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Testing Invariance in Risk Taking: A Comparison Between Anglophone and Francophone Groups [*]

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Résumé / *Abstract*

Le présent article se penche sur l'invariance des mesures de trois construits corrélés pour deux groupes échantillonnés issus de populations adultes anglophones et francophones. Des analyses factorielles confirmatoires de groupes multiples ont été conduites sur les structures factorielles de l'échelle *Domain-Specific Risk-Taking* (DOSPERT) (Weber, Blais, et Betz, 2002), de l'échelle de prise de risque de l'inventaire de personnalité (Personality Inventory) de Jackson (Jackson, 1994), et de l'échelle de recherche de sensations (Sensation-Seeking Scale) de Zuckerman (Zuckerman, 1980; 1994) aussi bien à l'intérieur de deux groupes de 172 participants anglophones et de 187 participants francophones qu'entre ces deux mêmes groupes. Nous discutons des propriétés psychométriques des instruments originaux et traduits, de même que de la pertinence d'utiliser ces échelles au sein des populations en question.

> **Mots clés** : échelle psychométrique, invariance des mesures, prise de risques, recherche de sensations

This article investigates the measurement invariance of 3 related constructs across 2 groups sampled from Anglophone and Francophone adult populations. Multiple-group confirmatory factor analyses explored the factor structures of the Domain-Specific Risk-Taking (DOSPERT) Scale (Weber, Blais, & Betz, 2002), the Risk-Taking scale of the Jackson Personality Inventory (Jackson, 1994), and the Sensation-Seeking Scale (Zuckerman, 1980; 1994) both within and between the 2 groups of 172 Anglophone and 187 Francophone participants. The psychometric properties of the original and translated instruments are discussed, as is the meaningfulness of using these scales in these populations.

> **Keywords:** *measurement invariance, psychometric scale, risk taking, sensation seeking*

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(In)Consistencies in Risk Taking

In many situations – across all spheres of life – people behavior is attributed to their purported *risk attitudes*, or willingness to take risks, and risk attitude often is used as a selection criterion. For example, startup companies may look for risk-loving new employees and investment firms may try to match up their financial advisors with specific clients based on similarity in risk attitude. These examples show how individual differences in risk attitudes can impact work-related or personal decisions involving risk or uncertainty and as such, should be considered in models of risky choice. Unfortunately, the measures of risk attitude commonly used in Judgment and Decision Making (J/DM) research have proven unsatisfactory for a variety of reasons.

Risky decision-making research has traditionally relied on the expected utility (EU) framework and its variants, including prospect theory (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992). *Risk attitude* – typically in the form of degree of risk aversion – is defined in this framework as a parameter that specifies the utility function that best fits the choices of a given individuals and is simply a descriptive label for the concavity or convexity of the utility function. One problem is that different methods of assessing a person's utility function can lead to different risk-aversion parameters (Slovic, 1964).

This EU-definition of risk attitude also proves to be problematic when one thinks of risk attitude as a stable personality trait, because people's risky choices (and their associated utility functions) are often inconsistent across different domains and situations, both in laboratory studies and managerial contexts (Schoemaker, 1990). MacCrimmon and Wehrung (1986, 1990) found, for example, that business managers show different degrees of risk taking in gambling,

financial investing, business, and personal decisions, and thus appear to have different risk attitudes when making decisions involving personal versus company money, or when evaluating financial versus recreational risks.

Given the inconsistency of EU-based assessments of risk attitude, measurement scales derived from them have not had much success in predicting people's choices or behavior across a range of situations (Bromiley & Curley, 1992). As a matter of fact, the observed *content-specificity* of people's responses suggests that choices should not be combined across content domains. Nevertheless, the *Choice Dilemma Questionnaire* (*CDQ*; Kogan & Wallach, 1964), a commonly used scale, assesses people's risk taking attitude by presenting 12 dilemmas from different domains of life; the 12 responses are then combined into a single score that allegedly represents a person's risk taking attitude. Regardless of its obvious deficiencies, the scale is still in use, mainly for lack of better alternatives.

The Risk-Return Framework of Risky Choice

In order to address some of the problems outlined above, researchers have recently argued that risk attitude may be better conceptualized in the risk-return framework of risky choice imported from finance (Bell, 1995; Jia & Dyer, 1997; Markowitz, 1959; Sarin & M. Weber, 1993). Psychological risk-return models consider *perceived risk* as a variable that can differ between individuals and as a function of content and context (Weber, 1998). This decomposition of *observed behavior* into a *trade off between perceived benefits and perceived risks* – with a person-specific willingness to trade off units of returns for units of risk – provides for multiple ways in which characteristics of the decision maker and/of the situation can affect choices under risk (Weber & Hsee, 1998; Weber & Milliman, 1997).

Empirical investigations have revealed systematic situational, individual, group, and cultural differences in perceptions of the riskiness of risky choice options (Bontempo, Bottom, & Weber, 1997; Slovic, 1997; Weber, 1988), as well as in the perception of their perceived benefits (Johnson, Wilke, & Weber, 2004). After accounting for differences in the perception of the risk or returns of choice alternatives however, people's *perceived-risk attitude* – or their willingness to trade off units of risk for units of return – has shown considerable cross-group and cross-situational consistency (Weber, 1998), suggesting that this "trade-off" construct might indeed be a relatively stable personality trait. Weber, Blais, and Betz (2002) and Blais and Weber (2006) have started to investigate this contention with promising results.

Dispositional Tendencies in Risk Taking

This research is based on the premise that the domain-specificity of risk taking arises primarily from differences in the perception of the risks (and possibly benefits) of choice alternatives in different content domains, whereas perceived-risk attitudes are stable across situations, consistent with their biological basis. Plenty of evidence suggests that, when appropriately assessed, individual differences on stable, dispositional traits such as sensation seeking do indeed predict risk taking in various decision-making situations (e.g., Zuckerman, 1994). Zuckerman and Kuhlman (2000) documented the influence of such a dispositional trait in six areas of life (i.e., smoking, drinking, drugs, sex, driving, & gambling), discussing biological markers (e.g., the D4 dopamine receptor gene) associated with risk taking and sensation seeking and presenting a biosocial model of risk taking.

*The Do*main-*Spe*cific *R*isk-*T*aking (DOSPERT) *Scale*

In order to fill the need for an individual-difference measure of risk taking in J/DM

research – and inspired by the risk-return framework outlined above – Weber, et al. (2002) developed a psychometric scale to assess risk taking, the *Domain-Specific Risk-Taking (DOSPERT)* Scale, that allows researchers and practitioners to assess both *conventional risk* attitudes (defined as the *self-reported degree of risk taking*) and *perceived-risk* attitudes (defined as the *tradeoff between perceived risks and benefits*) in five commonly encountered content risk domains (*ethical*, *financial* – which can be further decomposed into gambling and investment – *health/safety*, *social*, and *recreational* decisions).

The DOSPERT scale has been used and its factor structure replicated in a wide range of settings, populations, and cultures (e.g., Hanoch, Johnson, & Wilke, 2006; Johnson, et al., 2004; Zuniga & Bouzas, 2005). Harrison, Young, Butow, Salkeld, and Solomon (2005, p. 10) commended it for being "relevant to a clinical environment as they directly measure risk propensity across a number of everyday situations, including the propensity to take health-related risks," and for its simultaneous measurement of multiple risk constructs such as risk-taking, risk perceptions, and perceived-risk attitude.

To facilitate the use of the DOSPERT Scale in a broader range of applied settings, this paper examines a revision of the original Weber et al. (2002) DOSPERT scale that had been developed for and validated with American college undergraduates. The revised scale (Blais & Weber, 2003) is both shorter (30 items, reduced from the original 40) and applicable to respondents from a broader set age groups, cultures, and educational levels. For example, "Disagreeing with an authority figure on a major issue," now replaces "Disagreeing with your father on a major issue." Similarly, "Passing off somebody else's work as your own," becomes a more general version of "Plagiarizing a term paper."

Assessing the Risk and Related Constructs

Given the growing interest to administer the DOSPERT Scale across cultures and languages (e.g., Germany, Italy, Holland, Mexico), the current article inspects the measurement model of the revised instrument in two cultural settings. The DOSPERT Scale has been translated into several languages, but a North-American French translation of the instrument has not, thus far, been developed; the current paper fills this need. The revised DOSPERT Scale was administered to Anglophone and Francophone North Americans from a broad range of ages and educational levels. The two groups share similar socio-political and economic environments yet differ in language, past history, and other cultural heritage.

Thus one of the objectives of the present study was to examine the measurement model associated with the DOSPERT scale via single- and multiple-group confirmatory factor analyses, in order to investigate its invariance across the two groups. A secondary aim was to perform similar analyses with respect to the two related, but slightly different constructs previously mentioned: sensation seeking and *dispositional* (as apposed to *situational)* risk-taking. To our knowledge, no other study has formally – that is, through multiple-group confirmatory factor analyses – compared such measurement models simultaneously in Anglophone and Francophone North Americans.

Method

Materials

Situational (domain-specific) risk-taking – The DOSPERT Scale. To generate a short version of the scale with items that would be interpretable by a wider range of respondents in different cultures, the 40 items of the original scale were revised, utilizing feedback received from previous users of the scale in different cultures, and eight new items were added. The

response scale was modified slightly by increasing the number of scale points from 5 to 7 and by labeling all of them (i.e., instead of just the two endpoints) in an effort to increase the psychometric quality of the scale (Visser, Krosnick, & Lavrakas, 2000). A new set of 48 items was administered to 372 anglophone and 394 francophone respondents. Each of the two groups was randomly split into two sub-groups. Data from one sub-group were analyzed in an exploratory manner and resulted in a 30-item model that was tested through confirmatory factor analyses using the other sub-group of each culture (Blais, & Weber, 2003; Blais, Montmarquette, & Weber, 2003).

The *risk-taking* responses of the 30-item version of the DOSPERT scale evaluate behavioral intentions, that is, the likelihood with which respondents might engage in risky activities/behaviors originating from five domains of life (ethical, financial, health/safety, social, and recreational risks)- using a 7-point rating scale ranging from 1 (*Extremely Unlikely*) to 7 (*Extremely Likely*).[1] Sample items include "Having an affair with a married man/woman" (*Ethical*), "Investing 10% of your annual income in a new business venture" (*Financial*), "Engaging in unprotected sex" (*Health/Safety*), "Disagreeing with an authority figure on a major issue" (*Social*), and "Taking a weekend sky-diving class" (*Recreational*). Item ratings are added across all items of a given subscale to obtain subscale scores. Higher scores indicate greater risk taking in the domain of the subscale. The *risk-perception* responses evaluate the respondents' gut level assessment of how risky each activity/behavior is on a 7-point rating scale ranging from 1 (*Not at all*) to 7 (*Extremely Risky*).[2] Ratings are again added across all items of a given subscale to obtain subscale scores, with higher scores suggesting perceptions of greater risk in the domain of the subscale.

In addition to adequate internal consistency reliability estimates, Weber, et al., 2002 reported moderate test-retest reliability estimates (albeit for an earlier version of the instrument) and provided evidence for the factorial and convergent/discriminant validity of the scores with respect to constructs such as sensation seeking, dispositional risk taking, intolerance for ambiguity, and social desirability. Construct validity was also assessed via correlations with the results of a risky gambling task as well as with tests of gender differences.

A French translation of the DOSPERT scale was developed for this study using the method of back-translation, where an instrument is translated from the source to the target language then is independently translated back into the source language, and finally the two versions of the instrument are compared until all discrepancies in meaning are resolved (Brislin, 1970).

Sensation seeking. Consistent with Weber et al. (2002), the 40-item *Sensation-Seeking Scale* version V (*SSS*; Zuckerman, 1994) was used in the present study. Widely known and used, the SSS assesses an individual's general disposition to seek novel, varied, complex, and intense experiences, and to take risks for their sake. Four factors, each defined by 10 forced-choice items, characterize the trait: *Boredom Susceptibility* (*BS*; higher scores suggest a greater desire to avoid unchanging, repetitive situations), *Disinhibition* (*Dis.*; higher scores indicate a greater need to disinhibit behavior in social situations), *Experience Seeking* (*ES*; higher scores are associated with a greater tendency to gravitate towards sensations through the senses/mind by leading an unconventional lifestyle), and *Thrill and Adventure Seeking* (*TAS*; higher scores are indicative of a greater inclination to engage in adventurous, risky, and exciting sports and activities).

Participants indicate, for each of the 40 forced-choice items, which of the two choices most describes their preferences or feelings. Sample items include "I get bored seeing the same

old faces/I like the comfortable familiarity of everyday friends," (BS), "The worst social sin is to be rude/The worst social sin is to be a bore," (Dis.), "I have tried marijuana or would like to/I would never smoke marijuana," (ES), and "I prefer the surface of the water to the depths/I would like to go scuba diving," (TAS).

In English-speaking samples, the four factors have been, for the most part, supported (especially the Dis., ES, and TAS factors), although there were a few discrepancies in factor loadings and correlations, and internal consistencies (i.e., Ridgeway & Russell, 1980; Rowland & Franken, 1986). However, thus far, there has been little evidence regarding the factor structure of the SSS-V in non-English-speaking samples (Carton, Jouvent, & Widlocher, 1992). The four-factor model has been difficult to replicate in other languages (e.g., Dutch, Finnish, Japanese; Carton et al., 1992), yet the French version appears to resemble Zuckerman's (Carton et al., 1992). The French translation used in this study originated from the work of Carton, Lacour, Jouvent, and Widlocher (1990), yet some words and expressions were slightly modernized and modified to render them more appropriate to a French-Canadian context.

Dispositional risk-taking. The 20-item *Risk-Taking* scale of the established *Jackson Personality Inventory – Revised* (*JPI-R-RT*; Jackson, 1994) was chosen to measure an individual's tendency to enjoy taking chances, being unconcerned with danger, and to getting involved in situations with uncertain outcomes and in adventures having an element of peril. This instrument is preferred to the CDQ (Kogan & Wallach, 1964) for the reasons outlined above, as well as based on the results of Weber, et al. (2002), who did not find significant correlations between the CDQ and the DOSPERT scores.

Participants indicate, for each of the 20 statements, whether the statement describes them (*Yes*) or not (*No*). Sample items include "People have told me that I seem to enjoy taking

chances." Higher scores suggest a greater propensity to take risks. The Francophone participants completed the French JPI-R-RT. Despite the documented sound psychometric properties of the English JPI-R (Jackson, 1994), evidence regarding its cross-cultural validity is scarce, at least to our knowledge.

Participants and Procedure

The group that received the DOSPERT scale in English consisted of 172 respondents; most of these participants were aged 22-35 and had completed a college degree. The group that received the DOSPERT scale in French consisted of 187 respondents residing in Quebec. Again, most of them were aged 22-35 and had completed a college degree. A frequency distribution of ages and educational levels is provided in Table 1. Chi-square tests showed that the two groups did not differ significantly in gender, age, or educational level.

The Anglophone participants were contacted by advertisements on web bulletin boards and list servers; they completed the web-based survey for 8 USD. The Francophone participants were recruited via e-mail; they filled-out the computer-based survey in a laboratory, in groups of about 10-12, for 10 CAD. All of the participants provided demographic background information first and subsequently completed the scales; they performed the task in about 60-90 minutes.

Results

The main objective of the study was to examine the measurement model associated with the DOSPERT scale via single- and multiple-group confirmatory factor analyses, in order to investigate its invariance across the two groups. A secondary aim was to perform similar analyses with respect to two related, but different constructs: sensation seeking and *dispositional* (as apposed to *situational*) risk-taking, measured, respectively, by the SSS and the JPI-R-RT.

Overview of Data Analyses

Univariate outliers (*p* < .001, two-tailed; Tabachnick & Fidell, 2000) were replaced with the next less extreme rating, as recommended by Kline (1998). Indices of univariate non-normality were not extreme (i.e., skewness < 3; kurtosis < 7), thus scores transformations were not necessary (Kline, 1998). Finally, in order to maximize sample size, sample mean values were inserted whenever individual data points were missing (< 1% of the individual data points), as suggested by Cohen and Cohen (1983). A family-wise significance level of .05, corrected for multiple univariate tests, was used except when otherwise noted.

To assess the adequacy of the fit of the measurement models to the data, the following statistics are reported, in addition to the chi-square statistics (χ^2), based on Hu and Bentler's recommended "cut-off" values (1999): (1) the Comparative Fit Index (CFI; Bentler, 1990; CFI $\geq$ .95); (2) the Root Mean Square Error of Approximation and its associated 90% confidence interval (Steiger, 1990; RMSEA $\leq$ .06), and (3) the Standardized Root Mean Square Residual (SRMR; SRMR $\leq$ .08). Item parcels were used to reduce the ratio of participants to free model parameters and increase the statistical stability of the results (Wegener & Fabrigar, 2000).

The confirmatory factor analyses (CFAs) were performed using the Maximum Likelihood estimates derived from the variance-covariance matrix provided in EQS 6.1 for Windows (Bentler, 2005).[3] The normalized estimates of Mardia's coefficient of multivariate kurtosis were small, so the data were assumed to originate from multivariate normal distributions.

Single-Group Analyses

The fit of each of the three theoretical measurement models was initially estimated separately for the Anglophone and Francophone samples. An adequate model fit within each

group is a prerequisite to measurement invariance analyses, as misspecified models would lead to spurious comparisons of parameter estimates across groups (Vandenberg & Lance, 2000).

The five-factor model of behavioral intentions, supported by the findings of Weber et al. (2002), resulted in an acceptable fit to the data within each group, $\chi^2(80, n = 172) = 122.15$ (ns), CFI = .96, RMSEA = .056, and SRMR = .053; and $\chi^2(80, n = 187) = 123.50$ (ns), CFI = .94; RMSEA = .054, and SRMR = .062 (for the Anglophone and Francophone groups, respectively). The factor loadings ranged from .59 to .94 and .42 to .84, and the estimated pairwise factor correlations, from .14 to .82 and .11 to .86.

The five-factor model of risk perceptions provided a good fit to the Anglophone data, $\chi^2(80, n = 172) = 140.87$, $p < .05$, CFI = .95, RMSEA = .067, and SRMR = .056; but not to the Francophone data, $\chi^2(80, n = 187) = 176.73$, $p < .05$, CFI = .87, RMSEA = .081, and SRMR = .070. The factor loadings varied from .64 to .87 and .49 to .77, and the estimated pairwise factor correlations, from .40 to .87 and .20 to .77.

The four-factor model of sensation seeking proposed by Zuckerman (1994) was tested and found to be plausible within each group, $\chi^2(48, n = 172) = 80.65$ (ns), CFI = .94, RMSEA = .063, and SRMR = .066; and $\chi^2(48, n = 187) = 63.97$ (ns), CFI = .97, RMSEA = .042, and SRMR = .050. The standardized factor loadings ranged from .41 to .81 and .37 to .83, and the estimated pairwise factor correlations, from .26 to .85 and .46 to .77.

Finally, the one-factor model of risk propensity (Jackson, 1994) was also found to be acceptable within each group, $\chi^2(5, n = 172) = 6.80$ (ns), CFI = 0.99, RMSEA = .046, and SRMR = .028; and $\chi^2(5, n = 187) = 17.78$ (ns), CFI = 0.95, RMSEA = .117, and SRMR = .047. The factor loadings, all high, varied from .54 to .80 and .60 to .76.

In summary, the measurement models were reasonably supported in both samples, as shown in Table 2, except for the five-factor model of risk perceptions, which did not provide as good a fit to the Francophone data as it did to the Anglophone data.

Multiple-Group Analyses

Hierarchically nested series of CFAs were conducted next. Firstly, the best-fitting, or *baseline*, models that were estimated separately for each group were tested within the confines of multiple-group CFAs, and no equality constraints were applied on their factor parameters. Secondly, the free factor parameters were constrained to equality across groups (i.e., tests of *metric* invariance). A failure to establish metric invariance would suggest that the Anglophone and Francophone participants construed the latent variables differently (Vandenberg & Lance, 2000). Both the likelihood ratio (LRT) and CFI-difference (i.e., ΔCFI > -.02) tests were used to determine metric invariance (Vandenberg & Lance, 2000).

Comparisons of the constrained with the unconstrained (or baseline) models yielded nonsignificant LRTs and small ΔCFIs for each model comparison, except for the four-factor model of sensation-seeking, $\Delta\chi^2_{(8)} = 25.37$, $p < .05$, and ΔCFI = -.016, implying that differences might exist between the groups in this case. A closer look at the univariate Lagrange Multiplier Statistics (LMχ^2) suggested otherwise (i.e., *ns* at $p < .05$, corrected for multiple tests).

In short, the metric invariance models were reasonably supported for the five-factor models of risk perceptions and behavioral intentions, as well as for the four-factor model of sensation-seeking and the one-factor model of dispositional risk-taking (see Table 3).

Descriptive Statistics

The items were summed across their respective scales to obtain the scale scores.

Descriptive statistics were computed for the two sets of scores, as shown in Table 4, which also includes internal consistency reliability estimates (i.e., Cronbach's alphas).

The internal consistency estimates associated with the 30-item English risk-taking scores ranged from .71 to .86 (mean α = .79), and those associated with the risk-perception scores, from .74 to .83 (mean α = .79). Weber, et al. (2002) reported comparable estimates with a sample of undergraduate students suggesting that the scores associated with the revised, shorter scale were, in this sample at least, as internally consistent as those of the original, longer scale. Similarly, the subscale intercorrelations varied from .08 to .60 (mean r = .37) and .19 to .66 (mean r = .43), for the risk-taking and risk-perception scores, respectively. Again, these values are consistent with those reported by Weber, et al. (2002).

The internal consistency estimates associated with the 30-item French risk-taking scores varied from .57 to .82 (mean α = .68), while those associated with the risk-perception scores ranged from .62 to .68 (mean α = .65). Although some of these internal consistency reliabilities were less than optimal (i.e., α < .70; Nunally & Bernstein, 1994), they were, on average, similar to those of the French SSS-V scores (mean α = .69) in the present sample. The subscale intercorrelations varied from .05 to .53 (mean r = .24) and .14 to .50 (mean r = .30).

The internal consistency estimates associated with the English sensation-seeking scores ranged from .59 to .76 (mean α = .68). Although some of these internal consistency reliabilities were, again, less than optimal, they were very close to those previously reported in the literature with samples of undergraduate students and adults (e.g., .59-.70; Ridgeway, & Russell, 1980; Rowland, & Franken, 1986; Zuckerman, Eysenck, & Eysenck, 1978). The subscale intercorrelations, varying from .18 to .54 (mean r = .38), were slightly greater than those

previously reported in the literature (e.g., .23-.30; Ridgeway, & Russell, 1980; Rowland, & Franken, 1986; Zuckerman, et al., 1978).

The internal consistency estimates associated with the French sensation-seeking scores ranged from .58 to .78 (mean α = .69). These internal consistency reliabilities were consistent with those previously reported by Loas, et al. (2001; mean α = .64). Finally, the internal consistency estimate associated with the English dispositional risk-taking score was .82, while that associated with its French counterpart, very close in value, was .79.

The greatest risk perception levels were found in the *health/safety* area (M = 28.15, SD = 5.94; or a value of 4.02 on a 7-point scale), $F(1, 357)$ = 209.96, η^2_p = .37, whereas the lowest were found in the *social* domain (M = 17.01, SD = 5.93; or 2.43/7), $F(1, 357)$ = 1099.70, η^2_p = .76. Conversely, the greatest behavioral intention levels were in the *social* area (M = 32.58, SD = 5.69; or 4.65/7), $F(1, 357)$ = 1228.12, η^2_p = .78, while the lowest existed in the *ethical* domain, (M = 16.92, SD = 6.59; or 2.42), $F(1, 357)$ = 465.23, η^2_p = .57. In terms of sensation-seeking scores, the greatest levels (out of a total of 10) could be found in the *thrill-and-adventure-seeking* domain (M = 6.26, SD = 2.70), $F(1, 357)$ = 99.78, η^2_p = .22, whereas the lowest appeared in the *boredom-susceptibility* area (M = 3.86, SD = 2.17), $F(1, 357)$ = 260.67, η^2_p = .42. There were no interesting group differences in any of those patterns. Lastly, dispositional risk-taking levels (out of a total of 20) were 9.78 (SD = 4.58), yet the Anglophone group revealed significantly greater risk-taking tendencies (M = 11.14, SD = 4.61) than did the Francophone group (M = 8.53, SD = 4.20), $F(1, 357)$ = 31.43, η^2_p = .081.

Discussion

In conclusion, our objectives in conducting this study were (a) to examine the measurement model associated with the DOSPERT Scale via single- and multiple-group

confirmatory factor analyses, in order to investigate its invariance across the two groups, and (b) to perform similar analyses with respect to the two constructs sensation seeking and *dispositional* risk-taking, measured, respectively, by the SSS and the JPI-R-RT.

We were able to demonstrate the stability of the five-factor structure of the English DOSPERT Scale within a diversified sample of respondents, and its psychometric properties were very similar to those reported previously. The five-factor structure of the French DOSPERT Scale did not provide as good a fit to the data, and some of the scores had less-than-ideal internal consistency reliabilities in this sample, yet they were, on average, similar to those of the French SSS-V. This suggests, however, that the five-factor model of risk perceptions should be further investigated in an independent sample of North-American Francophones.

Despite these considerations, the scales meet the assumption of metric invariance in this sample thus allowing for more sophisticated, theory-driven, model testing. Blais and Weber, (2006) who conducted such model testing, reported that dispositional risk-taking and sensation seeking accounted for a significant proportion of the between-individuals variance in self-reported risk-taking levels above and beyond situational factors. This model was supported across groups.

In summary, the revised DOSPERT scale and its associated model of risk taking seem to be a promising way to identify cross-cultural similarities/differences in both risk perceptions and risk attitudes, and in their antecedents and consequents.

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Footnotes

[1]The six financial items can be split into three gambling and three investment items, resulting in narrower constructs. Conversely, all 30 items can be summed, yielding an overall scale score for a broader assessment of risk taking. These models were tested through confirmatory factor analyses (Blais, & Weber, 2003; Blais, Montmarquette, & Weber, 2003).

[2]The benefits associated with each behavior/activity were not assessed due to length and time constraints.

[3]This matrix is available to interested readers on request, as are the item-level means and standard deviations.

Table 1

Demographic Characteristics of the Anglophone and Francophone Samples

Variable	Characteristic	Anglophone ($n = 172$)	Francophone ($n = 187$)	Total ($N = 359$)
Gender	Male	90	101	191
	Female	82	86	168
Age	18-21	38	51	89
	22-35	102	124	226
	> 35	32	12	44
Education level	Less than a college degree	50	50	100
	College degree	84	80	164
	Postgraduate degree	38	57	95

Table 2

Single-Group Analyses: Fit Indices for the Anglophone and Francophone Samples

Sample	χ^2	df	SRMR	CFI	RMSEA (90% CI)
Anglophone (*n* = 172)					
1. DOSPERT Scale					
Risk perceptions	140.87*	80	.056	.951	.067 (.048, .084)
Behavioral intentions	122.15*	80	.053	.964	.056 (.034, .074)
2. SSS	80.65*	48	.066	.936	.063 (.038, .086)
3. JPI-R-RT	6.80	5	.028	.993	.046 (.000, .122)
Francophone (*n* = 187)					
1. DOSPERT Scale					
Risk perceptions	176.73*	80	.070	.865	.081 (.064, .096)
Behavioral intentions	123.50*	80	.062	.944	.054 (.034, .072)
2. SSS	63.97	48	.050	.974	.042 (.000, .067)
3. JPI-R-RT	17.78*	5	.047	.952	.117 (.061, .178)

*p < .05.

Table 3

Multiple-Group Analyses: Fit Indices (N = 359)

Model	χ^2	*df*	CFI	$\Delta\chi^2$	Δdf	ΔCFI
DOSPERT Scale						
Risk perceptions						
Model 1$_{unconstrained}$	317.60[*]	160	.919	−	−	−
Model 2$_{constrained}$	325.41[*]	170	.921	7.81	10	+.002
Behavioral intentions						
Model 1$_{unconstrained}$	245.65[*]	160	.956	−	−	−
Model 2$_{constrained}$	256.50[*]	170	.957	10.85	10	+.001
SSS						
Model 1$_{unconstrained}$	144.62[*]	96	.957	−	−	−
Model 2$_{constrained}$	169.99[*]	104	.941	25.37[*]	8	-.016
JPI-R-RT						
Model 1$_{unconstrained}$	24.583[*]	10	.973	−	−	−
Model 2$_{constrained}$	34.081[*]	14	.962	9.50	4	-.011

[*] $p < .05$.

Table 4

Descriptive Statistics for the Anglophone and Francophone Scores

Score	No. items	Max.	Anglophones (*n* = 172)			Francophones (*n* = 187)		
			M	*SD*	α	*M*	*SD*	α
DOSPERT Scale								
Risk perceptions								
1. Ethical	6	6-42	26.70	6.40	.74	28.03	4.84	.62
2. Financial	6	6-42	25.34	7.36	.83	27.64	5.24	.68
3. Health/Safety	6	6-42	27.03	6.62	.74	29.17	5.04	.62
4. Recreational	6	6-42	25.84	6.94	.79	28.39	5.34	.68
5. Social	6	6-42	16.42	6.70	.83	17.56	5.07	.66
Behavioral intentions								
1. Ethical	6	6-42	17.97	7.16	.75	15.96	5.87	.61
2. Financial	6	6-42	20.67	8.51	.83	18.64	6.81	.77
3. Health/Safety	6	6-42	21.80	7.84	.71	19.56	6.88	.61
4. Recreational	6	6-42	23.01	9.40	.86	21.90	8.89	.82
5. Social	6	6-42	32.42	6.44	.79	32.72	4.92	.57
SSS								
Boredom Susceptibility	10	0-10	4.08	2.20	.59	3.65	2.12	.58
Disinhibition	10	0-10	5.40	2.72	.76	4.79	2.43	.67
Experience Seeking	10	0-10	6.31	2.21	.63	5.70	2.53	.73
Thrill and Adventure Seeking	10	0-10	6.52	2.60	.75	6.02	2.77	.78
JPI-R-RT	20	0-20	11.14	4.61	.82	8.53	4.20	.79