the protocol of previous peer-reviewed studies and adopts conceptual topics from prior expatriation studies.

Its contribution is both methodological, as the first systematic review of scales in this field, but also for future researchers, in the moment of decision, answering the question "why adopt these scales?".

Keywords: measurement, psychometric properties, expatriation, expatriates, reliability, validity.

JEL Classification System:

C81: Methodology for Collecting, Estimating, and Organizing Microeconomic Data

J61: Geographic Labour Mobility

O15: Human Resources

Resumo

Revisão sistemática das escalas utilizadas no campo de expatriação seguindo as diretrizes PRISMA. Através de análise de correspondências múltiplas, para identificar as escolhas de critérios, foi criada uma tipologia de escalas de medição nos últimos dez anos (2006-2016) ao nível de propriedades psicométricas e de outros critérios descritivos, com o objetivo de auxiliar nas decisões operacionais de futuros estudos, contribuir para reduzir o número de novas escalas e permitir a comparação das existentes, além de contribuir para a expansão do campo da expatriação. Através de regressão hierárquica múltipla foram investigadas quais as propriedades psicométricas que permitem prever maior número de citações (totais e por comparação entre períodos subsequentes).

Este estudo tem como objetivo identificar os constructos mais comuns utilizados na Expatriação, quais são as escalas mais utilizadas para medir os constructos utilizados, e as mudanças no uso de escalas num intervalo de tempo, de forma a clarificar quais as tendências da área. Segue o protocolo de estudos anteriores, revistos por pares, e adota tópicos conceptuais de estudos passados da área de expatriação.

A contribuição deste estudo é tanto metodológica, sendo a primeira revisão sistemática de escalas neste campo, mas também para futuros investigadores, no momento da decisão, respondendo à pergunta "porquê adotar essas escalas?".

Palavras-chave: medição, propriedades psicométricas, expatriação, expatriados, confiabilidade, validade

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Relevance

Since the 1970s there has been prominent recognition in business research and talent management that the use of expatriates was significant.

In 2005, Dumont & Lemaître, in an OECD study about immigrants and expatriates had already recognised the ongoing recurrence of the topic of expatriation. They justified it with political and historical events that had allowed for an easier movement of people across countries, along with the growing globalisation of the economic activity. Moreover, with the expected and observable ageing of the population, the search for highly-qualified workers had put a higher tension on these movements.

In 2016, Cascio & Boundreau performed a content analysis and review of published research in the field of International Human Resource Management on the period of 1965 to 2014. Focused on data from the Journal of World Business it allowed the understanding of the evolution of the research on expatriation. There was little research from 1965 to 1979 (5–5.8% of published articles in the broad field of IHRM). The percentage rises to 9,1% from 1980–1984, to 14,3% in 1985–1989, drops to zero in 1990–1994, then rebounds to 31,25% in 1995–1999, stays high at 22,7% from 2000–2004, reaches a peak of 40% in 2005–2009, and then drops precipitously to 8,4% from 2010–2014.

Similarly, Dabic, Gonzalez-Loureiro and Harvey (2015) show a first peak in expatriation studies in the late 1980s and early 1990s, and a second peak in the period 2000-2007. The citations are extremely high on this second period.

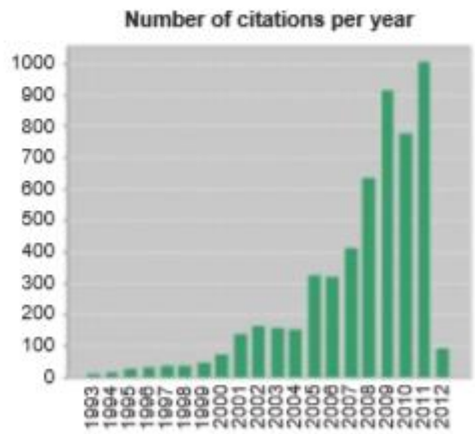


Image 1: Evolution of the scientific literature on expatriates. Source: ISI-Web of Science – Social Science Citation Index (consulted on 2 April 2012), in Dabic et al. (2015).

By performing a search on PsycINFO (with all its databases) we obtained a general idea of the complexity of the research on Expatriation. With the lexeme 'expatriat*' ('*' was used to assure that all the possible combinations of the lexeme 'expatriate' (e.g. 'expatriate', 'expatriates' or 'expatriation'), including only peer-reviewed journals with references available, from 2006 to 2016. The search yielded 2.132 articles, of which at least 20% are quantitative studies. Such a figure highlights the importance of studying the variables that compose these quantitative studies. This is one objective of the current research.

Although overall research on expatriates has continued, special issues and calls for new research directions seem to be more common nowadays. However, McNulty and Brewster (2017) argue that "there is a lack of consensus as to how expatriates should be defined which has caused problems in the international human resource management (IHRM) field"; these authors say that "there has been a sloppy and almost casual use of terminology, a failure to define terms adequately, or in many cases at all, and too many unstated assumptions about the people being researched that, collectively, has resulted in reducing understanding of the meanings of 'expatriate'. This problem means that the measures used in empirical studies may not accurately represent the underlying concept being tested (Cappelli, 2012)". In their study, they clarified the constructs behind the different types of expatriates. But they also state that "In order for future studies of expatriates to have their intended impact, there needs to be 'clear agreement on the substantive definitional content' (Suddaby, 2010, p. 348)". Our scope starts here. How are the concepts in these researches studied? It is of major importance to understand the operationalization of the concepts.

When researchers design a study, many questions arise and choosing the right measurement scales is one of them. For this decision, researchers can consider measurement scales' psychometric properties (e.g., validity and reliability), their acceptance by the scientific community, but also other characteristics like item parsimony and the type of rating scales.

Moreover, and specific to IHRM research, "the same construct may contain different content or manifest in different ways in different cultures" (Raghuram et al., 2017).

In the domains of management, organizational psychology and human resource management, systematic reviews about concepts, topics and theoretical models are common practice (e.g., Andresen, Bergdolt, Margenfield, & Dickman, 2014; Bonache, Brewster, & Suutari, 2001; Dabic et al., 2015, McNulty & Brewster, 2017). Also, meta-analysis of findings are extremely common, allowing researchers to be more precise about existing gaps, and to build studies that advance on past evidence (e.g., Hechanova, Beehr & Christiansen, 2003; Lee & Qomariyah, 2015). The same does not occur regarding construct operationalization, namely those widely used in cross-sectional and cross-cultural studies, where few systematic reviews about measurement scales are published (for exceptions see Cyril, Smith and Renzaho, 2015; Fields, 2013), with a special focus on the medical field. The domain of expatriation studies is no exception to this absence.

Thus, and to our knowledge, there are no scientific studies comparing in an extensive and systematized way the characteristics of measurement scales used in expatriation studies, its validity, reliability, and adoption. Such systematization could allow a quicker and more rational choice of measurement scales, but also a better discussion about their uses, namely in the design of expatriation studies. This is a gap that we aim to fill with the present study.

It is considered that a systematic review comparing the adoption of scales and associated constructs can contribute to the ongoing discussion of concepts and topics on the expatriation area (e.g., Bonache, et al, 2001; Dabic et al. 2015; McNulty & Brewster, 2017). Secondly, by unveiling the criteria associated with the adoption of measurement scales, this study can guide decisions about operationalization of future studies in this area. Thirdly, by discussing the stability and innovation of the adoption of some measurement scales in the past ten years (the period to be covered), we aim at contributing to reduce the need of creating new scales that have no innovation or will reduce the possibility of comparison with existing findings.

Specifically, our study aims to review systematically the scales used in the expatriation domain in order to:

- Identify the most relevant characteristics of a scale in terms of psychometric characteristics and other possible decision criteria (relevance, parsimony) – quality measures;
- classify the scales according to these criteria of quality identified;
- classify the scales according to the conceptual topics usually used in expatriation studies, but also according to sample characteristics (self-initiated, assigned expatriates, other expatriates);
- analyse the frequency of adoption of the scales in two periods (2007-2011/ 2012-2016) and detect possible tendencies. The use of two-time periods allows

comparing the frequency of scales' adoption and detect possible changes and scale innovations associated with the concepts integrated in the study;

- analyse the influence of the quality measures in the frequency of adoption of the scales.

We consider that the systematization and the critical analysis of the findings presented above will allow to make a twofold contribution:

- supporting decision in future studies; in fact, researchers can use this study to support their choices while designing their own studies. By presenting a typology of the scales, we expect to help researchers with a more rational choice and keep in pace with the main purposes of their studies. To put it simply, researchers can answer more easily to the question "why adopt these scales?"
- methodologically, we aim at contributing to the discussion of what criteria can be used when choosing a scale from the existing published ones. In fact, the studies with these characteristics tend to compare the psychometric characteristics of some scales (eg. Cyril, et al, 2015; Shen & Parsons, 1997; Warmbrod, 2014).

However, and as far as we know, no published study makes a systematic comparison of existing scales in a specific domain and critically examines its adoption (not only in expatriation, but also in other Human Resources domains of research), thus adding value to the field as a whole.

Literature Review

Systematic reviews

A huge amount of research is produced each year, often with conflicting findings.

In 2016, Kepes, Bennet & McDaniel, published an article on the trustworthiness of cumulative scientific knowledge, from an Evidence-Based Management (EBMgt) perspective. The idea behind EBMgt is that it provides collective "scientific evidence and validated local facts" as the starting point for managers to make decisions (van Aken & Romme, 2012, cited by Kepes, Bennet & McDaniel, 2006).

The authors state that reviews play a fundamental role in the development, assessment, and dissemination of cumulative knowledge (Briner et al., 2009; Le et al., 2007; Rousseau & McCarthy, 2007), and for that reason they too, should be critically assessed, by the standards and guidelines available for that purpose.

Researchers, practitioners and policy-makers felt the need to synthesize such amount of data. Therefore the idea for systematic reviews originated in the 1970's, in the health care industry, (Ungvarsky, 2017).

A systematic review is a thoughtfully organized and structured assessment of all completed research about a specific topic. It attempts to organise all empirical evidence that fits pre-defined criteria so that it can answer a specific research question. It uses explicit, systematic methods that are selected to minimize bias, thus providing more reliable findings from which conclusions can be drawn and decisions made (Ungvarsky, 2017; Chandler et al., 2017).

A systematic review ought to have the following characteristics: a clearly stated set of objectives, including the already mentioned pre-defined eligibility criteria for studies; an explicit, reproducible methodology; a systematic search that attempts to identify all studies that meet the eligibility criteria; an assessment of the validity of the findings of the included studies; and a systematic presentation, and synthesis, of the characteristics and findings of the included studies (Chandler et al., 2017).

Systematic reviews may later evolve into a meta-analysis, in which a statistical component is included, to synthetize the data earlier treated.

Performing a systematic review is less time-consuming and less expensive than conducting new studies. In addition, systematic reviews are generally more accurate than any individual study, since bias is reduced, and the results can be more widely applied (Ungvarsky, 2017).

To ensure the rigor of this form of reporting, was published in 1999 a reporting guideline – QUORUM (QUality Of Reporting Meta-analysis) Statement (Moher et al., 1999). At the time, it was focused on the report of meta-analysis of clinical randomised controlled trials and resulted in a checklist and a flow diagram.

In 2005, a group of authors, clinicians and editors updated this methodology into what is now PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses). Similarly, the PRISMA Statement consists of a checklist and a flow diagram (attachments 1 and 2). In the checklist the essential items for a systematic review can be found, as well as a four-phase flow diagram; these resources deem to be useful when performing this activity.

Quality assessment of scales

Previous studies have used this approach to systematically examine measurement properties of scales.

In Cyril, Oldroyd & Renzaho (2013) the PRISMA guidelines were used to evaluate measures of urbanicity. Similarly to the current study, no previous research had attempted to do so. In the inclusion/exclusion criteria section some relevant characteristics stand out: published in peer-reviewed journals, full text available in English and tested for validity and reliability. The quality assessment included theoretical framework, validity and reliability and demographic characteristics. The criteria to classify them as good quality studies were: underlying theory guiding scale construction, internal consistency above 0,70, priori hypotheses confirmed, and support by dimensional structure through exploratory or confirmatory factor analysis. Tables expose the characteristics (1), methods adopted in the development (2) and ratings (3). The study's main conclusion urges the standardisation of measures of urbanicity and the typology created aims to help with that.

Following the same methodology, Cyril, Smith & Renzaho (2015) aimed to evaluate empowerment scales in three dimensions: item development, reliability and validity, using the PRISMA statement. It clearly states the methods used, thus allowing replication. Its conclusions regarding the lack of view of the construct of empowerment as a multidimensional construct and urging the use of mixed methods, ought to be helpful for future researchers in the field.

Bastos et al. (2014), does not clearly state the use of PRISMA. In it, the authors addressed racial inequalities in health. The authors state that the psychometric properties of the instruments used in this field had not been done before, despite the large number of them. However, this study does share some characteristics with the PRISMA statement, namely the items included in the research also followed the three methodological steps of item development, reliability analysis and validity analysis. Nevertheless, the presentation of the results was more focused on the percentage and number of scales which resorted to a method (and it does state the method per scale) but did present a final evaluation of each scale.

In Hjermstad et al. (2011) an approximation of the PRISMA was used to investigate the used and performance of pain scales. However, it specifically compares some of the most used ones, being that one of the inclusion criteria. The study does not clearly focus on the psychometric properties of the scales but on their usability, compliance and descriptive characteristics.

A recent study by Mahmood (2017) systematically reviews scales of self-perceived self-efficacy information literacy. The statement is thoroughly followed from the search strategy, inclusion and exclusion criteria to the evidence of reliability and validity. The major implication of this study is the identification of "the strengths and weaknesses of IL assessment surveys reported in the literature" (Mahmood, 2017). Overall it recommends the change in mindset when it comes to measurement scales, namely the importance in its quality characteristics as to ensure valid and reliable results.

In contrast with the previous examples, this study is not directly related with the medical field, in which the PRISMA guidelines were born, proving its potential for other contexts.

Expatriates

The field of expatriation has had, throughout the years, space for many systematic reviews (e.g., Andresen, Bergdolt, Margenfield, & Dickman, 2014; Bonache, Brewster, & Suutari, 2001; Gonzalez-Loureiro, Kiessling, & Dabic et al., 2015, McNulty & Brewster, 2017), attempting to draw frameworks, definitions and common practices, as well as highlight the future areas of research within the field.

In 2015, Dabic et al. performed a bibliometric analysis on the existing literature about expatriation, over the last 40 years (1970-2012). Their main conclusions show that research "has been focused mainly on HRM, culture and career development in multinational corporations, as well as on the relationships between headquarters and subsidiaries and between the different subsidiaries. (…) Virtually, all of the research has been conducted from an empirical perspective based mainly on HRM practices and theories". There is still room for much empirically and theoretical work and construct operationalization is an absence in said reviews.

Numerous authors have tried to give clear definitions of the existent types of expatriates (Doherty et al., 2013; Andresen et al., 2014; Tharenou, 2015; Andresen, Biemann & Pattie, 2015; Przytuła, 2015 are some examples). This not only shows the lack of clarity regarding the subject but also the awareness of the authors to the problem, since by now the research is already vast on this search for the proper definitions as well (Andresen et al., 2014; Tharenou, 2015; McNulty & Brewster, 2017).

Straightforwardly, throughout this paper, with the construct clarity always in mind, we will be adapting the definitions provided by Tharenou (2015) and Andersen et al. (2014), complementing with other renown authors of the field.

Migrants experienced a geographical relocation of their dominant place of residence (Andersen et al., 2014). Assigned expatriates (AEs) are understood as professionals assigned/sent by their employer overseas, with an intended organizational purpose, for (usually) a pre-determined period of time. All costs associated with the move are of the responsibility of the employer and it often includes the move of the family as well. According to the boundary conditions established by McNulty & Brewster (2017), AEs are also non-citizens of the country to which they are moving, and this movement is associated with a legal framework that needs to be met. It is possible to make distinctions inside this category but is not as relevant for our study.

On the other hand, when it comes to Self-initiated expatriates (SIEs), the motivation to move abroad is taken by the professional, whether by applying for a job overseas, or by moving with the intention of finding a job after established (Andersen et al., 2014). In these situations, the expatriation is self-funded, for, usually, an undefined time frame. The reasons associated with the change are most commonly personal nature - professional, lifestyle, cultural and personal reasons (Tharenou, 2015).

It is also important to distinguish what is not an expatriate. Individuals working illegally in a foreign country are not considered expatriates, as well as those who, despite having a proper legal framework are not working. These individuals are "only" considered migrants (Andersen et al, 2014). Sojourners, students, retirees, travellers and tourists (McNulty & Brewster, 2017) are also not under the scope of expatriation.

Other studies, have specifically dedicated to stand out the differences between these types of expatriation, for example, Doherty (2013) and Doherty et al. (2013). In these articles, the authors propose, namely, a review of past researches and future suggestions, and to deepen the knowledge about these people, clarifying the construct of SIE.

This portrays, that this is a gap in the expatriation literature that the authors are trying to fill. However, it uncovers another issue. Many studies have compared self-initiated (SIEs) and assigned expatriates (AEs), however the methodology used in them is not coherent and can lead to misinterpretations. For example, Doherty (2013), in a review of studies published between 1996 and 2011 on self-initiated expatriates, concluded that the methodological approach on SIEs studies focused on in-depth interviews and case studies, snowball or convenience samples, internet/on-line surveys or a combination. According to the author, longitudinal approaches are rare, and overall, research is only happening in specific geographical regions. Andersen et al. (2014), performed a review and synthesis of the existing definitions of self-initiated, assigned expatriates and migrants, criteria-based, and develops into a typology of four different types of expatriates. Similarly, the criteria used to select the samples lacked methodological rigour:

- The period of publication of articles was larger for SIEs than for AEs;
- For AEs, only journals with a high accumulated impact factor from 2005 to 2010 of the respective journals using the ISI-index were included; for SIEs non-listed journals were included;
- Articles published in journals that included multiple articles about expatriation or migration and purposely selected journals for having the highest number of hits (AEs), while for SIEs journals in which only one article had been published and those with a low number of hits were included.

Already in 2015, Tharenou examined the methodological issues associated with research into three expatriate types (AEs, SIEs and skilled immigrants (SIs)). Based on this author, the studies of AEs present more structured research designs, increasing the possibility of replication. Also, studies of SIEs are more likely to exhibit measurement error, when compared with AEs as they assess/report less frequently the validity of the measures used. Moreover, it is identified the efforts to reduce bias from alternative explanations of the results in the studies of AEs, again increasing their quality. Overall, across 290 studies, comparing these samples, AEs studies more often used thorough research designs, stronger theoretical background, adequate measures and complete analyses, while SIs studies use new measures developed for the study and less often applied formal structured analyses. In fact, the variations in research design for the 3 groups had direct implication in the quality of the journals in which they were published.

Adding to this, Farcas & Gonçalves (2016) performed a systematic analysis of self-initiated expatriate's studies, in the period of 2012 to 2014, in which they identified 45 peer reviewed published articles, almost the same as 1997–2011 (49 articles), besides 10 literature reviews (more than twice in the previous period). The authors conclude that the topics include comparisons between SIEs, AEs and other forms of mobility, along with the conceptual clarification of what it means to be a SIEs, as well as the expansion of the countries where research has been conducted.

This leads us to believe that articles in which the sample is of AEs the methodological rigour will be higher, thus the quality of these scales will also be higher.

H1: The quality of the articles in which the sample is AEs will be higher than in of SIEs.

One of the intentions of this study is to understand if these differences have had their origins in the scales originally used, that is, if we can find differences in the quality of the scales based on its sample (especially AEs vs SIEs).

Moreover, overall, the most common topics were target of investigation by Dabic et al. (2015) in which they concluded that "around one-third of the papers used the following keywords: assignment/s, adjustment, management and international (…) the essential question: how expatriates may help improve a company's performance", being the most frequent subjects adjustment, management, culture, performance and training. All of these themes were, at one point or another, assessed with quantitative measures, as we will show later, and yet, we and researchers as a group, don't know with what quality as most studies don't operationalize the constructs being discussed.

Another important aspect in existing systematic reviews in the expatriation field is the outcomes they produced. Namely, Gonzalez-Loureiro et al. (2015) developed, from a review of articles on acculturation and forms of overseas assignments, a dictionary of descriptors and keywords, divided in five blocks of information, which allow a categorization of the most used concept in the area (Attachment 4).

Similarly, McNulty and Brewster (2017) compiled a glossary and defined boundaries to classify business expatriates, which then allowed the development of a prototype model in attachment 3. These researches will prove useful throughout our study in attempt to combine existing theory in different fields.

Constructs, measures and psychometry

It has been previously mentioned that construct clarity - the extent to which the definition is precise and scholars in a community agree upon it (Molloy & Ployhart, 2012) – will contribute to the impact of studies. Thus, the importance of achieving that in the field of expatriation.

According to Suddaby (2010), nowadays, the accumulation of knowledge can only occur if the researchers are able to build on past work. Thus, the ability to articulate the elements that constitute an idea is what will allow us to understand where they overlap or differ.

As McNulty & Brewster (2017) state, the measures used in empirical studies may not accurately represent the underlying concept being tested, thus the magnitude of concepts regarding expatriation. Does that mean we have too little or too few constructs?

A new construct should have a clear definition and its association, or non-association, with existing constructs should be known in order to avoid assuming that just because a scale has a different name it does (or not) reflect the same (Bono & McNamara, 2011). So we conclude it is important to reflect before starting to develop new constructs.

But what if the existing ones are poorly used? Newman et al. (2016) state that “it is too common for researchers to not only fail to define their concepts and terms adequately, but that they often ignore overlaps with similar, long-established concepts”.

Bono & McNamara (2011) give the example of the inappropriate adaptation of existing measures by researchers, without providing supporting validity evidence (in an attempt to reduce the length of the surveys and therefore make them less unattractive, to obtain more answers). Also recurrent, the inappropriate application of existing measures, meaning they use existing measures to assess different constructs from the ones they were designed to.

Switzer et al. (1999) distinguish four types of measures: established measures, as those used in more than one research setting and with proof of good reliability and validity in each of these settings; modified measures have been modified to fit the research goals; hybrid measures consist in a combination of items from more than one source to assess a single construct; finally new measures are developed with a specific research goal in mind.

Developing a new instrument means conducting an additional research that will require considerable effort and time to be carried out. In general, it is only recommended to develop new instruments when there are no existing options for measuring the phenomenon in question or when the existing ones have confirmed limitations (Bastos et al., 2014). On the other hand, the wrong choice of an instrument has its downside too:

- ✓ Lack for solid theoretical basis;
- ✓ Need to consider context and psychometrics;
- ✓ Can compromise the internal validity of the study, producing misleading results;
- ✓ Implications in the ability to generalize the results and to compare them;

The creation of a new measure should be seen as a last resort, after a thorough search for existing measures. In the process of developing a new measure, justifications for its development, including a description of its necessity and the unavailability of appropriate established instruments, should be provided. The steps followed in generating ideas about specific items and the constructs they identify should be explained in detail. Ideally, a large pool of potential items should be generated on the basis of focus groups or expert opinion, pilot tested, re-evaluated, and reduced to form some final draft of the measure. As part of the process of identifying a construct and creating the measure, the purpose of the measure (i.e., proposed theoretical relationships) should also be clearly described. After data using the measure are collected, researchers should extensively evaluate the measure's reliability and validity (Switzer et al, 1999).

Of course, the decision to select among various available instruments and, at the same time, respect budgetary and temporal restrictions, is one of the main challenges of research conduction. However, it is of upmost importance when designing the research question to carefully match the construct definition with operationalization, using measures with established construct validity (or providing) such evidence (Bono & McNamara, 2011), whether that means using an existing one or developing one that is new. “Research methodologies directly impact the validity and generalizability of a study” (McGrath & Brinberg, 1983, cited by Yang, Wang & Su, 2006). In a 2015 article, Phyllis Tharenou analysed methodological issues associated with research into the most common types of expatriates, being research design one of them. Research design refers to the overall strategy chosen to integrate the different components of a study in a coherent and logical way, ensuring that the research problem is effectively addressed (De Vaus, 2001). Tharenou (2015) states that rigorous research designs and credible, trustworthy results are only achievable if the conceptual component – “focused on the development of the research question: its relevance, importance, specificity, conceptual basis and match to the research design” - and methodological component – “focused on traditional scientific elements (e.g. strong research design, generalisability, lack of sampling error, validity, low measurement error, sound transparent analytic methods, contextual interaction, replication) linked to produce the best available scientific evidence" - have been carefully designed and integrated (Rousseau and Barends, 2011; Briner and Walshe, 2014; Kepes et al., 2014, cited by Tharenou, 2015). As stated "Researchers need to ensure that the selected design and analysis match the research question and enable robust, replicable results (…) The research design needs to display specifically applicable features: for survey studies: high-quality validated, usually multi-item measures with low error and using longitudinal designs with more than self-report data" (Tharenou, 2015).

Psychometrics refers to the properties of an instrument as it functions within a specific context (Switzer et al, 1999). Slaney, Storey & Barnes (2011) ensure that the concern for psychometry has never been greater than in recent years, given the growing number of instruments available. However, the authors underline that "it would seem, despite decades of work within theoretical psychometrics and the development and advancement of a large body of both theory and method, the practices of researchers are often quite ill-specified, misguided, and/or inconsistent when it comes to evaluating the psychometric properties of the measures they employ in their research" (Slaney, Storey & Barnes, 2011). This means, another focal point in this field is data analysis since "the psychometric properties of the measures, (…) need to be gauged for quality. To ensure sound analyses, the researcher needs to clearly and fully describe the sample's characteristics, and to increase internal validity, apply control variables in mean-variance analyses to deal with sample attributes and reduce alternative explanations for the results" (Tharenou, 2015).

Highlighting, from Streiner & Kottner's (2014) work, the main aspects to consider when evaluating scales developed by others are:

- Regarding the scale(s) or instruments: number of items (and if they are reverse scored); sub-scales, and items in it; the scoring format; response alternatives;
- Sample: inclusion and exclusion criteria;
- Sample size: dependent on the research design and the purpose;
- Results: to report the internal consistency of scales (the usual statistic is Cronbach's alpha); all estimates should be accompanied by their respective confidence intervals.

Preliminary item data should be analysed through Exploratory factor analysis (EFA), a statistical method used to uncover the underlying structure of a relatively large set of variables. Then follows Confirmatory factor analysis (CFA) to verify the factor structure identified by the initial EFA (if not verified, re-administration or other actions may be required). Once the final factor structure has been confirmed, the internal reliability of the scales should be assessed (Robinson, 2018).

The two primary concerns of psychometric evaluation are reliability and validity.

Reliability of a measure refers to the its ability to detect the true score rather than measurement error (caused by imprecision in measurement). A perfectly reliable instrument would detect only the true score. The concept of reliability focuses on two considerations:

1. Items belonging to a scale assess a single construct;
2. Scales measuring a single construct produce consistent estimates of that construct across multiple measurements;

The first consideration is usually labelled "internal-consistency reliability" and is most commonly assessed with Cronbach's alpha. Alpha ranges from 0.00 to 1.00, with higher scores indicating greater internal consistency. Alpha is sensitive to the number of items in a scale and typically increases as the number of items increases. It has been suggested that a good standard for the latter two situations is to obtain reliability coefficients of 0.50-0.80 (Switzer et al, 1999). The second reliability consideration, consistency across multiple measurements, has several variations, including test-retest, and assumes that many human attributes are relatively stable in the short term. Thus, reliable instruments should produce consistent estimations of such attributes across multiple measurements administered in relatively close temporal proximity. Thus, test-retest reliability is obtained by reassessing individuals, with the same measure, a second time, after the initial measurement (Switzer et al, 1999).

Validity is most often defined as the extent to which an instrument measures what it was intended to measure (Anastasi 1982). Validity can be assessed by examining the methods used to determine content validity (if items measure the constructs of interest), structural validity (degree to which the scores on the scales reflect the dimensionality of the construct), internal construct validity (if relationships between scales are consistent with the hypothesis) and external construct validity (whether scales converge with and discriminate scores on other measures in the hypothesized way) (Mokkink et al., 2010 cited by Cyril et al, 2015).

Another common measure is the Coefficient of Variation (CV). It measures the variability of a series of numbers independently of the unit of measurement used to obtained them, (Salkind, 2010). The standard formulation of the CV is the ratio of the standard deviation to the mean. The CV aims to describe the dispersion of a variable in a way that does not depend on its measurement unit. The higher the CV, the greater the dispersion in the variable (UCLA: Statistical Consulting Group).

On the other hand, Kepes, Bennet & McDaniel (2016) highlight that in the moment of evaluating published scientific evidence, we should consider not only traditional scientific factors such as validity, reliability, and generalizability, as well as contextual factors such as quality, importance, and relevance (Briner et al., 2009; Greenhalgh, 1997; Guyatt et al., 1995; Jelley et al., 2012; Straus et al., 2011). Guidelines, standards, and checklists can facilitate the critical appraisal.

Parsimony is another feature under the scope of psychometry. In general, parsimony is the principle that the simplest explanation that can explain the data is to be preferred, i.e. the simplest model/theory with the least assumptions and variables but with greatest explanatory power. We will be referring to parsimony as the total number of items included in the measures.

Hinkin et al. (1997) highlight that even though there are no rules regarding number of items for a scale, some heuristics exist to simplify the process. A measure ought to be comprised of the minimum number of items that adequately assess the domain of interest, i.e. be parsimonious (Thurstone, 1947 cited by Robinson, 2018), whilst minimizing response biases caused by boredom or fatigue. A minimum of three items per scale is usually recommended, as it will most likely generate better results in confirmatory factor analysis (Marsh, Hau, Balla, & Grayson, 1998 cited by Robinson, 2018). However, frequently in research, some items may not have a statistical correspondence and must be deleted (Robinson, 2018). So at least twice as many items should be generated than will be needed for the final scales (Hinkin et al, 1997).

Our aim with this research is to create a typology, strongly supported by previously validated scientific evidence, that can be of assistance for researchers in the field of expatriation. It includes not only previous typologies, as well as psychometric information. Bailey (1994) highlights some of the advantages of classification, which can be understood as the process of grouping by similarity. Firstly, it allows an exhaustive description of data in a format in which the researcher can, for example, quickly identify "a particular type score on a particular dimension and which types are contiguous to a particular type" (Bailey, 1994). Also, identifies differences and similarities, which will then allow comparison, and most of all it reduces complexity.

As later stated we will be retrieving information from both the article in which an expatriation scale in published, as well as its original publication, thus we will be looking at both the characteristics of the original scale (previously presented) as well as one of its outcomes – citations. Citations are continuously referred to as performance indicators in research evaluation. The basic assumption is that number of citations can be regarded as a measure of scientific quality or impact (Aksnes, 2005). Frequently cited papers are assumed to be more useful than publications less cited, thus, the number of citations may be regarded as a measure of the article's usefulness, impact, or influence (Aksnes, 2005). Authors use citations because they believe the item they are highlighting is relevant and wish to draw readers attention to it, whether to criticise it, build on it or enhance their argument (Ahmed et al. 2004).

However, citation studies are controversial. Issues such as "the inadequate coverage of ISI suite of citation indexes, and the fact that citations are given for a variety of reasons, including: paying homage to pioneers in the field - typically characterised by citations to papers many years old (the focus of this paper); giving credit to related work; when a standard methodology or piece of equipment has been used, cite the reference to it rather than describe it in detail; background to the topic; correcting or criticising the previous paper; corroboration for one's ideas or claims; drawing attention to previous work that is not well known, and ought to be" are the source of many studies (eg Macroberts & Macroberts, 1989; Moed, 2002; Warner, 2000). A more interesting criticism to our study is that citation counting implies a strict view on numbers, without contemplating more subjective criteria such as "quality" and "influence" (Ahmed et al. 2004).

From Aksnes (2005) work some general numbers stand out:

- recent papers are more cited than older ones (Price, 1965);
- most articles are cited relatively constantly from year to year following a general pattern of rise and fall;
- articles with more than 15 years old are hardly cited at all (Oppenheim & Renn, 1978);
- a maximum of citations is reached about three years after publication (Van Raan, 1993).

Is of our interest in this study not only to understand the impact of citations as a whole, but especially, throughout time.

Some phenomena help to better understand this relationship. To begin, the importance of a contribution cannot always be recognized immediately. Citations can only be considered at a specific time, while contributions can only be properly assessed after some time has passed. Also, when a paper is cited in many subsequent papers, its visibility increases and by consequence its chances of getting even more citations. Moreover, an article may first be cited for its content, however, when it is widely known and has obtained many citations other heuristics will rise. Another temporal effect is the phenomenon of "obliteration by incorporation", that is, basic knowledge is no longer cited (Aksnes, 2005).

Taking this into consideration as well as the research presented, we propose the following:

H2: The number of citations of a scale is positively related to its quality.

H3: The citation in the last five-year period is dependent on the citation that occurred in the previous five-year period.

H4: The scales that were published before will be more used than the most recently published.

Methodology

In the health care field, rigor is of the upmost importance. Systematic reviews are frequent because they guarantee this, due to their methodological accuracy. The PRISMA approach was developed in an international committee with vast experience, to ensure that researchers from all over the world, from different fields, follow the same steps when conducting a systematic review. The PRISMA Statement consists of a checklist and a flow diagram (attachments 1 and 2).

Cyril et al. (2015) and Hjermstad et al. (2011) are examples of the use of such approach in systematic reviews. Despite the underlying topic being very distinct, the current research uses the same approach and objectives of said studies.

For example, in the case of Cyril et al. (2015) "the aim of this study was to evaluate the measurement properties of quantitative empowerment scales and their applicability in health promotion programs". A clear parallel can be established with the present study. In literal terms, the aim of this study is to evaluate the measurement properties of quantitative expatriation scales, develop a typology of use and their applicability in future research in the area.

The guidelines followed allow the replication of the methods used as to validate them.

As such the method goes as following:

I. Search Strategy
II. Inclusion and exclusion criteria
III. Data extraction and quality assessment

In a first stage, a list of articles was extracted from ISI Web of Knowledge, according to selected keywords based on McNulty & Brewster (2017): expatriates, expatriation, migrants, international mobility, overseas personnel, overseas executives, overseas assignments, international assignees, international assignments, international mobile professionals, international managers, international personnel, foreign managers, foreign workers and self-initiated movers.

This search resulted in 6211 records.

To begin, three criteria were identified:

1. The study had to be of quantitative nature;
2. Expatriation related (migrants not included, yet still verified at a second stage);
3. Study published between 2007 and 2016.

Were excluded qualitative studies, studies that were not focused on expatriation, studies not published in range specified, among others.

The screening of these records was done by reading the titles and abstracts that were extracted from the search. This analysis was done in agreement between two judges. When in doubt the study would go through for further analysis.

Afterwards, an in-depth reading of the “methodology/measures” chapter of the articles was done as to ensure our scope still stood. The type of document (article, book, chapter) was not limited as long as it would be assessible to the judges.

The flow chart in Image 2 represents the process of screening, selection, exclusion and inclusion of the studies.

The articles that fulfilled our scope were downloaded, as to be assessed for eligibility.

At this stage 5811 records were excluded for not belonging to the scope of the research.

Thus 90 full-text articles were included – our **Scale Used Studies (SUS)**. These studies contained quantitative scales, were related to the topic of expatriation and had been published between the years of 2007 and 2016.

Every scale from those 90 SUS was listed as to obtain its original author.

Sometimes authors use entire scales from the literature, sometimes they gather two or more and they can also create their own. All cases were assessed.

In this process some information was extracted from the studies, namely:

- Construct;
- Dimension (if applicable);
- Number of used items;
- Definition;
- Scale designation;
- Sample (assigned expatriates, self-initiated, other);
- Sample N;
- Cronbach alfa;
- Mean;
- Standard deviation;
- Lowest & highest scores;
- Original paper authors, original paper year, original journal.

From those 90 SUS, 260 records were obtained to be assessed as **Original Scale Development Studies (OSDS)**, that is, these were articles that had originated scales that fit our criteria. All of them were screened.

Regarding the eligibility of these OSDS, a new criterion emerged. We would only work with articles that had been used **at least once besides the moment of publication**, as lower that that would have little significance.

From the 260 records, 176 records were excluded because they had only been used at the moment of publication or once besides the original publication.

Also, 4 texts were not available in English, thus also excluded, as the authors were not comfortable with other foreign language, and to allow future investigation.

Moreover, 26 articles were not included in this research because their original text was not available. In some cases, these articles were several decades old, were originally from books or had been, for example, unpublished doctoral thesis, which obviously hindered their acquisition.

This led us to a final number of **54 records included in qualitative synthesis**, which translated into **64 original scales**, as previously explained one article can be can contain more than one scale.

Again, some information was extracted from these scales:

- Original paper authors;
- Original paper year;
- Original journal where it was published;
- Type (organizational characteristics, individual characteristics, expatriation process, other);
- Number of dimensions;
- Number of items (originally) in the used dimension;
- Rating (likert, frequency, semantic, continuous).

274 citations of the original scales were obtained from those 64 original scales. More could exist however, they did not fit our criteria.

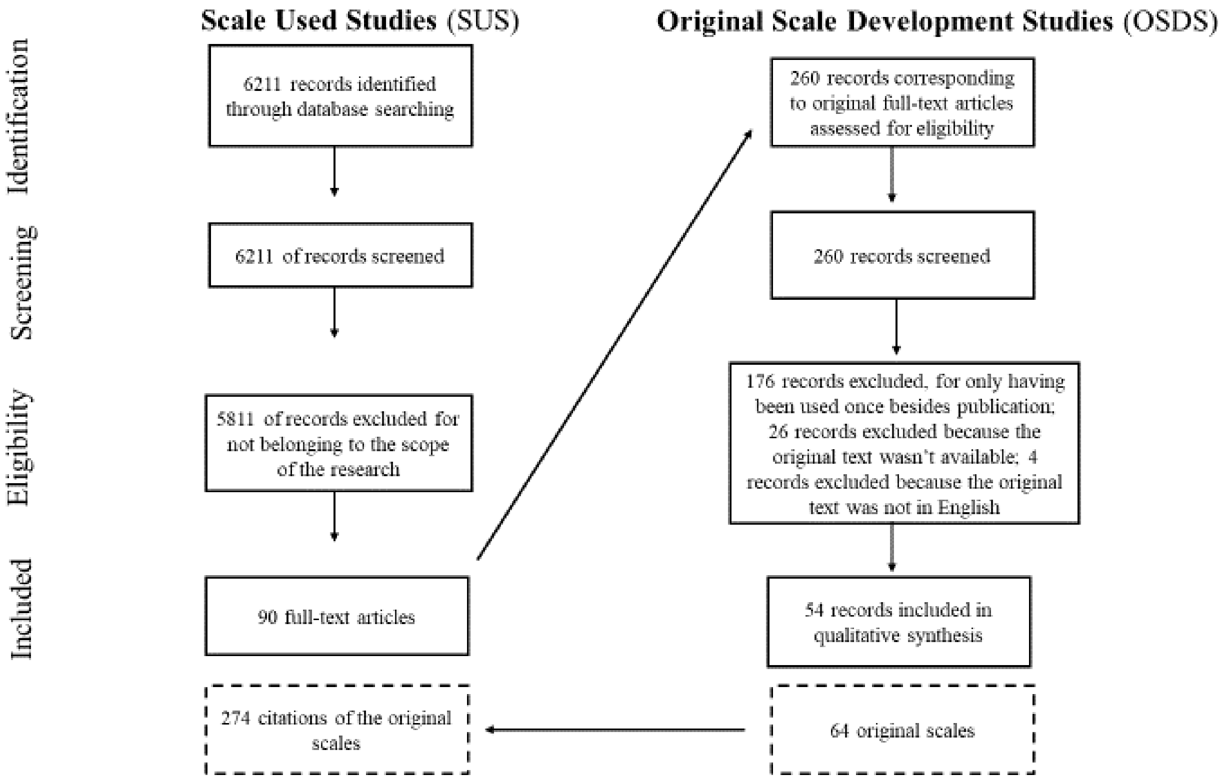


Image 2 – PRISMA Flowchart

To analyze and decompose those 64 OSDS, we used previous validated studies.

The basic characteristics of each study can be found on *Table 1*, which is based on Mahmood (2017) systematic review of self-efficacy scales of students' information literacy skills. This table contains the author and year when the scale was published, the title of the scale – when this variable didn't exist we created our own, in these cases in can be found in italic -, the construct, based on Gonzalez-Loureiro et al. (2015) dictionary of descriptors and keywords about acculturation and overseas assignments, the original sample, including nationality (in some cases it was inferred from the country of origin of the authors), the number and designation of its dimensions (if applicable) and items of the scale, and finally its original alpha (between samples "/" was used for separation and ";", between dimension).

The purpose of this table is too allow a fast identification of similar studies, therefore it is sorted in alphabetically order, by this variable.

Table 1: basic characteristics of each study, based on Mahmood (2017)

Study	Title Scale	Construct	Original Sample	Sample types	Nº Dimensions	Designation of Dimensions	Nº of items	Original alfa
Arthur, W., and Bennett, W. (1995)	International Assignee Questionnaire	personality traits	338 international assignees (diverse countries)	1	2	Cultural Openess adaptability; Job knowledge; Relational Leadership Skills	54	0,67; 0,85; 0,81
Feldman, D.C., and Thomas, D.C. (1992)	*Long Term Career Plans*	long term	118 expatriates Saudia Arabia, Europe, South Africa and Japan	1	1		14	0,93
Guzzo, R.A., Noonan, K.A., and Elron, E. (1994)	*Organizational Practices*	organizational culture	148 expatriates (USA)	1	3	finanial inducements; general support; family-oriented support	43	0,64; 0,73; 0,60
Haslberger, A. (2005)	*Adjustment*	Cross-cultural adjustment	204 members of british and american clubs in Madrid and Frankfurt	1	2	affective adjustment; cognitive adjustment		
Naumann, E. (1993)	*Career Advencement*	individual life-cycle	152 expatriates USA	1	1		4	0,84
Naumann, E. (1993)	modified version of the expatriate training questionnaire	pre-departure training	152 expatriates USA	1	1		4	0,81
Parker, B., and McEvoy, G.M. (1993)	*Promotion Opportunities*	success	169 expatriates (12 countries)	1	1		4	0,91
Stening, B.W., and Hammer, M.R.(1992)	*Intercultural Effectiveness*	intercultural stress scale; intercultural communication scale; intercultural relationship scale	123 Japanese in Thailand / 62 Americans in Japan / 36 Americans in Thailand / 70 Japanese in the US	1	1	intercultural effectiveness scale; intercultural communication sclae; intercultural relationship scale	11	0,73/0,78/0,83; 0,65/0,67/0,74; 0,72/0,80/0,86
Takeuchi, R., Tesluk, P., Yun, S., and Lepak, D. (2005)	*Prior International Experience*	past experience	243 Japanes expatriates working in the USA	1	2	prior international work; prior international non work	1	

Takeuchi, R., Yun, S., and Russell, J.E.A.(2002)	*Intention to return early*	permature termination	170 Japanese expatriates working in the US with spouses	1	1		3	0,81
Takeuchi, R., Yun, S., and Russell, J.E.A.(2002)	*Language Proficency*	pre-departure training	170 Japanese expatriates working in the US with spouses	1	1		5	0,97
Dickmann, M., and Mills, T. (2010)(2010)	*Career Capital*	individual life-cycle	348 people who moved to london	3			16	
Adler(1986)	*Interest in an international career*	seeking opportunities	1129 MBA students USA	4	1		36	0,85
Amatea, E.S., Cross, E.G., Clark, J.E., and Bobby, C.L(1986)	Life Role Salience Scales	commitement to assignment & family context	434 undergraduate student USA	4	2	Marital role commitment; Occupational role commitment	15	0,49; 0,58
Ang, S., van Dyne, L., Koh, C., and Ng, K.Y(2007)	Cultural Intellingence	cultural intelligence	235 undergraduates USA / 358 undergraduates Singapore	4	4	Behavioural; Cognitive; Metacognitive; Motivational	20	0,82/0,87; 0,8/0,88; 0,76/0,70; 0,79/0,75
Baruch, Y., Budhwar, P. S., & Khatri, N. (2007)	*Academic Satisfaction*	satisfaction	949 students UK and USA	4	1		6	0,9
Baruch, Y., Budhwar, P. S., & Khatri, N. (2007)	*Adjustment*	Cross-cultural adjustment	949 students UK and USA	4	1		3	0,78
Baruch, Y., Budhwar, P. S., & Khatri, N. (2007)	*Family Contact*	family context	949 students UK and USA	4	1		4	0,77
Baruch, Y., Budhwar, P. S., & Khatri, N. (2007)	*Labour Market Perceptions*	contextual factors	949 students UK and USA	4	2	Home labour market perception; Host labour market perception	5	0,7; 0,73
Briscoe, J.P., Hall, D.T., and DeMuth, R.F. (2006)	*Boundaryless Caree; Values-driven scale*	individual life-cycle	561 MBA students USA	4	2	Boundaryless career; Protean career	13	0,87; 0,70
Button, S.B., Mathieu, J.E., and Zajac, D.M.(1996)	*Goal Orientation*	individual competencies	409 undergraduates USA	4	2	Learning goal orientation; Performance goal orientation	16	0,85: 0,77

Cable, D.M., and DeRue, D.S.(2002)	*Person-job fit*	managerial resourcefulness	215 employees / 225 MBAs USA	4	2	demands ability; needs ability	3	0,91/0,92
Cleveland, M., Laroche, M., and Papadopoulos, N.(2009)	*Cosmopolitan*	Cosmopolitan	2015 respondents in eight countries (snowball initially students)	4	1		6	0,86
Dreher, G.F., and Ash, R.A. (1990)	*Mentoring*	organizational competencies	320 business graduates working at least 35h/week USA	4	1		18	0,95
Greenland, K., and Brown, R. (1999)	*Categorization*	separation	125 british and 111 Japanese students	4	3	interpersonal categorization; intergroup categorization; superordinate group categorization	11	0,59; 0,72; 0,64
Mael, F., and Ashforth, B.E(1992)	*Organization Identification*	organiz(s)ational (dynamic) competencies	297 all male college students USA	4	1		6	0,87
Mael, F., and Ashforth, B.E(1992)	perceived organizational prestige measure	organiz(s)ational (dynamic) competencies	297 all male college students USA	4	1		8	0,77
Mol, S.T., Born, M., Willemsen, M.E., van der Molen, H.T., and Derous, E. (2009)	*Expatriation Willingness*	motivation	299 master students Netherlands	4	1		7	0,87
Mol, S.T., Born, M., Willemsen, M.E., van der Molen, H.T., and Derous, E. (2009)	*Language Ability*	pre-departure training	299 master students Netherlands	4	1		1	one item
Porter, L.W., Steers, R.M., Mowday, R.T., and Boulian, R.V.(1974)	*Organizational Commitment*	Commitment to the organization	60 psychiatric technician trainees USA	4	1		15	.82 to .93 across the four time periods.
Rousseau, D.M.(1990)	*Psycological Contract Fullfilment*	feeling	224 MBA students who had accepted job offers (USA)	4	2	relational psycological contract fullfillment; transactional psycological	11	

						contract fullfillment		
Russell, D., Peplau, L.A., and Cutrona, C.E.(1980)	Revised UCLA loneliness scale	maladjustment	162 students /237 students USA	4	2	emotional loneliness; social loneliness	20	0,94 / 0,94
Saucier, G.(1984)	*Mini-markers*	personality traits	489 college students / 132 community-college students / 320 college students / 316 peers / 205 students / 187 college students (USA)	4	4	extraversion; agreeacleness; conscientiousness; emotional stability; intellect, openess or imagintation	40	
Van der Zee, K.I., and Van Oudenhoven, J.P. (2000)	*Emotional Stability*	Harmony	84 students / 173 students Netherland, American, Belgian, German, and Moroccan	4	4	emotional stability; flexibility; open mindedness; social initiative	91	0,7; 0,85; 0,75; 0,87
Van Dyne, L., Ang, S., and Koh, C.(2008)	*Cultural Intellingence*	cultural intelligence	576 students Singapore	4	4	behaviour; cognitive; metacognitive; motivational	20	0,83; 0,85; 0,71; 0,75
Ong, A.S.J., and Ward, C.(2005)	*Social Support*	organiz(s)ational support	426 international participants	5	2	emotional social support; instrumental social support	18	0,93
Shaffer, M.A., and Harrison, D.A(2001)	*Adjustment*	Cross-cultural adjustment	221 expatriate spouses (37 countries)	8	3	cultural adjustment; interactional adjustment; personal adjustment	12	0,89; 0,88; 0,92 (expta) / 0,89 (spouse)
Black, J.S(1988)	*Adjustment*	Cross-cultural adjustment	67 expatriate managers USA	9	3	general adjustment; interactional adjustment; work adjustment	11	0,78; 0,83; 0,80
Black, J.S(1988)	*Pre departure knowledge*	pre-departure training	67 expatriate managers USA	9	2		1	0,91

Manev, I.M., and Stevenson, W.B(2001)	*Social Network*	social networking	203 managers (41 counties)	9	2	expressive ties; intrumental ties	4	0,752; 0,734
Greenhaus, J. H., Parasuraman, S., & Wormley, W. M.(1990)	*Career Satisfaction*	satisfaction	828 manager-supervisor pairs USA	10	1		5	0,88
Kraimer, M.L., and Wayne, S.J.(2004)	*POS*	organiz(s)ational support	230 expatriate/supervisor dyads (USA)	10	3	adjustment; career; finance	14	0,87; 0,88; 0,92
Kraimer, M.L., and Wayne, S.J.(2004)	*Performance*	Performance	230 expatriate/supervisor dyads (USA)	10	2	contextual; task	9	0,84; 0,86
Kraimer, M.L., Wayne, S.J., and Jaworski, R.A.(2001)	*Performance*	Performance	213 expatriate/supervisor dyads (USA)	10	2	contextual; task	6	0,81; 0,81
Moorman, R.H.(1991)	*Procedural Justice*	organizational competencies	225 employee and managers dyads USA	10	2	formal processes; interactional justice	13	0,93; 0,94
Wayne, S.J., Shore, L.M., and Liden, R.C. (1997)	*Turnover*	premature termination	252 leader-member dyad USA	10	1		5	0,89
Clugston, M., Howell, J.P., and Dorfman, P.W.(2000)	*Collectivism*	socio-cultural	156 employees public agency USA	11	1		6	0,77
Eisenberger, R., Huntington, R., Hutchinson, S., and Sowa, D. (1986)	survey of POS	organiz(s)ational support	361 employees USA	11	1		36	0,97
Hackman, J.R., and Oldham, G.R. (1975)	*Job diagnostic survey*	giving task help	658 employees (USA)	11	2	Attitudes task; Job autonomy	75	0,59; 0,66
Heneman, H.G., and Schwab, D.P(1985)	*Compensation*	Compensation	1980 nurses (USA)	11	3	benefits ; pay level; raises	18	0,95; 0,95; 0,81
Hom, P.W., and Griffeth, R.W. (1981)	*Turnover Intentions*	premature termination	244 nurses USA	11	3		6	0,96
Miller, V.D., Allen, M., Casey, M.K., and Johnson, J.R.(2000)	Organization Identification Questionnaire	organiz(s)ational (dynamic) competencies	113 white collars / 110 blue collars / 86 blue collar USA	11	1		12	0,95/0,95/0,88
Mitchell, T.R., Holtom, B.C., Lee, T.W., Sablynski, C.J., and Erez, M(2001)	*Organizational Embededness*	organiz(s)ational (dynamic) competencies	177 grocery syore workers / 232 hospital employees USA	11	6	links on job; fit off job; sacrifice on job; links off job;	42	0,85/0,87

						fit on job; sacrifice off job		
Morrison, E.W.(1993)	*Role Info*	job characteristics	240 accountants (USA)	11	3		5	
Netemeyer, R.G., Boles, J.S., and McMurrian, R. (1996)	*Work-Family Conflict*	family context	182 teachers and administrators / 162 small business owners / 186 salespeople (USA)	11	6	Behaviour FW; Strain FW; Time FW; Behaviour WF; Strain WF; Time WF	21	0,86/0,83/0,89; 0,88/0,89/0,88
Nijssen, E.J., and Douglas, S.P.(2008)	*Foreign Contacts*	socialization	191 consumers Netherlands	11	1		3	
Paterson, J.M., Green, A., and Cary, J.(2002)	*Organizational Justice*	organizational competencies	143 trade union workers / 81 trade union workers /13 trade union workers (New Zeland, Australia)	11	2	interactional justice; procedural justice	23	0,91 /0,94/0,95; 0,93/0,94/0,95
Rizzo, J.R., House, R.J., and Lirtzman, S.I.(1970)	*Role Ambiguity*	job characteristics	199 central office and main plant personnel / 91 reserach and engineering personnel (USA)	11	1		15	0,780/0,808
Rizzo, J.R., House, R.J., and Lirtzman, S.I.(1970)	*Role Conflict*	role conflict	199 central office and main plant personnel / 91 reserach and engineering personnel (USA)	11	1		15	0,816/0,820
Chen, C.C., Choi, J., and Chi, S.C. (2002)	*Compensation*	Compensation	161 local chinese employees	12	3	Compensation advantage; compensation disparity; perceived compensation fairness	5	0,91; 0,95; '---
Bae, J., Chen, S. and Lawler, J.J(1998)	*HRM strategy*	stretegy	138 and 52 individuals with principal responsibility for HRM, in a random sample of firms in Korea and Taiwan	13	4	Employee influence; HR flow; Reward Systems; work systems	37	0,74/0,73; 0,88/0,72; 0,73/0,73; 0,71/0,62
Harvey, M.G.(1995)	*Intercultural Communication Training*	pre-departure training	118 SHRM members (USA)	13	2	Home intercultural communication training;		

						target intercultural communication training		
Morris, M.H., Davis, D.L., and Allen, J.W(1994)	*Corporate Entreperneurship*	Entrepreneurial orientation	252 marketing managers USA / 225 marketing, R&D, administration South Africa/ 25 HR managers Portugal	13	1		12	0,59/0,70/0,69
Carlson, D.S., Kacmar, K.M., and Williams, L.J.(2000)	Work-Family Conflict-Scale	family context	225 full time workers (snowball) USA	14	6	Behaviour FW; Strain FW; Time FW; Behaviour WF; Strain WF; Time WF	18	0,85; 0,78; 0,87; 0,85; 0,79; 0,87

For further detail about each of the scales *Table 2* was prepared. In it the psychometric characteristics of the scale can be found. The structure was based on Cyril, Smith & Renzaho (2015) evaluation of the methodological quality of empowerment measures.

It includes three broad dimensions: item development, reliability and validity. Except if indicated otherwise "1" stands for reported/performed/existent, and "0" for not reported/ not performed/nonexistent.

Item development assessed if a panel of experts had been included, if literature review had been performed and if it could be considered an empirical study. Regarding reliability, it was evaluated if internal consistency and test-retest had been reported. In the case of reliability, it was only considered valid if the alpha was above 0,70 in all dimensions and all samples.

Finally, validity was intended to gage if content validity, structural, internal construct validity (predictive) and external construct validity had been included in the original studies.

Cyril, Smith & Renzaho (2015) definitions of said constructs were used, namely, content validity (if items measure the constructs of interest), structural validity (degree to which the scores on the scales reflect the dimensionality of the construct), internal construct validity (if relationships between scales are consistent with the hypothesis) and external construct validity (whether scales converge with and discriminate scores on other measures in the hypothesized way))Mokkink et al, 2010).

The performance of exploratory and confirmatory analysis was also checked.

The six main variables were used to qualify the scales: panel of experts, reliability content validity, internal construct validity (predictive), exploratory and confirmatory analysis.

Scores range from 0 to 6 and the classification goes as follows: less than 2 criteria met → Poor quality; 3 to 4 → Medium quality; 5 or more → High quality.

Table 2: psychometric characteristics of the scale, based on Cyril, Smith & Renzaho (2015)

Study	Title Scale	Panel of experts	Literature review	Empirical study	Internal consistency	Reliabity scale	Test–retest reliability	Content validity	Structural Validity	Internal construct validity	External construct validity	EFA	CFA	Total Score	Interpretation
Adler(1986)	*Interest in an international career*	0	1	1	0	1	0	0	0	0	0	0	0	1	POOR
Amatea, E.S., Cross, E.G., Clark, J.E., and Bobby, C.L(1986)	Life Role Salience Scales	0	1	1	1	0	1	1	1	0	0	0	0	1	POOR
Ang, S., van Dyne, L., Koh, C., and Ng, K.Y(2007)	Cultural Intellingence	1	1	1	1	1	0	1	1	1	0	0	1	5	HIGH
Arthur, W., and Bennett, W(1995)	International Assignee Questionnaire	1	1	1	1	0	0	0	0	0	0	0	0	1	POOR
Bae, J., Chen, S. and Lawler, J.J(1998)	*HRM strategy*	0	0	1	1	0	0	0	0	0	0	0	0	0	POOR
Baruch, Y., Budhwar, P. S., & Khatri, N. (2007)	*Academic Satisfaction*	0	1	1	1	1	0	1	1	1	0	0	0	3	MEDIUM
Baruch, Y., Budhwar, P. S., & Khatri, N. (2007)	*Adjustment*	0	1	1	1	1	0	1	1	1	0	0	0	3	MEDIUM
Baruch, Y., Budhwar, P. S., & Khatri, N. (2007)	*Family Contact*	0	1	1	1	1	0	1	1	1	0	0	0	3	MEDIUM
Baruch, Y., Budhwar, P. S., & Khatri, N. (2007)	*Labour Market Perceptions*	0	1	1	1	1	0	1	1	1	0	0	0	3	MEDIUM
Black, J.S(1988)	*Adjustment*	0	1	1	1	1	0	0	1	1	0	0	0	2	POOR
Black, J.S(1988)	*Pre departure knowledge*	0	1	1	1	1	0	0	1	1	0	0	0	2	POOR
Briscoe, J.P., Hall, D.T.,	*Boundaryless Caree;*	0	1	1	1	1	0	1	1	0	1	0	1	3	MEDIUM

and DeMuth, R.F. (2006)	*Values-driven scale*													
Button, S.B., Mathieu, J.E., and Zajac, D.M.(1996)	*Goal Orientation*	0	1	1	1	1	0	1	1	1	0	0	1	4	MEDIUM
Cable, D.M., and DeRue, D.S.(2002)	*Person-job fit*	0	1	1	1	1	0	1	1	1	1	0	1	4	MEDIUM
Carlson, D.S., Kacmar, K.M., and Williams, L.J.(2000)	Work-Family Conflict-Scale	0	1	1	1	1	0	1	0	0	0	1	1	4	MEDIUM
Chen, C.C., Choi, J., and Chi, S.C.(2002)	*Compensation*	0	1	1	1	0	0	1	0	1	0	1	0	3	MEDIUM
Cleveland, M., Laroche, M., and Papadopoulos, N.(2009)	*Cosmopolitan*	0	1	1	1	1	0	1	1	1	1	1	0	4	MEDIUM
Clugston, M., Howell, J.P., and Dorfman, P.W.(2000)	*Collectivism*	0	1	1	1	1	0	1	1	1	1	0	1	4	MEDIUM
Dickmann, M., and Mills, T. (2010)(2010)	*Career Capital*	1	1	1	0	0	0	0	0	0	0	0	1	2	POOR
Dreher, G.F., and Ash, R.A. (1990)	*Mentoring*	0	1	1	1	1	0	1	1	0	1	0	0	2	POOR
Eisenberger, R., Huntington, R., Hutchinson, S., and Sowa, D. (1986)	survey of POS	0	1	1	1	1	0	0	1	0	0	0	0	1	POOR
Feldman, D.C., and	*Long Term Career Plans*	0	1	1	1	1	0	1	0	1	0	0	0	3	MEDIUM

Thomas, D.C.(1992)														
Greenhaus, J. H., Parasuraman, S., & Wormley, W. M.(1990)	*Career Satisfaction*	0	0	1	1	1	0	0	0	0	0	0	0	1	POOR
Greenland, K., and Brown, R. (1999)	*Categorization*	0	1	1	1	0	0	0	0	0	0	0	0	0	POOR
Guzzo, R.A., Noonan, K.A., and Elron, E. (1994)	*Organizational Practices*	0	0	1	1	0	0	0	0	0	0	0	0	0	POOR
Hackman, J.R., and Oldham, G.R. (1975)	*Job diagnostic survey*	0	1	1	1	0	0	1	1	0	0	0	0	1	POOR
Harvey, M.G.(1995)	*Intercultural Communication Training*	0	0	1	0	0	0	0	0	0	0	0	0	0	POOR
Haslberger, A. (2005)	*Adjustment*	0	1	1	1	0	0	1	1	1	0	0	1	3	MEDIUM
Heneman, H.G., and Schwab, D.P(1985)	*Compensation*	0	1	1	1	1	0	0	0	1	1	1	1	4	MEDIUM
Hom, P.W., and Griffeth, R.W. (1981)	*Turnover Intentions*	0	1	1	1	1	0	0	0	0	0	0	1	2	POOR
Kraimer, M.L., and Wayne, S.J.(2004)	*POS*	0	1	1	1	1	0	1	1	0	0	1	1	4	MEDIUM
Kraimer, M.L., and Wayne, S.J.(2004)	*Performance*	0	1	1	1	1	0	1	1	0	0	1	1	4	MEDIUM
Kraimer, M.L., Wayne, S.J., and	*Performance*	0	1	1	0	1	0	0	1	1	0	1	1	4	MEDIUM

Jaworski, R.A.(2001)															
Mael, F., and Ashforth, B.E(1992)	*Organization Identification*	0	1	1	1	1	0	1	1	1	0	0	0	3	MEDIUM
Mael, F., and Ashforth, B.E(1992)	perceived organizational prestige measure	0	1	1	1	1	0	1	1	1	0	0	0	3	MEDIUM
Manev, I.M., and Stevenson, W.B(2001)	*Social Network*	0	1	1	1	1	0	0	0	0	0	0	0	1	POOR
Miller, V.D., Allen, M., Casey, M.K., and Johnson, J.R.(2000)	Organization Identification Questionnaire	0	1	1	1	1	1	0	0	1	1	0	1	3	MEDIUM
Mitchell, T.R., Holtom, B.C., Lee, T.W., Sablynski, C.J., and Erez, M(2001)	*Organizational Embededness*	0	1	1	1	1	0	1	0	1	0	0	0	3	MEDIUM
Mol, S.T., Born, M., Willemsen, M.E., van der Molen, H.T., and Derous, E. (2009)	*Expatriation Willingness*	0	1	1	1	1	0	1	1	1	0	0	0	3	MEDIUM
Mol, S.T., Born, M., Willemsen, M.E., van der Molen, H.T., and Derous, E. (2009)	*Language Ability*	0	1	1	1	0	0	1	1	1	0	0	0	2	POOR
Moorman, R.H.(1991)	*Procedural Justice*	0	1	1	1	1	0	0	0	1	0	0	1	3	MEDIUM
Morris, M.H., Davis, D.L., and Allen, J.W(1994)	*Corporate Entreperneurship*	0	1	1	1	0	0	0	0	1	0	0	0	1	POOR

Morrison, E.W.(1993)	*Role Info*	0	1	1	1	0	0	0	1	0	0	0	0	0	POOR
Naumann, E. (1993)	*Career Advencement*	0	1	1	1	1	0	0	0	1	0	0	0	2	POOR
Naumann, E. (1993)	modified version of the expatriate training questionnaire	0	1	1	1	1	0	0	0	1	0	0	0	2	POOR
Netemeyer, R.G., Boles, J.S., and McMurrian, R. (1996)	*Work-Family Conflict*	1	1	1	1	1	0	1	1	0	0	1	1	5	HIGH
Nijssen, E.J., and Douglas, S.P.(2008)	*Foreign Contacts*	0	1	1	1	0	0	1	1	1	0	1	0	3	MEDIUM
Ong, A.S.J., and Ward, C.(2005)	*Social Support*	0	1	1	1	1	0	1	1	1	0	0	1	4	MEDIUM
Parker, B., and McEvoy, G.M. (1993)	*Promotion Opportunities*	0	1	1	1	1	0	1	1	1	1	0	0	3	MEDIUM
Paterson, J.M., Green, A., and Cary, J.(2002)	*Organizational Justice*	0	1	1	1	1	1	1	1	0	0	0	0	2	POOR
Porter, L.W., Steers, R.M., Mowday, R.T., and Boulian, R.V.(1974)	*Organizational Commitment*	0	1	1	1	1	0	0	0	0	0	0	0	1	POOR
Rizzo, J.R., House, R.J., and Lirtzman, S.I.(1970)	*Role Ambiguity*	0	1	1	1	1	0	1	1	0	0	0	0	2	POOR
Rizzo, J.R., House, R.J., and Lirtzman, S.I.(1970)	*Role Conflict*	0	1	1	1	1	0	1	1	0	0	0	0	2	POOR
Rousseau, D.M.(1990)	*Psycological Contract Fullfilment*	0	1	1	1	10	0	1	1	1	0	0	0	3	MEDIUM

Russell, D., Peplau, L.A., and Cutrona, C.E.(1980)	Revised UCLA loneliness scale	0	1	1	1	1	0	1	1	0	0	0	0	2	POOR
Saucier, G.(1984)	*Mini-markers*	0	1	0	1	0	0	1	1	0	1	0	0	1	POOR
Shaffer, M.A., and Harrison, D.A(2001)	*Adjustment*	0	1	1	1	1	0	1	1	1	0	1	1	5	HIGH
Stening, B.W., and Hammer, M.R.(1992)	*Intercultural Effectiveness*	0	1	1	1	0	0	1	1	0	0	0	0	1	POOR
Takeuchi, R., Tesluk, P., Yun, S., and Lepak, D. (2005)	*Prior International Experience*	0	1	1	1	0	0	0	0	1	0	0	0	1	POOR
Takeuchi, R., Yun, S., and Russell, J.E.A.(2002)	*Intention to return early*	0	1	1	1	1	0	1	1	1	0	0	1	4	MEDIUM
Takeuchi, R., Yun, S., and Russell, J.E.A.(2002)	*Language Proficency*	0	1	1	1	1	0	1	1	1	0	0	1	4	MEDIUM
Van der Zee, K.I., and Van Oudenhoven, J.P. (2000)	*Emotional Stability*	0	1	1	1	1	1	1	1	0	1	0	0	2	POOR
Van Dyne, L., Ang, S., and Koh, C.(2008)	*Cultural Intellingence*	1	1	1	1	1	0	1	1	0	1	0	1	4	MEDIUM
Wayne, S.J., Shore, L.M., and Liden, R.C. (1997)	*Turnover*	0	1	1	1	1	0	1	1	1	0	0	1	4	MEDIUM

Table 3 is the summary of our evaluation of the OSDS, which will be used in subsequent analysis. It includes the construct descriptor obtained from *Table 1* and its respective construct type (both as a number and its short name), the classification of parsimony, (from the OSDS and SUS) the quality of the scale (obtained from *Table* 2), the average of the variation coefficient and its respective quartile, again from the OSDS and the SUS, and finally the number of citations.

The construct descriptor and its number were obtained based on Gonzalez-Loureiro et al. (2015) dictionary of descriptors and keywords about acculturation and overseas assignments. Sample types were partially based on McNulty & Brewster (2017) prototype model (1 - assigned expatriates; 2 - self initiated expatriates; 3 – migrants; 4 - sojourners, students and retirees; 5 - international business travelers & commuters; 6 - virtual workers and global domestics; 7 - OE travelers & tourists).

Standard deviation of rating scores is commonly used to express the individual consistency in using a scale. However, since each scale has its own scaling dimension, the standard deviations cannot be compared directly (Shen & Parsons, 1997). The average of the variation coefficient was obtained through the ratio of the standard deviation by the mean and performing the average per study; the same was assessed for the SUS, as the average of the average variation coefficient.

This measure is usually display as percentage, from which can be transposed to quartiles, according to its distribution.

Due to lack of literature on the topic of parsimony we experimented on relevant results and used the following classification: 0 to 5 items; 5 to 10 items; 11 to 20 items; 20 + items.

Finally, regarding citations, following Cooke's (2017) idea, we computed the number of citations in period of 5 years. For each OSDS we found the number of citations in the period of 2007 to 2011, from 2012 to 2016 and the total number of citations.

Table 3 was upload to IBM SPSS Statistics 25 for further analysis.

Table 3: summary of our evaluation of the OSDS

Study	Year to 2016	Designation of Dimensions	Construct	Construct type Num	Construct type Short Name	Sample types	Orig Parsimony	Adapted Parsimony	Quality	Quartile Average CV original scale	Quartile Average CV adapted	Citation 2007-2011	Citation 2012-2016	Citation total
Adler(1986)	30		seeking opportunities	20	Coping Strategies	4	36	0	POOR		Q2	1	1	2
Amatea, E.S., Cross, E.G., Clark, J.E., and Bobby, C.L(1986)	30	Marital role commitment; Occupational role commitment	commitement to assignment	6	Commitment	4	15	0	POOR	Q1	Q1	0	2	2
Ang, S., van Dyne, L., Koh, C., and Ng, K.Y(2007)	9	Behavioural; Cognitive; Metacognitive; Motivational	cultural intelligence	4	Global Mindset	4	20	0	HIGH	Q1	Q1	3	4	7
Arthur, W., and Bennett, W(1995)	21	Cultural Openess adaptability; Job knowledge; Relational Leadership Skills	personality traits	3	Individual	1	54	0	POOR	Q1	Q1	6	0	6
Bae, J., Chen, S. and Lawler, J.J(1998)	18	Employee influence; HR flow; Reward Systems; work systems	stretegy	2	Organization	13	37	0	POOR	Q1	Q1	4	0	4
Baruch, Y., Budhwar, P. S., & Khatri, N. (2007)	9			3	Individual	4	6	1	MEDIUM	Q2	Q1	0	1	1
Baruch, Y., Budhwar, P. S., & Khatri, N. (2007)	9		Cross-cultural adjustment	12	Adjustment	4	3	1	MEDIUM	Q1	Q1	0	1	1
Baruch, Y., Budhwar, P. S., & Khatri, N. (2007)	9		family context	9	Family	4	4	1	MEDIUM	Q1	Q1	0	1	1
Baruch, Y., Budhwar, P. S., & Khatri, N. (2007)	9	Home labour market perception; Host labour	contextual factors	1	Context	4	5	1	MEDIUM	Q1	Q1	0	2	2

		market perception												
Black, J.S(1988)	28	general adjustment; interactional adjustment; work adjustment	Cross-cultural adjustment	12	Adjustment	9	11	0	POOR	Q2	Q1	37	39	76
Black, J.S(1988)	28		pre-departure training	20	Coping Strategies	9	1	1	POOR	Q1	Q1	0	1	1
Briscoe, J.P., Hall, D.T., and DeMuth, R.F. (2006)	10	Boundaryless career; Protean career	individual life-cycle	3	Individual	4	13	0	MEDIUM	Q1	Q1	0	6	6
Button, S.B., Mathieu, J.E., and Zajac, D.M.(1996)	20	Learning goal orientation; Performance goal orientation	individual competenc ies	3	Individual	4	16	1	MEDIUM	Q1	Q1	2	0	2
Cable, D.M., and DeRue, D.S.(2002)	14	demands ability; needs ability	managerial resourceful ness	3	Individual	4	3	1	MEDIUM	Q1	Q2	0	2	2
Carlson, D.S., Kacmar, K.M., and Williams, L.J.(2000)	16	Behaviour FW; Strain FW; Time FW; Behaviour WF; Strain WF; Time WF	family context	9	Family	4	18	1	MEDIUM	Q1	Q2	6	1	7
Chen, C.C., Choi, J., and Chi, S.C.(2002)	14	Compensation advantage; compensation disparity; perceived compensation fairness	Compensat ion	22	Compensatio n	12	5	1	MEDIUM	Q2	Q3	3	0	3
Cleveland, M., Laroche, M., and Papadopoulos, N.(2009)	7		Cosmopoli tan	4	Global Mindset	4	6	0	MEDIUM	Q1	Q1	0	2	2
Clugston, M., Howell, J.P., and Dorfman, P.W.(2000)	16		socio-cultural	1	Context	11	6	0	MEDIUM	Q1	Q1	1	1	2

Dickmann, M., and Mills, T. (2010)(2010)	6		individual life-cycle	3	Individual	3	16	1	POOR	Q1	0%	0	3	3
Dreher, G.F., and Ash, R.A. (1990)	26		organizatio nal competenc ies	2	Organization	4	18	1	POOR	Q2	Q1	0	6	6
Eisenberger, R., Huntington, R., Hutchinson, S., and Sowa, D. (1986)	30		organiz(s)a tional support	2	Organization	11	36	0	POOR	Q1	Q2	4	2	6
Feldman, D.C., and Thomas, D.C.(1992)	24		long term	7	Time	1	14	0	MEDIUM	Q1	Q3	0	2	2
Greenhaus, J. H., Parasuraman, S., & Wormley, W. M.(1990)	26		satisfactio n	13	Positive Outcomes	10	5	1	POOR	Q2	Q1	0	3	3
Greenland, K., and Brown, R. (1999)	17	interpersonal categorization; intergroup categorization; superordinate group categorization	separation	16	Separation	4	11	0	POOR	Q1	Q2	1	1	2
Guzzo, R.A., Noonan, K.A., and Elron, E. (1994)	22	finanial inducements; general support; family-oriented support	organizatio nal culture	2	Organization	1	43	0	POOR	Q2	Q2	1	1	2
Hackman, J.R., and Oldham, G.R. (1975)	41	Attitudes task; Job autonomy	giving task help	20	Coping Strategies	11	75	0	POOR	Q2	Q1	1	1	2
Harvey, M.G.(1995)	21	Home intercultural communication training; target intercultural communication training	pre-departure training	20	Coping Strategies	13	1	0	POOR	Q1	0%	2	0	2

Haslberger, A. (2005)	11	affective adjustment; cognitive adjustment	Cross-cultural adjustment	12	Adjustment	1	12	1	MEDIUM	Q1	0%	0	2	2
Heneman, H.G., and Schwab, D.P(1985)	31	benefits ; pay level; raises	Compensation	22	Compensation	11	18	0	MEDIUM	Q1	0%	0	3	3
Hom, P.W., and Griffeth, R.W. (1981)	35		premature termination	14	Negative Outcomes	11	6	0	POOR	Q2	Q2	1	1	2
Kraimer, M.L., and Wayne, S.J.(2004)	12	adjustment; career; finance	organiz(s)ational support	2	Organization	10	14	0	MEDIUM	Q2	Q1	0	7	7
Kraimer, M.L., and Wayne, S.J.(2004)	12	contextual; task	Performance	21	Appraisal	10	9	0	MEDIUM	Q1	Q1	5	3	8
Kraimer, M.L., Wayne, S.J., and Jaworski, R.A.(2001)	15	contextual; task	Performance	21	Appraisal	10	6	0	MEDIUM	Q1	Q1	4	3	7
Mael, F., and Ashforth, B.E(1992)	24		organizational competencies	2	Organization	4	6	0	MEDIUM	Q1	Q1	0	3	3
Mael, F., and Ashforth, B.E(1992)	24		organizational competencies	2	Organization	4	8	0	MEDIUM	Q1	Q1	0	1	1
Manev, I.M., and Stevenson, W.B(2001)	15	expressive ties; intrumental ties	social networking	19	Socialization	9	4	1	POOR	Q2	Q2	2	0	2
Miller, V.D., Allen, M., Casey, M.K., and Johnson, J.R.(2000)	16		organizational competencies	2	Organization	11	12	0	MEDIUM	Q1	0%	2	0	2
Mitchell, T.R., Holtom, B.C., Lee, T.W., Sablynski, C.J., and Erez, M(2001)	15	links on job; fit off job; sacrifice on job; links off job; fit on job; sacrifice off job	organizational competencies	2	Organization	11	42	0	MEDIUM	Q1	Q1	0	2	2
Mol, S.T., Born, M.,	7		motivation	3	Individual	4	7	0	MEDIUM	Q1	Q2	0	3	3

Willemsen, M.E., van der Molen, H.T., and Derous, E. (2009)														
Mol, S.T., Born, M., Willemsen, M.E., van der Molen, H.T., and Derous, E. (2009)	7		pre-departure training	20	Coping Strategies	4	1	1	POOR	Q1	Q2	0	1	1
Moorman, R.H.(1991)	25	formal processes; interactional justice	organizational competencies	2	Organization	10	13	1	MEDIUM	Q2	Q1	0	2	2
Morris, M.H., Davis, D.L., and Allen, J.W(1994)	22		Entrepreneurial orientation	3	Individual	13	12	0	POOR	Q2	0%	2	0	2
Morrison, E.W.(1993)	23		job characteristics	5	Position	11	5	1	POOR	Q1	Q1	1	1	2
Naumann, E. (1993)	23		individual life-cycle	3	Individual	1	4	1	POOR	Q2	Q1	0	1	1
Naumann, E. (1993)	23		pre-departure training	20	Coping Strategies	1	4	1	POOR	Q2	Q1	0	1	1
Netemeyer, R.G., Boles, J.S., and McMurrian, R. (1996)	20	Behaviour FW; Strain FW; Time FW; Behaviour WF; Strain WF; Time WF	family context	9	Family	11	21	1	HIGH	Q1	Q2	6	0	6
Nijssen, E.J., and Douglas, S.P.(2008)	8		socialization	19	Socialization	11	3	1	MEDIUM	Q1	Q2	0	2	2
Ong, A.S.J., and Ward, C.(2005)	11	emotional social support; instrumental social support	organiz(s)ational support	2	Organization	5	18	1	MEDIUM	Q2	Q2	2	0	2
Parker, B., and McEvoy, G.M. (1993)	23		success	13	Positive Outcomes	1	4	0	MEDIUM	Q3	Q2	3	0	3

Paterson, J.M., Green, A., and Cary, J.(2002)	14	interactional justice; procedural justice	organizational competencies	2	Organization	11	23	0	POOR	Q2	Q2	2	0	2
Porter, L.W., Steers, R.M., Mowday, R.T., and Boulian, R.V.(1974)	42		Commitment to the organization	6	Commitment	4	15	0	POOR	Q2	Q1	4	0	4
Rizzo, J.R., House, R.J., and Lirtzman, S.I.(1970)	46		job characteristics	5	Position	11	15	0	POOR	Q2	Q2	0	1	1
Rizzo, J.R., House, R.J., and Lirtzman, S.I.(1970)	46		role conflict	5	Position	11	15	0	POOR	Q2	Q2	2	0	2
Rousseau, D.M.(1990)	26	relational psycological contract fullfillment; transactional psycological contract fullfillment	feeling	3	Individual	4	11	0	MEDIUM	Q1	0%	2	0	2
Russell, D., Peplau, L.A., and Cutrona, C.E.(1980)	36	emotional loneliness; social loneliness	maladjustment	14	Negative Outcomes	4	20	1	POOR	Q1	0%	2	0	2
Saucier, G.(1984)	32	extraversion; agreeacleness; conscientiousness; emotional stability; intellect, openess or imagintation	personality traits	3	Individual	4	40	1	POOR	Q1	Q1	2	2	4
Shaffer, M.A., and Harrison, D.A(2001)	15	cultural adjustment; interactional adjustment; personal adjustment	Cross-cultural adjustment	12	Adjustment	8	12	1	HIGH	Q2	0%	3	0	3

		(expat and spouse)												
Stening, B.W., and Hammer, M.R.(1992)	24	intercultural stress scale; intercultural communication scale; intercultural relationship scale	Effectiveness	13	Positive Outcomes	1	11	0	POOR	Q2	Q2	2	0	2
Takeuchi, R., Tesluk, P., Yun, S., and Lepak, D. (2005)	11	prior international work; prior international non work	past experience	7	Time	1	1	1	POOR	Q4	Q2	1	1	2
Takeuchi, R., Yun, S., and Russell, J.E.A.(2002)	14		permature termination	14	Negative Outcomes	1	3	0	MEDIUM	Q2	Q2	1	0	1
Takeuchi, R., Yun, S., and Russell, J.E.A.(2002)	14		pre-departure training	20	Coping Strategies	1	5	1	MEDIUM	Q1	Q2	1	2	3
Van der Zee, K.I., and Van Oudenhoven, J.P. (2000)	16	emotional stability; flexibility; open mindedness; social initiative	Harmony	13	Positive Outcomes	4	91	0	POOR	Q1	Q1	10	11	21
Van Dyne, L., Ang, S., and Koh, C.(2008)	8	behaviour; cognitive; metacognitive; motivational	cultural intelligence	4	Global Mindset	4	20	1	MEDIUM	Q1	Q1	0	4	4
Wayne, S.J., Shore, L.M., and Liden, R.C. (1997)	19		premature termination	14	Negative Outcomes	10	5	1	MEDIUM	Q3	Q2	2	0	2

Results

In this section we will be describing the outcomes from our Methodology, which resulted in *Table 3*. As mentioned, this table resumes the characteristics of the OSDS which were then computed to create our typology of scales.

Item development revealed to be composed by homogenous variables: only 5(8%) of the scales had reports of a panel of experts (Ang, S., van Dyne, L., Koh, C., and Ng, K.Y. (2007), Arthur, W., and Bennett, W. (1995), Dickmann, M., and Mills, T. (2010), Netemeyer, R.G., Boles, J.S., and McMurrian, R. (1996) and Van Dyne, L., Ang, S., and Koh, C.(2008)) and, on the contrary, almost all could be considered an empirical study (63 – 98%) with a preoccupation to include literature review (60 – 94%).

Regarding reliability, 72% of the OSDS reported internal consistency but only 72% (46) under the scope previously mentioned. Only 4 OSDS (6%) reported test-retest reliability (Amatea, E.S., Cross, E.G., Clark, J.E., and Bobby, C.L(1986), Miller, V.D., Allen, M., Casey, M.K., and Johnson, J.R.(2000), Paterson, J.M., Green, A., and Cary, J.(2002), Van der Zee, K.I., and Van Oudenhoven, J.P. (2000)).

The results of validity are as follows: Content validity 64% (41), Structural validity 66% (42), Internal construct validity (predictive) 55% (35) and External construct validity 17% (11). 10 OSDS reported exploratory factor analysis (16%) and 22 confirmatory factor analysis (34%).

As for our overall assessment, no scale achieved the maximum score of 6. Final ratings include 4,7% of the studies as of High Quality, 48,4% (31) as Medium Quality and 46,9% (30) as Poor Quality.

3 OSDS obtained 5 points:

- Ang, S., van Dyne, L., Koh, C., and Ng, K.Y (2007);
- Netemeyer, R.G., Boles, J.S., and McMurrian, R. (1996);
- Shaffer, M.A., and Harrison, D.A (2001).

Decomposing their characteristics, all included literature review, reported internal consistency, content validity, structural validity and Confirmatory Factor Analysis.

Only Shaffer, M.A., and Harrison, D.A (2001) did not have a panel of experts, Netemeyer, R.G., Boles, J.S., and McMurrian, R. (1996) did not report Internal Construct Validity and Ang, S., van Dyne, L., Koh, C., and Ng, K.Y(2007) did not report Exploratory Factor Analysis.

Interestingly none of these studies reported External Construct Validity. This parameter was only reported in 11 of the 64 studies.

Our 64 articles were, as stated, categorized by the typologies of McNulty & Brewster Glossary of Business Expatriates and Gonzalez-Loureiro et al. (2015) dictionary of descriptors and keywords.

Our samples are mainly constituted by S*ojourners, students and retirees* (37,5%, 24), *Parent country nationals* (20,3%, 13) and *assigned expatriates* (17,2%, 11). Most studies were carried out in the USA (or the authors are originally from that country) – 43.

After recoding this variable *Expatriates* sum 26,6% of the sample (17), *Managers & Professionals* 9,4% (6), *Nationals* 21,9% (14), leaving the remaining 42,2% in *Others* (27).

Regarding the categories, the most frequent descriptor is *Organization* (12), followed by *Individual* (10) and *Coping Strategies* (7). When categorized the constructs the most used were *Organizational Competencies* (7), *Pre-departure Training* (5) and *Cross-cultural Adjustment* (4). With the recoding the results yielded to 59,4% (38) *Antecedents*, 21,9% (14) as *Tools* and 18,8% (12) as Outcomes.

The number of items in each study ranged from 1 to 91, average 15,8, mode 6. The recoding into categories revealed that most studies fit the *11 to 20 items* category (22, 34,4%), and the remaining are similarly distributed, 13 studies report 0 *to 5 items* (20,3%), 15 studies report 5 *to 10 items* (23,4%) and 14 studies report *20+ items* (21,9%).

29 of the 64 scales (45,3%) were used integrally when reported in another study.

Most scales are at least 11 years old (N=2016), i.e 54,7% of the sample. Only 18,8% of the scales have less than 10 years (12), 23 (35,9%) have *11 to 20 years*, 21 (32,8%) have *21 to 30 years* and even 8 (12,5%) have 3*0+ years*.

In the 2007-2011 period most scales had *0 or 1 citation* (57,8%, 37), 13 (20,3%) had *2 citations*, 4 (6,3%) had *3 citations* and 10 scales had *4+ citations* (15,6%). Regarding the 2012-2016 period most scales had again *0 or 1 citation* (59,4%, 38), 12 (18,8%) had *2 citations* and 7 scales (10,9%) had both *3 citations* and *4+ citations*. As for the final citations 10 scales had *0 or 1 citation* (15,6%, 10), 29 (45,3%) had *2 citations*, 9 (14,1%) had *3 citations* and 16 scales had *4+ citations* (25%). Overall totals for the period 2007-2011 is 134 and 140 for the period 2012-2016.

These results show that no original article had Self-Initiated Expatriates as sample. Thus, *H1: The quality of the articles in which the sample is AEs will be higher than in of SIEs* is not validated but is not invalidated either, since we have no data to support either way. This may have different explanations:

1. Since SIEs studies are more recent than those of AEs, the original scales had a sample of AEs and were later adopted of SIEs.
2. SIEs scales were not published in peer-reviewed publications and thus not included in our revision.
3. SIEs scales are more recent than those of AEs and did not meet our criteria of having been used once besides publication.

Creation of the typology

With this data it was now possible to prepare the data set for the typology. Initially, a Frequencies analysis of our major variables was performed. Alongside our understanding/reading of the relevance of the data, we decided to recode them into the following variables:

- Sample Type
    1. Expatriates
    2. Others
    3. Managers& Professionals
    4. Nationals
- Construct Type:
    1. Antecedents
    2. Outcomes
    3. Tools
- Parsimony
    1. 0 to 5 items
    2. 5 to 10 items
    3. 15 to 20 items
    4. 20+ items
- Average Variation Coefficient Original Scale
    1. Q1 Original
    2. Q2 Original
    3. Q3 Original
    4. Q4 Original
    5. Missing Original
- Citations 2007-2011
    1. 0 or 1 citation
    2. 2 citations
    3. 3 citations
    4. 4+ citations
- Citations 2012-2016
    1. 0 or 1 citation
    2. 2 citations
    3. 3 citations
    4. 4+ citations
- Citations total
    1. 0 or 1 citation
    2. 2 citations
    3. 3 citations
    4. 4+ citations

The following variables were labelled:

- Adapted parsimony
    1. Not full use
    2. Full use

- Quality
    1. POOR
    2. MEDIUM
    3. HIGH

Two new variables were created and then recoded***:***

- Year to 2016
    1. 0 to 10 years
    2. 11 to 20 years
    3. 21 to 30 years
    4. 30+ years
- Average number of items per dimension
    1. Less than 4 items
    2. 4 to 8 items
    3. 8 to 12 items
    4. More than 12 items

The Frequencies of the dataset can be found in Attachment 5.

After having identified the variables to use, we aim to visualize, through the relative position of the individuals/categories, the statistical relations drawn between the variables being analysed (Carvalho, 2008). For that a Multiple Correspondence Analysis (MCA) was performed. MCA quantifies nominal (categorical) data by assigning numerical values to the cases (objects) and categories so that objects within the same category are close together and objects in different categories are far apart. Each object is as close as possible to the category points of categories that apply to the object. In this way, the categories divide the objects into homogeneous subgroups. Variables are considered homogeneous when they classify objects in the same categories into the same subgroups. As such, it can also be seen as a generalization of principal component analysis when the variables to be analysed are categorical instead of quantitative. MCA is used to analyse a set of observations described by a set of nominal variables. Each nominal variable comprises several levels, and each of these levels is coded as a binary variable. For example, gender, (F vs. M) is one nominal variable with two levels (Abdi & Valentin, 2007).

MCA has three main objectives:

(1) to provide a typology of the individuals, that is, to study the similarities between the individuals from a multidimensional perspective;

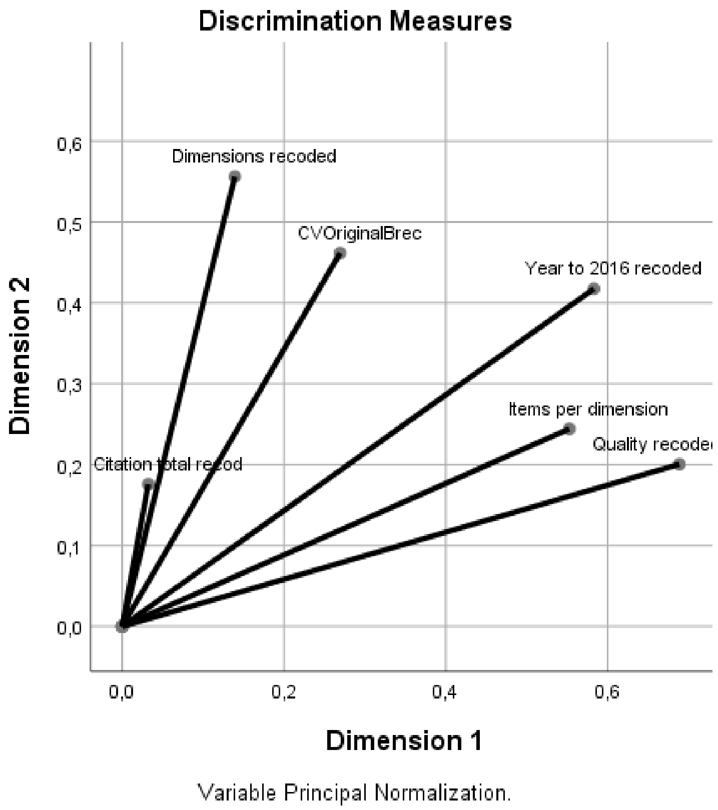
(2) to assess the relationships between the variables and study the associations between the categories; and

(3) to link the study of individuals and that of variables in order to characterize the individuals using the variables (Husson & Josse, 2014).

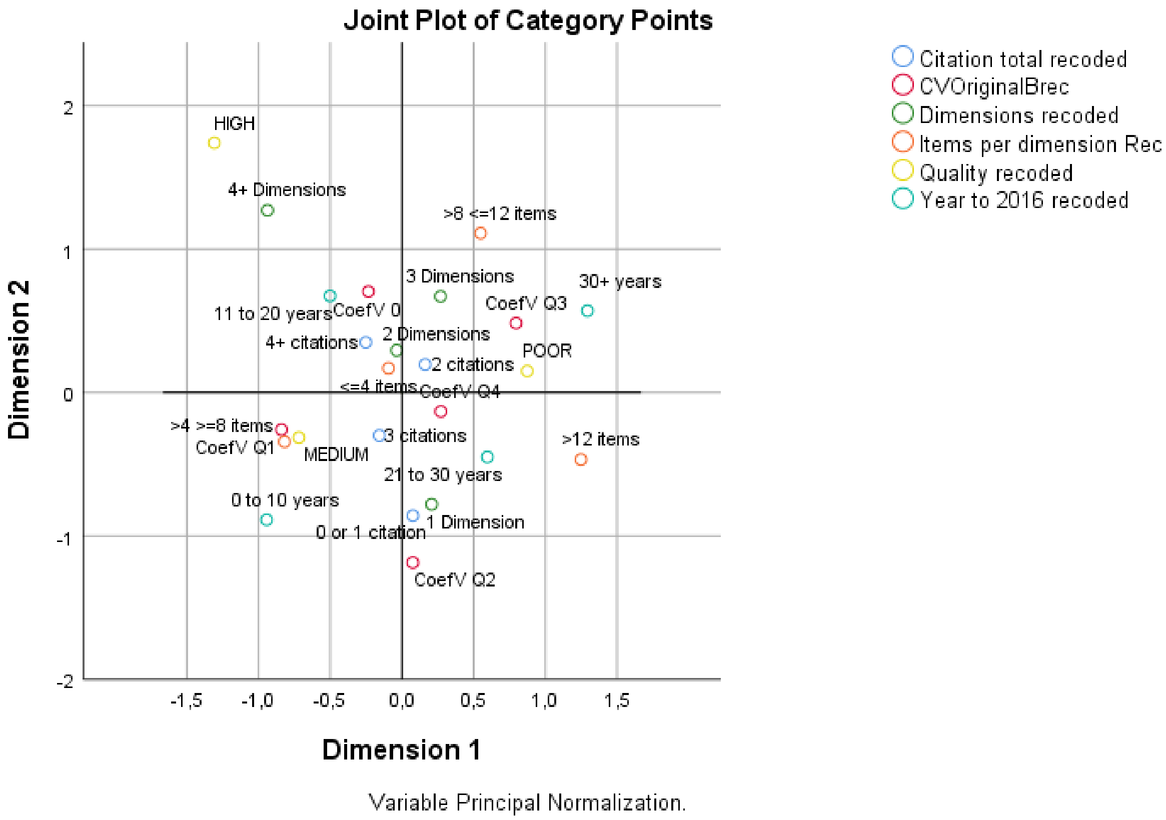
The purpose is a relational approach about the variables allowing the definition of groups. The description of those groups can contemplate two analytic vectors:

1) Identification of the specificity of the associations between the categories of the multiple variables under analysis, in order to gauge the profile of each group.
2) Observation of the relative positioning of the several groups. The analysis of the distance between groups allows the detection of relationships of association or opposition (Carvalho, 2008).

This graphic representation can be used as an element to interpret the dimensions. It allows a clear reading of the relationships between the variables while clarifying the importance of each of them in the space under analysis, as illustrated by the variables Dimensions, Quality or Year to 2016, when compared with Citation Total, for example.



Graphic 1: Discrimination measures



Graphic 2: Category Plot – Typology of scales

We can describe profiles according to the number of dimensions, the number of items and the years since publication to 2016.

In Q1 are present the scales with least quality, with 2 citations, which have been publish longer than 30 years ago, have between 8 as 12 items, 3 dimensions and have the CV in Q3. In Q2 are the scales of High quality, with 4 or more citations, with 4 or more dimensions that were published 11 to 20 years before 2016. Q3 illustrates scales with medium quality, with 4 to 8 items, with the CV on Q1, and published no more than 10 years before 2016. In Q4 the scales have more than 12 items, were published 21 to 30 years before 2016, with 0 or 1 citation and with CV in Q2.

Relationships and explanations

Hierarchical multiple regression was performed to investigate if psychometric parameters predicted the total number of citations of a scale. Then followed another HMR analysis to check if the same parameters alongside the citations in a previous period predicted the number of citations in a subsequent period. Since categorical predictor variables cannot be entered directly into a regression model and be meaningfully interpreted (Stockburger, 2016), some variables had to be transformed into dummy variables that have the values 0 or 1 (Attachment 6).

Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity.

In our first regression we attempt to investigate the relationships between the dependent variable Citations Total and several other independent variables. In hierarchical multiple regression the independent variables are entered in steps (blocks) and each variable assessed in terms of what it adds to the prediction of the dependent variable after the previous independent variables have been controlled for.

In the Model Summary Table, we look at the R Square, which is the proportion of variance in the dependent variable (citation total) which can be explained by the independent variables (quality, dimensions, items per dimension, year to 2016). This is an overall measure of the strength of association and does not reflect the extent to which any particular independent variable is associated with the dependent variable.

Model Summary

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	,103[a]	,011	-,005	9,583	,011	,668	1	62	,417
2	,300[b]	,090	,044	9,344	,079	2,608	2	60	,082
3	,300[c]	,090	,028	9,422	,000	,000	1	59	,983

a. Predictors: (Constant), Quality recoded

b. Predictors: (Constant), Quality recoded, Dimensions recoded, Items per dimension Rec

c. Predictors: (Constant), Quality recoded, Dimensions recoded, Items per dimension Rec, Year to 2016 recoded

Table 4: Model Summary of the 1st Hierarchical Regression Analysis

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	61,335	1	61,335	,668	,417[b]
	Residual	5693,602	62	91,832		
	Total	5754,938	63			
2	Regression	516,741	3	172,247	1,973	,128[c]
	Residual	5238,196	60	87,303		
	Total	5754,938	63			
3	Regression	516,784	4	129,196	1,455	,227[d]
	Residual	5238,153	59	88,782		
	Total	5754,938	63			

a. Dependent Variable: CitationTotal

b. Predictors: (Constant), Quality recoded

c. Predictors: (Constant), Quality recoded, Dimensions recoded, Items per dimension Rec

d. Predictors: (Constant), Quality recoded, Dimensions recoded, Items per dimension Rec, Year to 2016 recoded

Table 5: ANOVA of the 1st Hierarchical Regression Analysis

The variables of Model 1 explain 11% of variance of the variance in Citation Total. After Model 2 variables (dimensions and items per dimension) are included the model explained only 9%. The same, when added the variable year to 2016. Neither are statistically significant as indicated by Sig. F Change value above 0,05, which is again illustrated at the Anova table.

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	6,940	3,467		2,002	,050
	Quality recoded	-1,685	2,061	-,103	-,817	,417
2	(Constant)	5,314	5,448		,975	,333
	Quality recoded	-2,798	2,176	-,171	-1,286	,203
	Dimensions recoded	2,453	1,144	,268	2,144	,036
	Items per dimension Rec	-,658	1,147	-,076	-,574	,568
3	(Constant)	5,412	7,094		,763	,449
	Quality recoded	-2,821	2,432	-,173	-1,160	,251
	Dimensions recoded	2,455	1,157	,269	2,122	,038
	Items per dimension Rec	-,651	1,191	-,076	-,547	,586
	Year to 2016 recoded	-,033	1,515	-,003	-,022	,983

a. Dependent Variable: CitationTotal

Table 6: Coefficients of the 1st Hierarchical Regression Analysis

Despite this, of the 3 models Model 2 is the closer to being significant, with a Sig. F Change of 0,082. Then, in the Coefficients table, the variable Dimensions does have statistical significance with a sig. value of 0,036 and β=0,268. That is for every unit increase in Dimensions we expect an increase of 0,268 in Citations Total.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change
1	,091[a]	,008	-,008	5,087	,008	,513	1	62	,477
2	,254[b]	,065	,018	5,022	,056	1,807	2	60	,173
3	,261[c]	,068	,005	5,055	,003	,218	1	59	,642
4	,864[d]	,747	,725	2,655	,679	155,818	1	58	,000

a. Predictors: (Constant), Quality recoded

b. Predictors: (Constant), Quality recoded, Dimensions recoded, Items per dimension Rec

c. Predictors: (Constant), Quality recoded, Dimensions recoded, Items per dimension Rec, Year to 2016 recoded

d. Predictors: (Constant), Quality recoded, Dimensions recoded, Items per dimension Rec, Year to 2016 recoded, Citation20072011

Table 7: Model Summary of the 2nd Hierarchical Regression Analysis

As for the second hierarchical multiple regression, in which the constant was Citation 2012-2016 the results of R-Square show that in Model 4 74,7% of the variance in the Citations 2012-2016 is explained by the variables quality, dimensions, items per dimension, year to 2016 and Citations 2007-2011. Though the R Square Change the addition of the variable Citations 2007-2011 explained additional 67,9% of the variance in the dependent variable. This is significant contribution, as indicated by Sig. F Change value for this Model (0,000).

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13,276	1	13,276	,513	,477[b]
	Residual	1604,474	62	25,879		
	Total	1617,750	63			
2	Regression	104,444	3	34,815	1,380	,257[c]
	Residual	1513,306	60	25,222		
	Total	1617,750	63			
3	Regression	110,013	4	27,503	1,076	,376[d]
	Residual	1507,737	59	25,555		
	Total	1617,750	63			
4	Regression	1208,763	5	241,753	34,284	,000[e]
	Residual	408,987	58	7,052		
	Total	1617,750	63			

a. Dependent Variable: Citation20122016

b. Predictors: (Constant), Quality recoded

c. Predictors: (Constant), Quality recoded, Dimensions recoded, Items per dimension Rec

d. Predictors: (Constant), Quality recoded, Dimensions recoded, Items per dimension Rec, Year to 2016 recoded

e. Predictors: (Constant), Quality recoded, Dimensions recoded, Items per dimension Rec, Year to 2016 recoded, Citation20072011

Table 8: ANOVA of the 2nd Hierarchical Regression Analysis

The ANOVA table indicates that the model as a whole (which includes both blocks of variables) is significant. F (5, 58) = 34,29, p < .0005.

Checking the Standardized Coefficient (Beta values) and Sig. the best predictor of Citations 2012-2016 is Citations 2007-2011 (β=0,87 ; sig<0,05). The Standardized Beta values indicate also the number of standard deviations that scores in the dependent variable would change if there was 1 standard deviation unit change in the independent variable. That is for every unit increase in Citations 2007-2011 we expect an increase of 0,873 in Citations 2012-2016. This equation for the regression would be:

$$
\begin{aligned}
&Citations\ Total \\
&\qquad = 2{,}001 - 0{,}056\ Quality - 0{,}034\ Dimensions \\
&\qquad + Items\ per\ dimension - 0{,}128\ Year\ to\ 2016 \\
&\qquad + 0{,}873\ Citations\ 2007 - 2011
\end{aligned}
$$

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	3,424	1,840		1,861	,068
	Quality recoded	-,784	1,094	-,091	-,716	,477
2	(Constant)	3,038	2,928		1,038	,304
	Quality recoded	-1,335	1,170	-,154	-1,141	,258
	Dimensions recoded	1,063	,615	,219	1,728	,089
	Items per dimension Rec	-,383	,616	-,084	-,621	,537
3	(Constant)	4,162	3,806		1,094	,279
	Quality recoded	-1,597	1,305	-,185	-1,224	,226
	Dimensions recoded	1,085	,621	,224	1,748	,086
	Items per dimension Rec	-,311	,639	-,068	-,487	,628
	Year to 2016 recoded	-,379	,813	-,070	-,467	,642
4	(Constant)	3,022	2,001		1,510	,137
	Quality recoded	-,481	,691	-,056	-,696	,489
	Dimensions recoded	-,164	,341	-,034	-,481	,632
	Items per dimension Rec	-,001	,337	,000	-,003	,997
	Year to 2016 recoded	-,695	,428	-,128	-1,625	,110
	Citation20072011	,912	,073	,873	12,483	,000

a. Dependent Variable: Citation20122016

Table 9: Coefficients of the 2nd Hierarchical Regression Analysis

The second hierarchical multiple regression analysis supports H3: The citation in the last five-year period is dependent on the citation that occurred in the previous five-year period as there is a relevant statistical relationship between the increase of Citations in 2012-2016, due to the Citations in 2007-2011, when all other variables are controlled.

However, none of the regressions support H2: The number of citations of a scale is positively related to its quality (variable quality as predictor of citations total). This is an important empirical remark, as it demonstrates that the authors are not using, citing and adopting the scales with more quality (according to the previously described assessment of scales). It was also expected that *H4: The scales that were published before will be more used than the most recently published* (variable year to 2016 as predictor of citations total), as even if they were not the ones that presented better psychometric properties, it would be predictable that research from the 1980's and 1990's, when many studies on the field were published, would be more cited, thus the larger the period since the publication to 2016, the more citations a publication would have.

Limitations, Implications and Future Research

Even though a systematic review primes for its rigour, the current study does show some limitations. As mentioned, only studies in the English language were included, which means that even if instruments of good quality were published in other languages we have not assessed them.

Another limitation is associated with the number of scales reported. Only with the development of the study did we realise its full potential and understood the number of articles with which we would be working. The decision to cover ten years of research is attached to the possibility of reaching relevant conclusions about adoption and possible innovations regarding the scales under analysis. This is way, as reported in the methodology, the criteria involved including articles which had been used at least once besides publication. This means the exclusions of some scales which could have great potential. However, we consider this decision prevented an enlarged list of references, beyond common standards of publication. Future research may include a broader range of articles included, as those cited once (moment of publication).

Also, the decision to use only references covered on the ISI Web of Knowledge database might be a matter of critic due to publication bias. However, this decision was taken, since it allows to use criteria that we consider quite important, such as the number of citations associated with the paper in which the scale was originally published.

In Dabic et al. (2015) the top-3 journals publishing articles related to expatriates were the International Journal of human Resource Management, the Journal of World Business and the Journal of International Business Studies. Interestingly, when it comes to our sample, the articles were originally published in (1st) the Journal of Applied Psychology, (2nd) the Academy of Management Journal and (3rd) the Journal of International Business Studies (Attachment 7 and 8). This may direct researchers to literature that they would not think of at first sight (management/HRM would probably come before) but that shed light on the importance of bringing closer different areas of research, with the purpose of enriching them.

Using Gonzalez-Loureiro et al. (2015) tipology (Attachment 4), when it comes to the topics (keywords), it is relevant to highlight what are the most common in our sample when comparing with previous expatriation studies. In Dabic's et al. (2015), assignement/s, adjustment, management, performance and culture stand out (expatriate and international not considered for not being comparable, not a topic), as for Gonzalez-Loureiro et al. (2015) organization, context, negative outcomes, adjustment are the most representative (Attachments 9 and 10). Considering our sample, organization, individual, coping strategies, adjustment, negative and positive outcomes are the topics to feature. We believe it is fair to conclude that the topics are similar, that is, our quantitative studies of expatriates are representative of the overall studies done in the field. Yet, it is important to emphasise that from our analysis of quantitative studies of expatriates some topics that are central to HRM appear to be under-represented: appraisal (3%), compensation (3%), socialization (3%) (Attachment 11). Future research could develop these topics when it comes to quantitative studies.

The typology created is very visual and helps anyone who is looking to understand the main psychometric characteristics of the scales under assessment. It allows the observation of the layout of the multiple variables, while at the same time helps in the selection of the variables that better define any of the dimensions in reference.

Moreover, since it was demonstrated that the scales of more quality are not the most being used the most authors and researchers could use the systematization performed to identify scales with more quality or that at least confirm the psychometric properties reported before choosing an instrument. This would likely increase their usage and overall increase the quality of the studies published in the field.

The fact that our research showed no relationship between the number of years since publication to 2016 and the number of citations a publication had is a sign of health in the state of research in the field. It is an indicator that more recent publications also have space and have the possibility to be as adopted as have older ones.

Overall is very interesting to understand that the scales with better psychometric properties are not the ones more used in research, that is, the ones with more citations, the key instrument of social reproduction in research. On the other hand, once a scale becomes “popular” its use becomes more common and perpetuates, despite its quality. The recognition of this fact is a strong conclusion. Moving forward, is the researchers job to acknowledge this while choosing a scale, being aware that they can make a decision without the bias of previously common adoptions. This way, even if our research is not used to guide decision based on the quality/description of the scales, it is, at least, a warning sign that makes researchers wonder – why am I choosing this scale?

This study also has implications mainly for future theoretical studies. Firstly, it opens the doors of, specifically, expatriation, and broadly, Human Resources Management, to systematic reviews of characteristics of measurement scales. Future research associated to this may include the replication of this study, a broader spectrum within this theme, or a similar methodology covering other time range. As for other fields within HRM, the methodological rigor that the PRISMA allows is of the upmost interest to the area.

Regarding the objectives of the study, we highlight the unveil of the strengths and weak spots of each study included in research. Thus, for future researchers a lot of effort is made in identifying the existing scales within the field, their characteristics and quality assessment. This way, authors will be able to sustain their choices of a scale, based on characteristics previously assessed.

Again, on broader terms it may guide researchers into following "good practices" in constructing or adopting scales, as we address and highlight the characteristics which exacerbate its potential and reasons to be chosen.

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Attachments

Attachment 1

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	

Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	

Section/topic	**#**	**Checklist item**	**Reported on page #**
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	

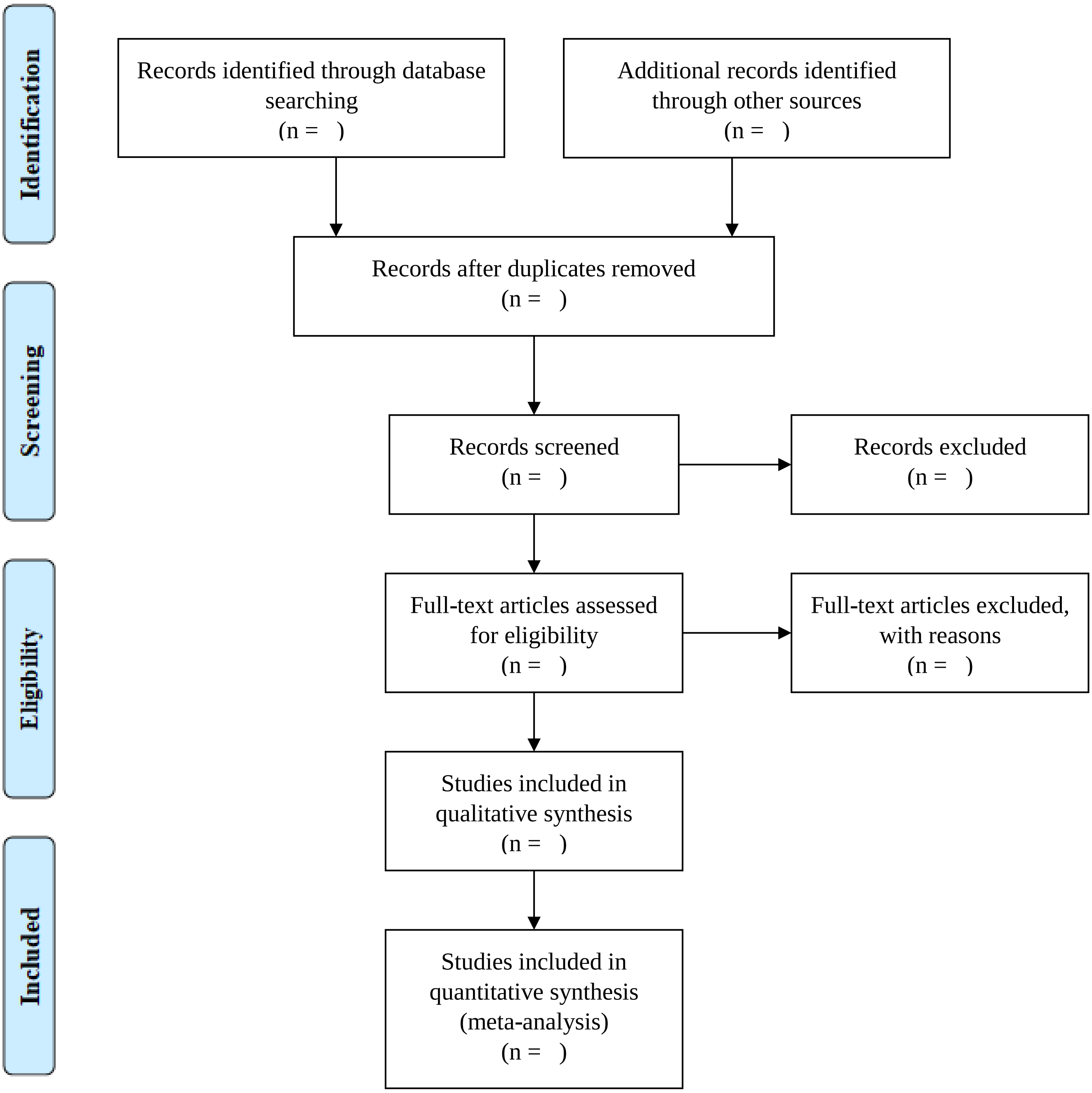
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit: **www.prisma-statement.org**.

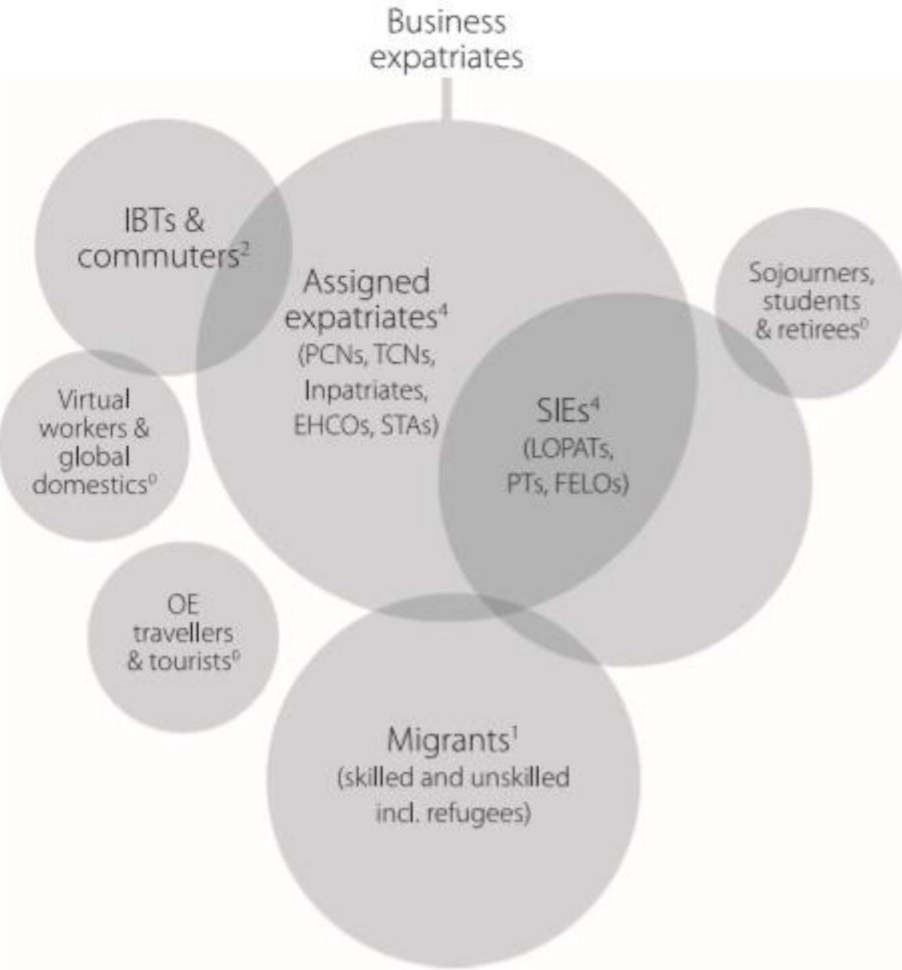
Attachment 2

PRISMA 2009 Flow Diagram



Attachment 3

McNulty & Brewster Glossary of Business Expatriates



Attachment 4

Gonzalez-Loureiro et al. (2015) dictionary of descriptors and keywords

Table 1

Dictionary of descriptors and keywords. Descriptors arisen from the review of 389 articles on "acculturation" and forms of overseas assignments (e.g. expatriates, glopatriates, flexpatriates, . . .).

Antecedents, moderator or mediating variables

Descriptor (short name)	Keywords (content)
1. Context	Contextual factors; socio-cultural; economic; historical; political; host country; home country; national culture; cultural distance; cultural tolerance; globaliz(s)ation; economic development; similarity of social institutions; similarity of language; cultural taboos.
2. Organization	Strategy; firm culture; organizational culture; parent organization; headquarter(s); host organization; host enterprise; subsidiary/ies; MNC structure; strategic planning; organiz(s)ational support; organiz(s)ational assistance; succession planning; organiz(s)ational (dynamic) competencies; staffing; recruitment; repatriation program.
3. Individual	Personality traits; extroversion; agreeableness; conscientio(us)sness; neuroticism; openness to experience; technical competence; behavior(u)r; skill; ability/ies; feeling(s); individual competencies; talent; entrepreneurial orientation; lived experience; motivation; individual tolerance; managerial resourcefulness; managerial competence; technical competence; cross-cultural experience; relational skills; individual life cycle; intercultural experience; marital status; relocation experience; personality type; cultural toughness; culturally tough; self-oriented; others-oriented; perception; mental health; mood; emotion; sensitivity; cultural adaptability.
4. Global mindset	Global mind(-)set; cultural intelligence; cognitive intelligence; motivational intelligence; metacognitive intelligence; global business orientation; open-minded; psychological capital; cosmopolitanism; thinking globally; openness to cultural diversity; global state of mind; propensity to engage; ability to adapt; curiosity; seeking opportunities; glocal.
5. Position	Hierarchical level; job characteristics; role conflict; position in organiz(s)ation; character of the position; focus of position; manager.
6. Commitment	Commitment to the organization; commitment to assignment.
7. Time	Time of stay; length of stay; temporary; semi-permanent basis; permanent basis; short term; long term; overseas experience; past experience; previous experience; international experience; extended time period; endurance.
8. Diversity	Diversity workforce; multiculturalism; multicultural workforce; cultural autonomy; third culture; hyper-diversity; super-diversity; intercultural; cosmopolitan.
9. Family	Family acculturation; family adjustment; adolescent; teen; teenager; children; espouse; husband; Family context; dual career issues.
10. Ethnic relations	Ethnic stereotypes; ethnic attitudes; ethnic prejudice; multicultural ideology; security; discrimination.

Outcomes

Descriptor (short name)	Keywords (content)
11. Acculturation	Acculturation; acculturation process; acculturative; mutual accommodation; psychological adjustment(s); psychological adaptation(s); sociocultural adjustment(s); sociocultural adaptation(s); contact participation; cultural adaptation; cultural maintenance; behavior(u)ral shift(s); cultural identity; re-acculturation; cultural maintenance-contact; cultural maintenance-adoption; exposure to cultural norms.
12. Adjustment	Cross-cultural adjustment; work adjustment; adjustment to work; cross-cultural management; adjustment to interacting; adjustment to the general environment; tolerance.
13. Positive outcomes	Harmony; effectiveness; success; life satisfaction; social success; distressing; satisfaction.
14. Negative outcomes	Stress; acculturative stress; failure; premature termination; life dissatisfaction; social dysfunction; conflict; tension; rejection; maladjustment; misfit; strain(s); daily hassles; ill; illness; unhealthy; trauma; traumatiz(s)ed; neurosis; anxiety; depressed; depression.

Tools and orientations for managing acculturation

Descriptor (short name)	Keywords (content)
15. Assimilation	Assimilation; melting pot.
16. Separation	Separation, segregation.
17. Integration	Integration; biculturalism.
18. Marginalization	Marginalization; deculturation; culturelessness; exclusion.
19. Socialization	Socialization; social support; social activity; shopping; social networking.
20. Coping strategies	Acculturative learning; mentoring; pre(-)departure selection; pre(-)departure training; emotion-focused coping strategies; problem-focused coping strategies; withdrawal; palliative coping; becoming socially integrated; avoidance; cognitive avoidance; problem reappraisal; situation control; ethnocentrism; positive comparison; resignation; negative comparison; seeking task help; expectation change; relationship building; empathizing; culture learning; planful problem solving; refusing responsibility; confrontation; self-control; giving task help; reinforcement substitution; micro(-)politics; focusation; seeking emotional support; giving emotional support; cultural change; development program; pre(-)departure training; organizational support; cross-cultural training.
21. Appraisal	Appraisal; assessment; performance; monitoring process; remedial action program; feedback.
22. Compensation	Compensation; reward; economically fair; global stock options; salary; international compensation.

Forms of overseas assignments

Descriptor (short name)	Keywords (content)
23. Expatriate	Expatriate.
24. Glopatriate	Glopatriate; cultural nomad; global career.
25. Flexpatriate	Flexpatriate.
26. Inpatriate	Inpatriate; impatriate; patriate; inpatriation; impatriation; patriation.
27. Repatriate	Repatriate; repatriation.

Table 1 (*Continued*)

Geographical areas

Descriptor (short name)	Keywords (content)
28. Europe	EU/Europe/European; North-European; Czech; Finland; Germany/German; Dutch; Greece; Poland; Russia/Russian/Soviet; Spain; UK/England/British.
29. North America	Canada/Canadian; The USA/United-States/United States/USA/California.
30. Latin America and the Caribbean	Brazil; Mexico/Mexican.
31. Asia-Pacific	Australia/Australian; Japan/Japanese; Korea; New Zealand.
32. South-East Asia	Asia/Asian; China/Chinese; Hong-Kong; India; Malaysia; Singapore/Singaporean; Taiwan/Taiwanese; Viet Nam/Viet Namese.
33. Middle East (West Asia)	Arab/Arabia Saudi; Israel; Jordan; Kazakhstan; Kuwait.
34. Africa	Africa/African; Afghan/Afghanistan; Algeria/Algerian; Egypt; Nigeria; South-Africa; Sudan; Syria/Syrian.

Source: own draft from content analysis of the sample of 389 articles.

Attachment 5

Construct Type recoded

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Antecedents	38	59,4	59,4	59,4
	Outcomes	12	18,8	18,8	78,1
	Tools	14	21,9	21,9	100,0
	Total	64	100,0	100,0	

Parsimony recoded

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 to 5 items	13	20,3	20,3	20,3
	11 to 20 items	22	34,4	34,4	54,7
	20 + items	14	21,9	21,9	76,6
	5 to 10 items	15	23,4	23,4	100,0
	Total	64	100,0	100,0	

AdaptedParsimony

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not full use	35	54,7	54,7	54,7
	Full use	29	45,3	45,3	100,0
	Total	64	100,0	100,0	

Quartile Av Variation Coef Original Scale recoded

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Q1	12	18,8	18,8	18,8
	Q2	11	17,2	17,2	35,9
	Q3	12	18,8	18,8	54,7
	Q4	12	18,8	18,8	73,4
	Missing	17	26,6	26,6	100,0
	Total	64	100,0	100,0	

Quartile Av Variation Coef Adapted recoded

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Q1	15	23,4	23,4	23,4
	Q2	13	20,3	20,3	43,8
	Q3	14	21,9	21,9	65,6
	Q4	14	21,9	21,9	87,5
	Missing	8	12,5	12,5	100,0
	Total	64	100,0	100,0	

Citation 2007-2011 recoded

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 or 1 citation	37	57,8	57,8	57,8
	2 citations	13	20,3	20,3	78,1

	3 citations	4	6,3	6,3	84,4
	4+ citations	10	15,6	15,6	100,0
	Total	64	100,0	100,0	

Citation 2012-2016 recoded

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 or 1 citation	38	59,4	59,4	59,4
	2 citations	12	18,8	18,8	78,1
	3 citations	7	10,9	10,9	89,1
	4+ citations	7	10,9	10,9	100,0
	Total	64	100,0	100,0	

Citation total recoded

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0 or 1 citation	10	15,6	15,6	15,6
	2 citations	29	45,3	45,3	60,9
	3 citations	9	14,1	14,1	75,0
	4+ citations	16	25,0	25,0	100,0
	Total	64	100,0	100,0	

Attachment 6

Frequencies – Regression Analysis preparation

Statistics

		CVOriginalBrec	CVOriginalBdumm
N	Valid	64	64
	Missing	0	0
Mean		1,7969	,2813
Std. Deviation		1,47120	,45316

Frequency Table

CVOriginalBrec

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	,00	18	28,1	28,1	28,1
	1,00	11	17,2	17,2	45,3
	2,00	12	18,8	18,8	64,1
	3,00	12	18,8	18,8	82,8
	4,00	11	17,2	17,2	100,0
	Total	64	100,0	100,0	

CVOriginalBdumm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	,00	46	71,9	71,9	71,9
	1,00	18	28,1	28,1	100,0
	Total	64	100,0	100,0	

Attachment 7

Dabic et al. (2015) top 3 journals

Table 2. Top-25 journals publishing articles related to expatriates.

Journal title	*Record count*	*Percentage share of 438*	*Bar chart*
1. *International Journal of Human Resource Management*	138	31.507	
2. *Journal of World Business*	44	10.046	
3. *Journal of International Business Studies*	30	6.849	

Attachment 8

Research top 3 journals

Journals	**Count /study**	
Journal of Applied Psychology	8	15%
Academy of Management Journal	4	7%
Journal of International Business Studies	4	7%

Attachment 9

Dabic et al. (2015) most frequent research topics

Table 5. Main words used as keywords (explaining 60% of cases).

Keywords	*Number of papers*	*Percentage share of papers (n = 438) (%)*	*Share of frequency Σfreq = 3675 (%)*	*Cumulative share of frequency (%)*
Expatriate/s	232	53.0	6.3	6.3
Assignment/s	162	37.0	4.4	10.7
Adjustment	148	33.8	4.0	14.7
Management	143	32.6	3.9	18.6
International	143	32.6	3.9	22.5
Performance	116	26.5	3.2	25.7
Cultural/culture	104	23.7	2.8	28.5
MNCs/multinationals/ corporations	100	22.8	2.7	31.2

Attachment 10

Gonzalez-Loureiro et al. (2015) most frequent research topics

Table 2
Largest past research focus (*).

Descriptors	P1: 1976–2004		P2: 2005–2014		Total	% to total
	#	% to total	#	% to total		
Organization	50	7.01%	151	8.42%	201	8.02%
Context	42	5.89%	144	8.03%	186	7.42%
Negative outcomes	56	7.85%	144	8.03%	200	7.98%
Adjustment	31	4.35%	142	7.92%	173	6.90%
Individual	52	7.29%	128	7.13%	180	7.18%
Inpatriate	67	9.40%	127	7.08%	194	7.74%
Position	40	5.61%	110	6.13%	150	5.98%
Expatriate	57	7.99%	108	6.02%	165	6.58%
Acculturation	64	8.98%	99	5.52%	163	6.50%

Attachment 11

Count of topics per study

Topics	Count/study	
Organization	12	19%
Individual	11	17%
Coping Strategies	7	11%
Adjustment	4	6%
Negative Outcomes	4	6%
Positive Outcomes	4	6%
Family	3	5%
Global Mindset	3	5%
Position	3	5%
Appraisal	2	3%
Commitment	2	3%
Compensation	2	3%
Context	2	3%
Socialization	2	3%
Time	2	3%
Separation	1	2%