French Methodology for the cross – cultural Validation a Psychological Measurement : Application to Valid the CASQ-R with sport preadolescent.

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Many theories explain optimism; attributional style is one of these theories. Attributional or Explanatory Style refers to how people habitually explain the causes of events that happen to them. A pessimistic attributional style is characterized by internal, stable and global explanations for bad events, whereas an optimistic attributional style is characterised by external, unstable, and specific explanations for bad events (Peterson, Buchanan & Seligman, 1995). Explanatory Style had been studied with abnormal adults, normal adults, children and athletes (e.g., Seligman, Nolen-Hoeksema, Thornton, & Thornton, 1990; Seligman, Peterson, Kaslow, Tanenbaum, Alloy, & Abramson, 1984).

Abramson, Seligman, and Teasdale (1978) applied the reformulated helplessness theory to depression and predicted that individuals who habitually explain bad events using internal, stable and global causes will be more prone to depressive episodes than those without this pessimistic explanatory style. This prediction has been confirmed by many studies using adults and children (see Peterson 1991; Seligman, & al., 1984). Although attributional style theories generally consider optimism or explanatory style as a personality trait that is stable over time, intervention studies have been shown to significantly change it (e.g., Jaycox, Reivich, Gillham, & Seligman, 1994).

Optimistic children habitually tend to view the causes of bad events as unstable over time, specific in effect, and external to themselves; but perceive the causes of the positive events as stable in time, global in effect, and internal to themselves. However, children who possess an attributional style where bad events are perceived as being due to stable, global and internal causes are especially vulnerable to a defined cluster of helplessness deficits (Peterson & Steen, 2002; Seligman, Reivich, Jaycox, & Gillham, 1995).

In the literature, one of three instruments is generally used to evaluate children's and preadolesents explanatory style: 1) Children's Attributional Style Questionnaire (CASQ; Kaslow, Tennenbaum, & Seligman,.1978)[2]; 2) Children's Attributional Style Questionnaire-

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[2] An adapted and valid French version of this scale is realised by Salama-Younes (2005).

Revised (CASQ-R; Kaslow & Nolen-Hoeksema, 1991) and 3) Children's Attributional Style Interview (CASI; Conley, Haines, Hilt, & Metalsky, 2001)[3].

The CASQ-R, which is the focus of this article, consists of 24 items (12 positive items and 12 negative items). It is scored by assigning 1 to each internal, stable, or global response, and 0 to each external, unstable, or specific response. Scales are formed by summing the three scores across the appropriate questions for each of the three dimensions, for composite positive (CP) and composite negative (CN) events separately. A composite score (CPMCN) is calculated by subtracting the score for the negative events from the score for the positive events (see, Nolen-Hoeksema, Girgus, & Seligman, 1986; Peterson, Maier, & Seligman, 1993 for CASQ). It is not evident from previous research whether the CASQ or CASQ-R should be scored as two separate scales (CP and CN) or as a single scale (CPMCN).

Purpose

Vallerand (1989) and Vallerand and Halliwell (1983) indicated that the creation of a psychometric instrument is recommended only in the absence of a reliable and valid instrument within the international literature. However, when a questionnaire already exists in another language, its cross-cultural validation is highly advised. We note that although both the CASQ and CASQ-R were constructed to be reliable and valid measures of children's attributional style in the Anglo-Saxon culture, few studies have tested their psychometric properties. In French culture, we have neither a French instrument nor a foreign one adapted to the French language that is able to evaluate children's explanatory style. Thus, the purposes of these studies were to 1) prepare and adapt a French version which would be equivalent to the original CASQ-R; and 2) test its psychometric proprieties. Our procedure followed the cross-culture validation methodology of psychological instruments suggested by Vallerand (1989) and the cross-culture validation methodology of psychological instruments in sport psychology field suggested by Vallerand and Halliwell (1983).

Study 1: Creating an Equivalent French Version of the CASQ-R

Three steps were followed to create an experimental French version equivalent to the CASQ-R: 1) reverse translation; 2) evaluation of the preliminary versions; 3) evaluation of the clarity of the items.

Step 1: Reverse Translation

The original version (English) was translated into the target language (French) by two bilingual individuals familiar with the field of study. Two additional bilingual individuals

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[3] CASQ and CASQ-R have been contructed and validated in different countries using a children and preadolescents aging between 8 to 14 ans.

experienced in the area retranslated these versions back to English without having seen the original version. Thus, we had two French versions of the CASQ-R and two English back-translations.

Step 2: Evaluation of the Preliminary Versions

Four translators and two researchers in the psychosocial domain composed a committee to establish a single French version. The committee followed the procedure recommended from the adapted methodology. Once a single French version of the CASQ-R was established by the committee, it was submitted to the director of a primary school as a linguistic expert of children's and preadolescents language. After taking into account the feedback that certain words were considered inappropriate for children in the target age group, the CASQ-R was given to a bilingual linguistic expert to check the quality of statements formulating the 24 items.

Step 3: Evaluation of the Clarity of Items

Sometimes there is a discordance between the perception of items by the individuals for whom the questionnaire is developed and the researcher and/or committee (e.g., Fontayne, Martin-Krumm, Heuzé, & Painset, 2003; Massoubre, Lang, Jaeger, Julie, & Pellet, 2002). It is essential to check the way in which subject perceive the meaning of the items. We wanted to determine if the items in the new French version are clear and meaningful to children, the target population. We used three different techniques proposed by Vallerand (1989). First we had subject circle any words that they did not understand. We then modified the words or items that were difficult for the subject to comprehend. Next children rated the clarity of the items on a three-point scale. Finally we used test-retest correlations to determine if children made similar responses across time based on the assumption that items lacking clarity would have extremely weak test-retest correlations.

Method and participants (Step 3.1). A total of 103 preadolescents (56 boys and 47 girls) in grades 5 and 6, aged between 9 and 12 years, took part in this study on a voluntary basis and with the authorization of their parents. We asked them to circle all the words that were not very clear or they did not understand. The words were considered difficult to understand if 25 or more subject circled them. Two experts then modified the relevant words to make them more comprehensible.

Method and participants (Step 3.2). After we changed the words in the previous step, the objective was to check the complete items. Beside each item in the questionnaire we added a scale consisting of three points. A rating of one indicated the sentence was not clear, two indicated the sentence was clear, and three indicated the sentence was very clear. Subject (N

= 74) circled the number nearest to their comprehension. If 19 (i.e., 25%) or more of the subject circled "1" for any of the items, they would require further reformulation.

Method and participants (Step 3.3). To determine the test-retest reliability of the questionnaire, 76 subject completed the latest version twice. There was a two-week interval between the two administrations. The purpose of this step was to check the stability of subject's answers.

Results

We observed from the first step that the translation of the English word "you" was represented in both French translations by "vous", the formal version of "you", whereas the familiar form of "tu" is more appropriate. In addition, the original English version of the CASQ-R did not contain administration instructions for subject. Therefore, we changed "vous" to "tu" for all items and prepared instructions for our French version. In the second step, the two researchers in the psychosocial domain, the two linguistic specialists, and the four translators helped us to reformulate some items. In the third step, a number of words were modified because the adolescents did not understand them. One item (item 23) was rephrased because the original reference to baseball in the item was not relevant to French culture. Lastly, significant test-retest correlations revealed adequate stability for both positive ($r = .64$) and negative ($r = .67$) items.

Conclusions

Using the steps mentioned above we obtained a French version of the CASQ-R equivalent to the original English questionnaire that is clear, comprehensible and appropriate for the target population. Now we could start to examine its psychometric properties.

Study 2: Concurrent Validity

Although concurrent validity can be shown using other French scales, Lauveault and Gregoire (2002) and Vallerand (1989) confirmed that concurrent validity can be demonstrated using bilingual individuals. Involving bilingual individuals in the validation of a translated questionnaire offers many advantages, in particular the ability to clearly show the cross-cultural equivalence between the translation and the original (Vallerand & Hess, 2000). Correlations can be calculated between the English and French versions of each item to determine if there is congruence between the two versions. It is important for participants to be carefully selected. The participants in this study were selected according to the method recommended by Vallerand and Halliwell (1983).

When the answers to a questionnaire are dichotomous, which is the case here, the coefficient $\square$ is recommended as the measurement of association (Bernier & Pietrulewicz, 1997; Lavault & Gregoire, 2002). Howell (1997) showed that $\square$ ^{2} measures the independence

of the variables. We thus concluded that $\square^2$ refers to the statistical significance of a relation between two variables and that the coefficient $\square$ should be used to evaluate the degree of this relationship.

Method and Participants

A total of 47 bilingual children and preadolescents (M = 10.3 years, SD = .40) from Paris took part in this study. We first confirmed their capabilities of writing, reading, comprehension, and expression of the English and French languages. The French and English versions of the CASQ-R were presented in a counterbalanced order with 24 subject first completing the original version then the French version, and 23 subject completing the French version then the English version.

Results

According to $\square^2$ results, the French and English responses to each item were related. The $\square$ coefficients ranged from .56 to .87 indicating that these associations were relatively strong (See Table 1). Item 23 was excluded from this analysis because the French item was notably different from the original English item.

Conclusion

The purpose of this study was to test the concurrent validity of the CASQ-R. The $\square^2$ results and the $\square$ coefficients empirically attest to high congruence indicating satisfactory concurrent validity for each item of the French version of the CASQ-R

Study 3: Reliability

Many authors have mentioned that internal consistency and temporal stability need to be determined in the trans-cultural validation of psychological measures (Laveault & Gregoire, 2002; Sarrazin, 1995; Vallerand & Halliwell, 1983; Vallerand, 1989). Cronbach $\square$ is commonly used to determine internal consistency (homogeneity). However, Vallerand (1989) and Bernier and Pietrulewicz, (1997) noted that if the questionnaire is dichotomous, the use of Kuder and Richardson's formula 20 (KR20) is preferable. The other type of reliability is that of temporal stability. Some authors have proposed that one month is an appropriate time interval to demonstrate test-retest reliability or the stability of results over time (Laveault & Gregoire, 2002; Vallerand & Hess, 2000).

Method and Participants

The participants in this study were 100 preadolescents (57 girls and 43 boys; M age = 10.6 years; SD = .60. They completed the French version of the CASQ-R three times, with the retests taking place three weeks and three months after the initial administration. They completed the questionnaire in groups in their classrooms. Demographic information about sex, their class, the sport in which they participate, and their date of birth were used to

compare responses across administrations. Although KR20 and □ coefficients are recommended for dichotomous data (Bernier & Pietrulewicz, 1997), traditional test-retest correlations and Cronbach □ coefficients were also calculated to be able to make comparisons with the psychometrics provided for the original English version (Thompson, Kaslow, Weiss, & Nolen-Hoeksema, 1998).

Results

Tables 2 and 3 contain the internal consistency and temporal stability coefficients for the CASQ-R. Scores were calculated for positive events, negative events, as well as the composite of the two. At the three week time interval KR20 internal consistency coefficients ranged from .58 to .68, with Cronbach □ coefficients somewhat higher (see Table 2). The □ coefficients ranged from .50 to .64 with traditional test-retest correlations again being somewhat higher. At the three-month time interval the pattern of the traditional reliability coefficients being higher than the KR20 values (range .51 to .62) and □ coefficients (range .46 to .58) remained (See Table 3). It should be noted that the English study cited for comparison (Thompson, et al., 1998) had a six-month rather than a three week or three month time interval to check test-retest reliability.

Conclusions

The results of our study demonstrated that the positive, negative, and composite scores were relatively stable over three weeks and three months. The internal consistency also was generally acceptable both times for positive, negative, and composite scores. Comparison of the reliability of our French version with that of the original English version (Thompson, et al., 1998) reveals that the French version has stronger internal consistency and temporal stability for negative events and the composite scale, but slightly weaker reliability for positive events.

Vallerand (1989) noted that the analysis of internal consistency is useful in providing additional information concerning problematic items. Cronbach alpha values normally increase when a problematic item is removed. It is possible to identify the items with low item-total correlations, compare those items with those of the original English version, and then consider modifying them.

Some items were found to have poor item-total correlations at the three-week time interval, but reasonable item-total correlations at the three-month time interval, and vice versa. For the questionable items we took the following steps: (a) We gave the questionable French items to three school directors and two professors of social psychology for their opinions on whether the items used language difficult for subject to understand, and how well the items represented the relevant sub-scale. (b) Using the feedback from the first step,

we worded some of the items in two different ways and then we asked a group of children aged between 10 to 12 years to choose between the two. Finally, we convinced ourselves, after some discussion with the school's directors, special researcher, and the group of preadolescents, that we should be stricter in our method of revision. This is why we devoted the following study to content validity.

Study 4: Content Validity

Testing content validity consists of evaluating whether the various aspects of a test are representative of the concept concerned. Too often, testing content validity has focussed only on the content of the individual items (Laveault & Gregoire, 2002). If one wants to ensure the relevance and the representativeness of the items of the instrument compared to the concept being tested, one must have a definition of the relevant concept. The quality of the content validation depends on the precision with which the concept is defined and on the agreement of the experts regarding its facets relevant to the population concerned. According to Bernier and Pietrulewicz (1997) and Laveault and Gregoire 2002), the judgements of the experts play a crucial role in the procedure of this validation, relying on subjective judgement and not quantitative criteria.

Method and Participants

We prepared a document that defined the following points:

(a) Our objectives for this study.

(b) The concept of attributional style as determined by the authors of the CASQ.

(c) The concepts of the attributional dimensions (i.e., stability, globality and internality) as specified in the theory.

(d) Finally, we included the items in French and in English.

Based on the concepts provided, the experts were asked to provide their opinions according to three columns:

(a) Yes, I agree

(b) No, I do not agree

(c) I have a comment.

To summarise, we asked the experts two questions: (a) Does each item evaluate what it is supposed to measure according to the definition of the concept concerned? (b) When comparing each French item with the original English version, is our translation psychologically representative of the direction suggested in the original version?

We solicited responses from many experts in the field of psychology from several French-speaking countries. After two months, we had received answers from five experts. We analysed their opinions in the following way: Four of five experts (i.e., 80%) needed to

agree to confirm that the item measured what was intended and was psychologically representative of the English original. If two or more experts thought that an item did not measure what it was supposed to measure or the translation did not correspond within the meaning of the original item, one of two actions would be taken. If the content validity was questioned, the item would be removed. If the translation was suspect, it would be reworded.

Results

Although all the experts noted certain modifications to be made to the translation quality, at no time did two (or more) experts question the content validity of an item. Therefore, no items were removed.

Conclusions

Even though we thought our two requests may have been slightly related, they revealed different results. The experts agreed that the items evaluated what they were supposed to measure according to the definitions of the concepts concerned. However, they did question the translation quality of several items. These results from study 4 allowed us to keep all of the items, although some were slightly reworded to improve the translation quality.

Study 5: Factorial Structure

According to methodologies concerning the cross-validation of an English instrument translated into French (e.g., Vallerand 1989; Vallerand & Halliwell, 1983), one of the important requirements is to test the factorial structure (Vallerand & Hess, 2000). It is necessary to demonstrate that the theory that underlies the psychological test is valid in the new culture, in this case, the French culture.

We could not find any study that tested the factorial validity of CASQ-R. The testing of factorial structure typically involves exploratory or confirmatory factor analysis. These studies usually involve the psychometric testing of questionnaires that use Likert-type scales. Few instruments use a dichotomous response format, for which multiple correspondence analyses can be used to test the factorial structure.

Method and Participants

Our objectives of this study were i) to explore the structure of the CASQ and ii) to test the assumption that girls are more optimistic than boys at this age (e.g., Nolen-Hoeksema, Girgus, & Seligman, 1991; Nolen-Hoeksema & Girgus, 1995). In our study, we wanted to take into account at the same time the dichotomous items (24), the sex of the participants (boys and girls), and the total sample (N = 424). To consider the entire data set we used the Multiple Analyses of Correspondences (MAC) using SPAD software version 5.

We administrated the french version of CASQ-R to 176 boys and 248 girls (M = 10.6 years, SD = 1.2). They were in grades 4, 5 or 6 and they all participated in physical activities outside the school program. These subject agreed to take part in this study with the authorization of their parents. The answers of the individual were anonymous. When administering the questionnaires we indicated that there were no right or wrong answers and that they could return the questionnaires if they did not want to take part in the study.

Results

In our investigation the results tended to confirm our assumption that preadolescents could not be cleanly classified into the two categories of optimistic or pessimistic as suggested by theory. A large number of subject manifested neither optimistic nor pessimistic explanatory styles. The MAC enabled us to cluster these subject into four classes instead of two (i.e., optimistic explanatory style; low score in positive and negative events, high score in positive and negative events; pessimistic explanatory style). From our investigation, boys are located in the third class, those who have a more optimistic explanatory style; and girls are located in the first class, those who have a more pessimistic explanatory style. The majority of this sample expressed neither a pessimistic nor an optimistic explanatory style, but rather a neutral style (see Martin-Krumm, 2002; Salama-Younes, Martin-Krumm, & Roncin, 2004a; b). Our results clearly appeared as two types of this neutral style. One had high scores in negative and positive events and the other had low scores in negative and positive events (see table 4 and figure 1).

Conclusions

We concluded from this study that the boys have a more optimistic style than the girls at this age. These results are contrary to the Anglo-Saxon research which specifies that it is only starting in adolescence that the boys have a more optimistic explanatory style than the girls (e.g., Nolen-Hoeksema, & al., 1986; Nolen-Hoeksema, & al., 1991). The result of this study confirms that the children could be placed on a continuum from 1 to 100, "from a very pessimistic explanation to a very optimistic explanation" (Seligman, & al., 1995, p.67). We also found that a large number had a neutral explanatory style. These results are similar to Martin-Krumm's results that found a large number of French adolescents have a neutral explanatory style (Martin-Krumm & Sarrazin 2004; Martin-Krumm, Sarrazin, Peterson & Famose, 2003; Martin-Krumm, Sarrazin, Peterson & Salama-Younes, 2006). Our results did not confirm the theoretical assumption that girls are more optimistic than boys at the ages of 8 to 12 years (for a review, see Nolen-Hoeksema, & al. 1991; Seligman, & al., 1995). This difference would be probably due to cultural difference.

General Discussion

According to the methodology for trans-cultural validation and after we prepared a French version equivalent to the original, we tested the concurrent validity with 47 bilingual children. We tested the internal consistency and the temporal stability at three weeks and three months with 100 girls and boys. To test the content validity, we asked five experts to provide their opinion on the psychological meaning of items and their translation quality. We finally tested, with 424 children, the factorial structure and the theoretical assumption that girls are more optimistic than boys at that age. In conclusion we have demonstrated that our experimental French version of the CASQ-R has acceptable concurrent validity, content validity and reliability. Contrary to previous results, the girls were more optimistic than boys at this age. Finally, in addition to optimistic and pessimistic groups, a large number of children manifested a neutral style; that style can be split into two groups (i.e., high in positive and negative scores; low in positive and negative scores).

The CASQ or CASQ-R never used at children or preadolescents subjects. The CASQ would be the first scale which be used with a sporting subject in French culture (Salama-Younes, 2005; Salama-Younes, Martin-Krumm & Roncin, 2004). According to the present paper, the CASQ-R would be then the second scale with a sporting subject. In a comparative study, we will test the convergence and the divergence of psychometric qualities of these two scales (i.e., CASQ and CASQ-R).

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Table 1. χ^2 *and* ϕ *for each item.*

Item	$\square^2$	$\square$	Item	$\square^2$	$\square$
1	22.18	.69	13	22.18	.69
2	29.13	.79	14	15.81	.58
3	17.77	.61	15	25.62	.74
4	31.37	.82	16	17.77	.61
5	28.45	.78	17	34.84	.86
6	21.05	.67	18	14.93	.56
7	32.31	.83	19	28.64	.78
8	28.45	.78	20	35.53	.87
9	21.05	.67	21	29.09	.79
10	29.67	.79	22	24.34	.72
11	21.05	.67	23	00	00
12	21.09	.68	24	14.96	.57

Table 2: *Internal consistency and temporal stability at three weeks*

	Internal consistency KR20	Internal consistency $\square$ coefficient		Temporal stability $\square$coefficient	Temporal stability	
		FV	EV		FV	EV
Positive Events	.58	.62	.60	.50	.51*	.53*
Negative Events	.68	.73	.46	.64	.65*	.38*
Composite Score	.63	.79	.61	.58	.68*	.53*

*p<.01, FV: French version, EV: English version (Thompson, et al., 1998)

Table 3: *Internal consistency and temporal stability at three months.*

|	Internal consistency KR20	Internal consistency ☐ coefficient		Temporal stability ☐ coefficient	Temporal stability	
		FV	EV		FV	EV
Positive Events	.51	.57	.60	.46	.50*	.53*
Negative Events	.62	.69	.46	.58	.61*	.38*
Composite Score	.58	.73	.61	.56	.64*	.53*

*p<01, FV: French version, EV: English version (Thompson, et al., 1998)

Table 4:
Types of explanatory style.

	Classes	1 (33.49%)		2 (20.06%)		3 (29.24%)		4 (17.21%)	
	Events	Good	Bad	Good	Bad	Good	Bad	Good	Bad
Explanatory Style	Stability	unstable	stable	unstable	unstable	stable	unstable	stable	stable
	Globality	specific	global	specific	specific	global	specific	global	global
	Internality	external	internal	external	external	internal	external	internal	internal

Figure 1: **The representation of sample in four classes and the sex (M=Boys and F=Girls)**
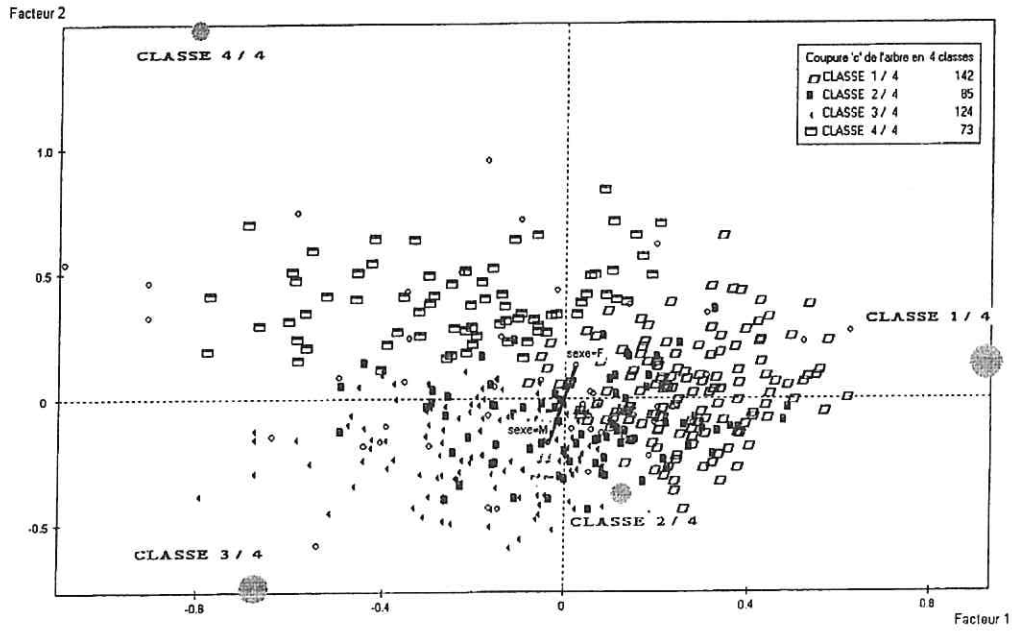
Note. Facteur= Factor; Sexe= Sex; Classe=Class.