School Motivation Questionnaire for the Portuguese Population: Structure and Psychometric Studies

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It is presented the structure and psychometric studies of the "School Motivation Questionnaire". The SMQ is a self-report questionnaire with 101 items, organized in sixteen scales that measure the students´ goal orientations, the perceived classroom goal structures, the perceived teacher's autonomy support and the use of learning strategies. Twelve scales are adapted from the "Learning Climate Questionnaire", "Perceptions of Instrumentality" and "Cuestionário a Estudiantes". Four scales and five additional items are created new. The psychometric studies rely on a convenience sample consisting of 9th and 12th grade students ($N = 485$) of Portuguese schools. The factorial and construct validity, verified through several exploratory factorial analyses to the data, presents a final solution of six factors, labelled Strategies (F1), Teacher Extrinsic Goals (F2), Student Extrinsic Goals, Externally Regulated (F3) Teacher Intrinsic Goals (F4), Student Extrinsic Goals, Internally Regulated (F5), and Student Intrinsic Goals (F6). The six-factor solution explains a significant variance of the scale results (53.95%). Good coefficients of internal consistency are obtained for all factors, never below (.858; F6). In sum there is strong evidence to support the multi-dimensionality of SMQ, upholding that the data obtained is exploratory and applies for future validation studies.
Keywords: theories of achievement motivation, "School Motivation Questionnaire", psychometric studies, perceived instrumentality.

Se presenta la estructura y los estudios psicométricos del "Cuestionario de Motivación Escolar". El CME es un cuestionario de auto informe con 101 ítems, organizados en dieciséis escalas que miden las orientaciones de las metas de los estudiantes, la percepción de las estructuras de las metas de clase, las percepciones del apoyo del profesor a la autonomía y el uso de estrategias de aprendizaje. Doce escalas son una adaptación del "Learning Climate Questionnaire", "Perceptions of Instrumentality" y "Cuestionario a Estudiantes". Cuatro escalas y cinco frases adicionales se crearon para este estudio. Los estudios psicométricos se basan en una muestra de conveniencia compuesta por estudiantes de los grados 9 y 12 ($N = 485$) de las escuelas portuguesas. La validez factorial y la construcción ha sido verificada a través de varios análisis factoriales exploratorios de los datos, y presenta una solución definitiva de seis factores, siendo Estrategias (F1), Metas extrínsecas de los docentes (F2), Metas extrínsecas de los estudiantes, reguladas externamente (F3), Metas intrínsecas de los docentes (F4), Metas extrínsecas de los estudiantes ,reguladas internamente (F5), y Metas intrínsecas de los estudiantes (F6). La solución de seis factores explica una variación significativa de los resultados de la escala (53,95%). Se encontraron buenos coeficientes de consistencia interna para todos los factores, nunca por debajo de (.858; F6). En suma, hay una fuerte evidencia para apoyar la multidimensionalidad del CME. Estos resultados son exploratorios y servirán como una base para estudios de validación posteriores.
Palabras clave: teorías de la motivación de logro,"Cuestionario de Motivación Escolar", estudios psicométricos, instrumentalidad percibida.

The understanding of "how" and "why" students learn and do their best at school met remarkable developments over the past decades (Perry, Turner, & Meyer, 2006). The paradigm shift that occurred within the Psychology of Motivation left behind the dominance of global, organismic theories of motivation in favour of more specific explanations of motivational phenomena, typical of the new born "mini-theories" or "process theories of motivation" (Perry et al., 2006). One motivational phenomenon that got the most empirical and theoretical productionwas the academic achievement motivation. The conceptual grid proposed, although still imprisoned by motivational explanations heavily focused on the characteristics of students, had the merit of expanding the motivational analysis to situational aspects of the learning environment, analysing how do they influence the quality of students´ motivation, learning and academic achievement (Deci & Ryan, 2000; Lens & Rand, 1997).

Among the most relevant theoretical models for school motivation are the Achievement Goal Theory (AGT; Ames, 1992; Dweck, 1991; Maehr & Midgley, 1996; Nicholls, 1984), the Future Time Perspective Theory (TFP; De Volder & Lens, 1982; Nurmi, 1991; Nuttin & Lens, 1985; Raynor & Entin, 1982, Wigfield & Eccles, 2002; Zimbardo & Boyd, 1999), and the Self-Determination Theory (SDT; Deci & Ryan, 1985, 2000, 2002; Ryan & Deci, 2000, 2002).

The Achievement Goal Theory (Ames, 1992; Dweck, 1991; Maehr & Midgley, 1996; Nicholls, 1984) proposed a qualitative and contextual theory of school motivation. Based on Elliot´s 2×2 achievement goal framework (Elliot & McGregor, 2001), the AGT assumes that the mastery-approach goals, and to a lesser extent, the mastery-avoidance goals (Elliot & Church, 1997; Pintrich, 2000) are associated to amotivation of high quality, the use of deep-level learning strategies and to the academic success. On the contrary, the performance-approach and performance-avoidance goals (Elliot & Church, 1997; Pintrich, 2000) are associated to a motivation of low or even of bad quality, the use of surface-level learning strategies, and to low academic achievement(e.g., Elliot & Church, 1997, Elliot & McGregor, 2001).Research results on AGT were highly consensual regarding the positive and adaptive effects for learning, persistence and academic performance that resulted from a mastery goal orientation, and also regarding the negative and invalidating effects on the same indicators, that resulted from a performance-avoidance goal orientation (e.g., Elliot & Church, 1997; Elliot & Covington, 2001; Elliot & McGregor, 2001; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000, Midgley & Urdan, 2001). The results were less consistent about the effects of performance-approach goals, having been positively or negatively related to learning strategies and to the academic achievement (e.g., Elliot & Moller, 2003; Harackiewicz et al., 2000; Matos, 2005, Matos, Lens, & Vansteenkiste, 2007; Pintrich, 2000; Wolters, 2004).

The AGT also predicted that positive results on motivation, learning and academic achievement would be enhanced by learning-oriented classroom goal structures and undermined by performance-oriented classroom goal structures (Elliot, 1997; Pintrich, 2000). The research results provided adequate support for this hypothesis. Several studies found that students´ perceptions of learning-oriented goal structures were associated to adaptive results on school motivation and academic achievement and that students´ perceptions of performance-oriented goal structures were associated no negative and maladaptive results on those indicators (e.g., Ames & Archer , 1988; Anderman & Wolters, 2006;Graham & Golan, 1991; Grolnick & Ryan, 1987; Maehr & Anderman, 1993; Maehr & Midgley, 1996; Matos, Lens, & Vansteenkiste, 2009; Midgley, 2002; Midgley & Urdan, 2001; Wolters, 2004). Altogether, these data support the AGT´s assumption that learning-oriented goals are of high motivational quality and, that the performance-oriented goals (including future goals, given their extrinsic nature) have a low/bad motivational quality, resulting in prejudice for intrinsic motivation and academic performance (Dweck, 1986; Pintrich & Schunk, 1996).

This assumption received much criticism, mainly by the theorists of Future Time Perspective that considered it a reductionist view of school motivation (De Volder & Lens, 1982; Nurmi, 1991; Nuttin & Lens, 1985; Raynor & Entin, 1982, Wigfield & Eccles, 2002; Zimbardo & Boyd, 1999). The PTF theorists proposed a quantitative model for the achievement motivation, assuming as a central premise that the strength or intensity of the total motivation to complete the achievement task was a function of the perceived instrumental value of that task to achieve future goals, regardless of their content (e.g., Creten, Lens, & Simons, 2001; De Volder & Lens, 1982; Husman & Lens, 1999; Malka & Covington, 2004; Simons, Dewite, & Lens, 2003). In this view, the more goals the student had for the present task, the higher was their motivation to perform it. Thus, if we add extrinsic future goals to immediate intrinsic goals that would produce a stronger motivation on students to perform the task at hands, resulting not only from the pleasure of mastering it, but also from its perceived instrumental value to achieve future important goals.

In general, the research results have consistently supported the association between future time perspective and positive results for motivation, learning, satisfaction and academic performance (Harber, Zimbardo, & Boyd, 2003; Horstmanshof & Zimiat, 2007; Miller, DeBacker, & Greene, 1999, Wigfield & Eccles, 1992; Zaleski, 1987, 1994; Zimbardo & Boyd, 1999). This effect was moderated by dispositional variables that affected the strength and depth to with which students set future goals, such as the extension of future time perspective and the affective attitude towards the future (e.g., DeVolder & Lens, 1982; Lens, 1986; Nuttin & Lens 1985; Paixão, 1996, 2004).

More recently, the Self-Determination Theory (Deci & Ryan, 1985, 2002; Ryan & Deci, 2000, 2002) proposed a more conciliatory approach concerning students' motivation, based on the qualitative distinction between autonomous and controlled motivation for learning (DeBilde, Vansteenkiste, & Lens, 2011; Deci & Ryan, 2000). According to this perspective the extrinsic motivation can be of good or bad quality, depending on the degree of internalization of behavior regulations. The autonomous motivation (Deci, 1980; Deci & Ryan, 1985; Ryan, Connell, & Deci, 1985) is considered of good quality. It comprises intrinsically motivated students, that derive a spontaneous interest and pleasure out of learning and studying (DeBilde et al., 2011), but also students with well internalized forms of extrinsic motivation(with integrated or identified regulation),that engage in the academic tasks for its perceived utility to achieve self-endorsed goals, related to the implementation of important personal and professional projects (Deci & Ryan, 2000).Conversely, the controlled motivation is assumed to be of bad quality. It is related to poorly internalized forms of extrinsic motivation (with external or introjected regulation) that regulate the students´ behavior towards the attainment of privileges or rewards (e.g., promise of a car for good grades), to avoid external pressures or constraints (e.g., threats of punishment) or to comply with introjected controls (e.g., get good grades to avoid disappoint their parents and teachers).

In the school context, the research results made it consistently clear that autonomous motivation was of superior quality than controlled motivation. It was associated to students´ lowest dropout rates, to a deep-level learning, a less superficial information processing, to higher academic results and to the experience of higher well-being (e.g., Lens & Vansteenkiste, 2008; Mouratidis, Vansteenkiste, Lens, & Sideridou, 2008; Reeve, Deci, & Ryan, 2004; Vansteenkiste, Soenens, Verstuyf, & Lens, 2009). These positive results were more expressive when the learning climate supported the students' autonomy, but they were undermined when the context was perceived as controlling (e.g., Black & Deci, 2000; Lens, Paixão, & Herrera, 2009; Reeve et al., 2004; Vansteenkiste et al., 2006; Vansteenkiste, Matos, Lens, & Soenens, 2007; Vansteenkiste et al., 2004;Vansteenkiste et al., 2008).

Based on SDT´s theoretical assumptions and inspiring results, some authors (e.g., DeBilde et al., 2011; Lens et al., 2009; Simons et al., 2003) analysed the impact of different types of instrumental motivation on student's

intrinsic motivation and academic outcomes. The different typologies of instrumentality identified were obtained combining the relationship between the students' goal orientation for the current task and the future goals for which they were perceived as instrumental, with the four degrees of self-determination(internal versus external regulation). Using this framework, Husman and Lens (1999) distinguished between the endogenous *vs* exogenous types of instrumental motivation. More recently Simons et al. (2003) expanded this distinction, proposing a tripartite typology of perceived instrumentality. In the *endogenous-internal* type (EN-I), the learning task and future goals required the same capabilities and the activity was internally regulated. In the *exogenous-internal* (EX-I) and *exogenous-external* (EX-E) types of instrumentality, the learning task and future goals required very different skills and the activity was either internally regulated (EX-I type) or externally regulated (EX-E type).The results showed that the instrumental motivation created in the *endogenous-internal* condition (EN-I), and, to a lesser extent, in the *exogenous-internal* condition (EX-I), produced the more adaptive results on academic motivation, task orientation and school achievement (Simons et al., 2003).

Based on these empirical findings, some authors (e.g., Lens et al., 2009) conclude for the need to revise, and ultimately abandon, the overly prudent attitude towards the extrinsic motivations and the exclusive promotion of intrinsic goals in the classroom. They believe that, if the professors promote intrinsic future goalswith instrumental value for students' future life and do it in an autonomous, volitional, practical and realistic way, positive and adaptive results on motivation, learning and achievement can be expected. This conclusion is a step forward in the direction of a paradigmatic turn in the study of academic motivation. It presents the advantage of stimulating the development for more conciliatory approaches into the field of school motivation. That, on our view, will necessarily require the development of more integrate comprehensive assessment tools, able to congregate constructs and measures that are derived from different conceptual frameworks[1].

With this goal in mind, and following the PTF/SDT frameworks to school motivation, we developed the "School Motivation Questionnaire" (SMQ; Cordeiro & Figueira, 2010). The SMQ is a self-report questionnaire aimed to measure the autonomous-controlled dimensions of students´ goal orientations and perceived classroom goal structures, considering their content, temporality and behavior

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[1] One could argue that this goal may becontra-productiveor, at least redundantwith other methodological approaches that measure the same constructs in separate. Nonetheless, we do believe more integrative assessment tools have the advantage of establishingclearer conceptual frontiers between the constructs assessed. We find this aspect as determinant to overcome the conceptual confusion that has been frequently observed in the field of achievementmotivation, expressed by the diversity (and overlap) of concepts, theorized predictions and methodologies used (Perry, Turner & Meyer, 2006).

regulations. We intend to present here the structural model of scales and dimensions defined for the QME and report the exploratory results that attest the psychometric qualities of the SMQ, having in mind its future adaptation to the Portuguese population.

Instrument

The SMQ is a structured self-report questionnaire, composed by 101 closed questions. Four initial questions assess (a) the socio-demographic aspects of the students, namely the age, gender, school failures, type of school and type of education (Item 1 – personal data), (b) the discipline targeted on students´ responses (Item 2: target discipline), and, (c) the information concerning the students' success at the discipline in the previous school term (Items 100/101 – the grade I obtained during the previous school term was of)[2].

The following 97 questions measure the motivational processes of students, according to a structure of six dimensions and sixteen scales (see table 1).

The first dimension measures the students´ perception of the classroom goal structures, in two different scales. The scale A1 (5 items: 7, 9, 37, 57, 70) assess the student's perception of a learning-oriented classroom goal structure (e.g., Item 7. The teacher of this subject really wants us to have pleasure in learning new things) and the scale A2 (4 Items: 6, 16, 20, 41) assess the student´s perception of a performance-oriented classroom goal structure (e.g., Item 41. In this subject, the teacher tells us how we are compared with other students).

The second dimension assesses the students´ perception about the type of instrumental motivation that is promoted by the teacher in the classroom and the types of behavior regulations associated. The scale B1 (7 Items: 18, 64, 71, 82, 88, 94, 99) assesses the perception of promoted exogenous instrumentality with external regulation (e.g., Item 71. In this subject, the teacher tells us it is important to have good grades to impress our parents). The scale B2 (7 Items: 34, 45, 51, 66, 74, 85, 97) measures the perception of promoted exogenous instrumentality with internal regulation (e.g., Item 66. The teacher tells us the grades we have on the subject are important achieve our future career goals). The scale B3 (5 Items: 10, 29, 32, 43, 60) assess the perception of promoted endogenous instrumentality with internal regulation (e.g., Item 29. The teacher of this subject considers that what we learn in class will be useful for other lessons that we have in the future).

The third dimension assesses the perception of the motivational profile of the teacher. The scale C1 (6 items: 24, 39, 42, 59, 76, 80), measures the perceived autonomy support (e.g., Item 59. The teacher of this subject tries to understand the way I see things before suggesting a new way to have them) (see table 1).

The fourth dimension measures the students' goal orientation. The scale D1 (7 Items: 3, 8, 25, 28, 33, 36, 98) assesses the learning goal orientation to (e.g., Item 28. In this subject, and for this academic year, one of my goals is to acquire many new skills and master them well), and the scale D2 (8 items: 12, 14, 19, 26, 31, 53, 63, 67) assess the performance goal orientation (e.g., Item 12. In this subject, one of my goals is to show others that I'm good at the classroom activities).

The fifth dimension measures the perceived instrumentality of school activities. The scale E1 (6 items: 62, 65, 72, 78, 87, 93) assesses the exogenous instrumentality, with external regulation (e.g., Item 72. I try to have good grades in this subject to prove I'm smarter than most my colleagues). The scale E2 (6 items: 5, 22, 47, 55, 79, 91) assesses the exogenous instrumentality, with internal regulation (e.g., Item 79. I have to pass this subject to achieve my academic goals). Finally, the scale E3 (7 Items: 40, 61, 69, 77, 84, 90, 96) assesses the endogenous instrumentality, with internal regulation (e.g., Item 84. In the future, I will use in other subjects, what I have learned from this subject).

The sixth dimension of the SMQ measures the use of learning strategies by students. The scale F1 (4 Items: 21, 23, 49, 92) assesses the use of repetition strategies (e.g., Item 92. When I study for this subject, I repeat to myself the topic several times). The scale F2 (6 items: 38, 56, 75, 83, 86, 89) assesses the use of elaboration strategies (e.g., Item 56. I try to connect the ideas of this subject with ideas from other subjects whenever possible). The scale F3 (4 Items: 15, 35, 44, 52) measures the use of organization strategies (e.g., Item 52. I draw schemes, diagrams or simple tables to help me organize the topic.) The scale F4 (5 Items: 17, 46, 50, 73, 95) measures the critical thinking (e.g., Item 73. I consider the learned topic a starting point, but I try to develop my own opinion about it). Finally, the scale F5 (10 Items: 4, 11, 13, 27, 30, 48, 54, 58, 68, 81) evaluates the use of meta cognitive strategies (e.g., Item 54. I try to change the way I study, in order to adapt myself to the requirements of this subject and the teaching style of the teacher).

Twelve out of the sixteen scales were adapted from three available instruments, selected on the basis of the psychometric qualities (see table 1).The first original instrument, entitled *Perceptions of Instrumentality* (PI; Husman, Derryberry, Crowson, & Lomax, 2004), is a self-report scale, phrased in English and validated for the U.S. population. The *PI* consists of two subscales: Endogenous Instrumentality and Exogenous

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[2] We used the Portuguese classification system: qualitative values of 0-5, for students in 9th grade and quantitative values of 0-20, for students in 12th grade.

Instrumentality. The Endogenous subscale consists of four items that ask about the utility of learning the course content for future goals (α = .73). The Exogenous instrumentality subscale consists of 4 items that ask if receiving a good grade or passing the course will help students achieve their future goals (α = .52). Students responded to both subscales on a five point Likert type response from 1 (strongly disagree) to 5 (strongly agree). The scores for each subscale are summed and the average values calculated. However, it is necessary to recode the scores of four of the eight items because they are negatively worded. The second instrument, named *Cuestionário a Estudiantes,* (CE; Matos, 2005)[3] is a self-report instrument written in Spanish and validated for the Peruvian population. It comprises 13 subscales that measure students´ perceptions about their goal orientations and school culture, and also the teachers´ perceptions about their goal orientation and instructional practices. For all the subscales considered, the alpha coefficients are above .60. Students´ responses to the 63 items were punctuated on a on a five point Likert type response, from 1 (strongly disagree) to 5 (strongly agree). The *CE* score is obtained calculating the average of individual scores. The third instrument, named *Learning Climate Questionnaire* (LCQ; Williams & Deci, 1996) is a self-report questionnaire, written in English and validated for the U.S. population. The LCQ is composed by a single scale, consisting of 15 items in the long version, or 6 items in the short version (used in this study), that assess the degree to which students perceive the teacher as autonomy supportive *vs* controlling (α > .90). Students responded on a seven point Likert type response from 1 (strongly disagree) to 7 (strongly agree).The score of the LCQ is obtained by calculating the average of individual scores. Highest scores

Table 1

Structure of Motivational Scales of the SMQ

Aspect	Scale	Items Translated	New Items	CE	Original Scales LCQ	PI	Total
Learning Climate	A1.	7, 9, 37 , 57, 70		Teacher´s learning goals			5 Items
	A2.	6, 16, 20, 41		Teacher´s performance-approach goals			4 items
	B1.		18, 64, 71, 82, 88, 94, 99				7 items
	B2.		34, 51, 66, 74, 45, 85, 97				7 items
	B3.		10, 29, 32, 43, 60				5 items
Motivational Processes	C1.	24, 39, 42, 59, 76, 80			Autonomy Support		6 items
	D1.	3, 8, 25, 28, 33, 36, 98		Learning goal orientation			7 items
	D2.	12, 14, 19, 26, 31, 53, 63, 67		Performance-approach goal orientation			8 items
	E1.		62, 65, 72, 78, 87, 93				6 items
	E2.	5, 22, 55, 79,	47, 91			Exogenous instrumentality	6 items
	E3.	69, 77, 84, 90	40, 61, 96			Endogenous instrumentality	7 items
Learning Strategies	F1.	21, 23, 49, 92		Rehearsal strategies			4 items
	F2.	38, 56, 75, 83, 86, 89		Elaboration strategies			6 items
	F3.	15, 35, 44, 52		Organization strategies			4 items
	F4.	17, 46, 50, 73, 95		Critical thinking			5 items
	F5.	4, 11, 13, 27, 30, 48, 54, 58, 68, 81	Metacognitive strategies			10 items	
							Total 97 Items

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[3] The *CE* is adapted from the *Patterns of Adaptive Learning Scales* (Pals;Midgley et al., 1997, 2000).

express higher perceptions of teachers´ autonomy support. For all the subscales (see table 1), we followed the translation–back translation procedure (Duarte & Rossier, 2008; Hambleton, 1994; Van de Vijver & Hambleton, 1996). The LCQ and the PI were translated into Portuguese by a professional translator and retranslated into English by an independent translator. Then, the two back-translated documents were compared with the original version, (in order to determine the linguistic equivalence of items) and discussed the discrepancies between the two versions. This procedure was repeated until a final version was agreed (Figueira, 1994; Silva, 2010).The same translation– back translationprocedures were followed for the CE, but now involving Portuguese and Spanish speaking experts. For all the adapted instruments the necessary permits were obtained.

In addition to this procedure, four scales of the SMQ were created new, aimed to reinforce the tripartite nature of instrumental motivation, either perceived in the learning context (Scale B1, Items 18, 64, 71, 82, 88, 94, 99; Scale B2, Items 34, 45, 51, 66, 74, 85, 97; and Scale B3, items 10, 29, 32, 43, 60) or in the learning activities (Scale E1, items 62, 65, 72, 78, 87, 93).

Five additional items were also originally formulated to measure missing facets of the constructs (see table 1). In particular, the new items aimed to strengthen the behavioral regulation forms of the *PI* items (scale E2: items 47 and 91; scale E3, items 40, 61, and 96) (for a review, see Cordeiro, 2010).

The SMQ was answered by the students, using a Likert type scoring system with five response categories, ranging from 1 (strongly disagree) to 5 (strongly agree). Eighty seven items were quoted in the forward direction (1-strongly disagree to 5-strongly agree) and ten items (items 10, 60, 64, 82, 85, 99, 5, 55, 61, 77) were quoted in the reverse way (5-strongly disagree to 1-strongly agree). The scores obtained for the SMQ are factorial scores and not global for academic motivation. The individual scores for each scale range between a minimum of 20 points in the Scale A2 and a maximum of 50 in the scale F5. We assume that the attribute is present when the individual score is higher than the average score calculated for each scale.

Method

Participants

The SMQ was administered to a convenience sample consisting of 485 students of the 9th ($N = 248$ students) and 12th grade ($N = 237$ students) of both sexes (41.9% male, $N = 203$ and 58.1% female, $N = 282$), aged between 13 and 24 years. For the entire sample, the average value for age was of 14.2 years (22.1%) and the average value for standard deviation was of 1.1. The students surveyed were attending day school classes in public (86.2%) and private Portuguese

schools (13.8%), during the academic year of 2009-2010. From the total sample, 48.9% ($N = 237$) of the students were attending middle schools and 51.1% ($N = 248$) were attending secondary schools. The districts sampledwere Aveiro, Castelo Branco, Évora, Portalegre and São Miguel, Azores.

Procedures

The psychometric analysis of the SMQ´s properties began with a pilot study aimed to make a preliminary evaluation on the quality of the scale items translated, considering its readability and unambiguous comprehension. It was used a convenience sample ($N = 29$) of 9th ($N = 17$) and 12th ($N = 12$) grade students of both sexes, aged from 14 to 19 years, that were attending day school classes at the Basic School of Alter do Chão. The results led to the rephrasing of 4 items, but the number and order of the scale items stayed the same.

Once we got the final version of SMQ, and obtained the permissions from the General Directorate for Innovation and Curricular Development to administrate it in the Portuguese schools, we made formal contacts with the Executive Boards/Pedagogical Directorates of schools, asking them to collaborate in the study. They were sent an e-mail with a detailed description of the nature and goals of the research and the procedures for data collection, including the need to obtain informed consent from all the participants.

The SMQ was administered by the researcher in the classroom, using an online platform (www.surveymonkey. com/as/QME). All the participants received a token (password) for accessing the questionnaire. Prior to the filling of the questionnaire, the researcher read aloud the instructions to the students, emphasizing some aspects linked to the purpose and ethics of the study, such as the anonymity and confidentiality of data, the voluntary participation and the relevance of the study to understand and promote the students' motivation. This procedure intended to create optimal conditions to ensure the confidence and cooperation in the study, and minimize the effects of social desirability and any other forms of self-presentation. All students choose to participate in the study and validated the questionnaires without missing responses. That was an interpreted as an unambiguous signal that they were motivated enough to participate in the study in a responsible way.

Results

Item analysis and the level of accuracy of the SMQ

The descriptive statistics for all the 97 items expressed arithmetic mean values ranging from 2.15 to 3.72, although most statistics were located around the mean value (3.30). The respondents used, for the 97 items, the five response

possibilities. The standard deviation values lied between .963 and 1,345. The corrected item-total correlations felt into the interval that ranged between .249 and .696 (see Appendix I). Only two items showed correlations lower than .30 (scale A1, item 7; scale D2, item 14). The values assigned to different items followed a slightly different distribution from the normal curve. However, the negative values for skewness and kurtosis (leptokurtic curve) detected did not significantly affect the validity of results obtained by the factor analysis (see Appendix I). The Cronbach's alpha coefficient for the total scale (97 items) was .97, showing very good values of internal consistency. This data suggest the good capacity for the SMQ to discriminate the subjects against the dimensions to be evaluated.

Exploratory Factor Analysis of results

The factorial validity of the SMQ was explored using the method of exploratory factor analysis (EFA; McIver & Carmines, 1981)[4]. A first EFA, in principal components (PCA), using *varimax* orthogonal rotation[5] extracted a solution of 17 components with eigenvalues-greater-than 1, explaining 64.4% of the total variance of the questionnaire results (Tiensley & Tiensley, 1987). The explained variance for each component was, respectively of 29.69%, 8.306%, 4.132%, 3.037%, 2.542%, 2.139%, 1.793%, 1.611%, 1.485%, 1.391%, 1.268%, 1.236%, 1.189%, 1.128%, 1.086%, 1.072% and 1.034%. The exam of the *scree-plot* observed a sharp drop in the values of the *Eigenvalues* in the seventh factor, suggesting the retention of six factors. The eigenvalues obtained for the six components were, respectively of 28,808; 8,306; 4,008; 2,945; 2,466, and 2,075. The analysis of the correlation matrix with Varimax rotation, indicated that 26 items did not saturate at least at .40 with any factor, or they loaded in a factor without psychological meaning (items 5, 6, 8, 9, 10, 17, 22, 38, 50, 55, 56, 60, 61, 64, 71, 73, 77, 78, 82, 85, 87, 93, 96, 97, 98, 99). They were removed from the questionnaire.

A second EFA in *Principal Axes* and using *Varimax rotation* was done for the remaining 71 variables. Two necessary conditions to perform this analysis were attained. The Kaiser-Meyer-Olkin index for sampling adequacy (KMO = .962) suggested that the data represented a homogeneous set of variables and the MSA indices ($\chi^2(2,485) = 21,739, 85, p < .001$) indicated the existence of correlation between variables (Pestana & Gageiro, 2008).

Nine factors were extracted with eigenvalues greater than one, explaining 54.015% of the total variance of the results. However, an in depth analysis of the factorial matrix made clear the data was distributed only in six factors, given that, no significant factorial loadings were observed from the seventh to the ninth factor. The six-factor structure explained 50, 211% of the total variance of the items. The values of explained variance by extracted factor were of 16,397%, 10,318%, 8,309%, 6,905%, 4,538% and 3,744%. The exam of the *screen-plot* backed this six-factor structure. The eigenvalues obtained for the six factors were, respectively of 11,642, 7,325; 5,900; 4,903; 3,222, and 2,658. Finally, the analysis of the item-correlation/total scale-r, revealed positive correlations (higher than .40; $p < .01$) for 69 scale items with an interpretable factor: 24 items saturated in the first factor, 12 items in the second factor, 11 items in the third factor, 10 items in the fourth factor, 7 items in the fifth factor and, finally, 5 items in the sixth factor. Seven items presented complex factorial loadings, charging in more than one factor (items 25, 28, 36, 40, 69, 84, 90). We decided to keep them in the factor they gained higher interpretability. Two other items presented important problems. The item 79 did not charge significantly in any interpretable factor and the item 20 did not load significantly on any factor. For this reasons, both items were removed from the questionnaire. The six factors presented high coefficients of internal consistency. It were obtained very good alpha coefficients for the factor 1 (.953), factor 2 (.904), factor 3 (.904) and factor 4 (.921), and good alpha coefficients for the factor 5 (.863) and 6 (.858). These coefficients provided statistical significance for the constituting variables of the SMQ (Figueira, 1994; Pestana & Gageiro, 2008). Based on these results, we conclude that the six factor solution is the most valid and reliable structure to explain how the data is organized.

Following the recommendations of Sterling and Betz (1990) we ended our analysis with a psychological interpretation of the factors extracted. The first factor was identified as "Strategies". It assesses the use of learning strategies by students according to a structure of 24 items, organized in 5 scales. It comprises the rehearsal strategies scale (F1; items 21, 23, 49, 92), the elaboration strategies scale (F2; items 75, 83, 86, 89), the organization strategies scale (F3; items 15, 35, 44, 52), the critical thinking scale (F4; items 46, 95) and the met cognitive strategies scale (F5; items 4, 11, 13, 27, 30, 48, 54, 58, 68, 81; See table 2).

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[4] We have reached the ratio of 5:1 subjects/variables (485 subjects and 97 items), a necessary and sufficient condition to perform an EFA at the results (Nunnally, 1978). Nevertheless it was not possible to obtain values for the matrix of Pearson product-moment inter-correlations, necessary to determine the "factors" of the SMQ (Silva, 2010).

[5] Two criteria, commonly recommended in the literature, was followed to extract the number of factors: the Kaiser's eigenvalue-greater-than-one ruleand Cattell's Scree test (e.g., Figueira, 1994; Silva, 2010).

Table 2
Factorial Model of the SMQ

Structure of Scales	Items	Total	Extracted Factors	Items	Total
A1.	7, 9, 37 , 57, 70	5 items		70, 7, 37 , 57	
C1.	24, 39, 42, 59, 76, 80	6 Items	F4	24, 39, 42, 59, 76, 80	10 Items
A2.	6, 16, 20, 41	4 Items		16	
B1.	18, 64, 71, 82, 88, 94, 99	7 Items	F2	18, 88, 94	
B2.	34, 51, 66, 74, 45, 85, 97	7 Items		34, 45, 51, 66, 74	
B3.	10, 29, 32, 43, 60	5 Items		29, 32, 43	
D1.	3, 8, 25, 28, 33, 36, 98	7 Items	F6	3, 25, 28, 33, 36	5 Items
D2.	12, 14, 19, 26, 31, 53, 63, 67	8 Items	F3	63, 67, 12, 53, 14, 19, 26, 31	11 Items
E1.	62, 65, 72, 78, 87, 93	6 Items		62, 65, 72	
E2.	5, 22, 55, 79, 47, 91	6 Items	**F5**	47, 91, 93	7 Items
E3.	69, 77, 84, 90, 40, 61, 96	7 Items		69, 84, 90, 40	
F1.	21, 23, 49, 92	4 Items	**F1**	21, 23, 49, 92,	24 Items
F2.	38, 56, 75, 83, 86, 89	6 Items		75, 83, 86, 89	
F3.	15, 35, 44, 52	4 Items		15, 35, 44, 52	
F4.	17, 46, 50, 73, 95	5 Items		46, 95	
F5.	4, 11, 13, 27, 30, 48, 54, 58, 68, 81	10 Items		4, 11, 13, 27, 30, 48, 54, 58, 68, 81	
	Total	**97 Items**		**Total**	**69 Items**

The second factor was named "Teacher Extrinsic Goals". It contains 12 items, organized in 4 scales that assess the students´ perception of teacher´s extrinsic motivations, including performance-oriented goal structures and future-oriented goal structures. Specific scales include a) the performance-oriented goals scale (A2; item 16), b) the exogenous instrumentality with external regulation scale (B1; items 18, 88, 94); c) the exogenous instrumentality with internal regulation scale (B2; items 34, 45, 51, 66, 74) and the endogenous instrumentality with internal regulation scale (B3; items 29, 32, 43).

The third factor was identified as "Student Extrinsic Goals, Externally Regulated". This construct addresses badly internalized forms of students´ extrinsic motivation, including performance goal orientations and the perceived instrumentality of the learning activities to attain future goals that externally regulate the behavior. It contains 11 items organized in two scales, namely the performance oriented goals scale (D2; items 12, 14, 19, 26, 31, 53, 63, 67) and the exogenous instrumentality with external regulation scale (E1; items 62, 65, 72).

The fourth factor was called "Teacher Intrinsic Goals". It evaluates the students´ perception of learning-oriented goal structures and the degree to which the teacher is perceived as autonomy supportive *vs.* controlling of the classroom dynamics.The 10 items it encompasses are distributed along 2 scales: the learning oriented goals scale (A1; items 7, 37, 57, 70) and the teacher autonomy support scale (C1; items 24, 39, 42, 59, 76, 80).

The fifth factor was named "Student Extrinsic Goals, Internally Regulated". This construct addresses the well

internalized (identified and integrated) forms of students´ extrinsic motivation that internally regulate the behaviour (related to the personal or professional development). The construct is measured by 7 items in 2 scales: the exogenous instrumentality with internal regulation scale (E2; items 47, 91, 93) and the endogenous instrumentality scale (E3; items 40, 69, 84, 90).

The sixth factor was identified as "Student Intrinsic Goals". It measures the students´ task goal orientation, implicated in the progressive acquisition of skills and mastery of learning tasks. It consists of 5 items, organized in a single scale, to know, the students´ learning oriented goals scale (D1; items 3, 25, 28, 33, 36).

Discussion and conclusion

The exploratory studies performed on the factorial structure of the SMQ, supported its multi-dimensional structure, having discriminated six latent factors. The factor 1was identified as "Strategies", the factor 2 as "Teacher Extrinsic Goals", the factor 3 as "Student Extrinsic Goals, Externally Regulated", the factor 4 as "Teacher Intrinsic Goals", the factor 5 as "Student Extrinsic Goals Internally Regulated", and the factor 6 as "Student Intrinsic Goals". The factorial model extracted provided support for, a) the distinction between the student motivational processes (goal orientations, perceived instrumentality and learning strategies) and the motivational processes of the learning environment (classroom goal structures and teacher autonomy support), b) the distinction of the intrinsic *versus* extrinsic content of

goal orientations and of classroom goal structures, c) the distinction between learning and performance goal-orientations (scales F6 and F3, respectively) and between learning and performance-oriented goal structures (scales F3 and F4, respectively), d) the tripartite structure of perceived instrumentality on students (scales E1, E2, and E3), and e) the distinction between motivational constructs and learning strategies. However the results failed to distinguish the five scale model defined to assess the learning strategies (scale F1, F2, F3, F4, F5), and also failed to distinguish the three types of instrumentality emphasized by the teacher (scales B1, B2 and B3). Also problematic were the patterns of interaction, not considered in the theoretical model, that were found between the constructs of performance goals and exogenous instrumentality with external regulation (scales F3 and F4) and between the concepts of learned-oriented goal structure and teacher autonomy support (scales A1 and C1). Overall, these limitations suggest the need for future research to a) provide conceptual refinements and more discriminative measures criteria of the tripartite nature of future-oriented goal structures, c) obtain data from a different categorization of learning strategies, based on the distinction between deep and surface learning strategies, d) make use of a representative sample, intended to validate the SMQ for the Portuguese population.

In general, the data matrix obtained attested the good psychometric qualities of SMQ. The six factor model obtained presented good or even very good estimates of construct validity. The constructs explained a significant variance of the item results (53.95%), having all the items had positive and significant correlations with the factor where they saturate (at least .40). The QME also demonstrated to be a reliable instrument, showing good coefficients of internal consistency for the global scale (.97) and also for each factor, never below (.858; F6).In sum, there are strong indications to affirm the construct validity of the SMQ, and therefore to assert itself a reliable and robust instrument to assess the quality (or direction) of the achievement motivation of students in the school context. Nevertheless, the factor structure found should be interpreted with caution, since the data presented, although valid, only represent initial studies that explored the dimensionality of the instrument and not the final product in the process of validating the questionnaire.

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ANNEX I

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
p70	485	1	5	3,42	,046	1,006	−,350	,111	−,087	,221
p7	485	1	5	3,62	,048	1,054	−,528	,111	−,154	,221
p57	485	1	5	3,59	,048	1,063	−,449	,111	−,270	,221
p37	485	1	5	3,73	,044	,963	−,570	,111	,102	,221
p16	485	1	5	3,51	,050	1,107	−,389	,111	−,357	,221
p20	485	1	5	2,95	,061	1,345	,053	,111	−1,109	,221
p88	485	1	5	3,40	,052	1,145	−,303	,111	−,570	,221
p94	485	1	5	3,33	,053	1,165	−,375	,111	−,550	,221
p34	485	1	5	3,48	,050	1,101	−,519	,111	−,194	,221
p45	485	1	5	3,66	,046	1,013	−,578	,111	,093	,221
p51	485	1	5	3,38	,051	1,119	−,367	,111	−,477	,221
p66	485	1	5	3,64	,047	1,028	−,447	,111	−,241	,221
p74	485	1	5	3,49	,051	1,113	−,423	,111	−,417	,221
p18	485	1	5	3,72	,048	1,066	−,717	,111	,171	,221
p29	485	1	5	3,66	,047	1,026	−,511	,111	−,082	,221
p32	485	1	5	3,71	,047	1,025	−,540	,111	−,060	,221
p43	485	1	5	3,61	,047	1,032	−,604	,111	,170	,221
p93	485	1	5	3,39	,052	1,146	−,374	,111	−,522	,221
p47	485	1	5	3,44	,049	1,089	−,418	,111	−,215	,221
p79	485	1	5	3,48	,052	1,136	−,459	,111	−,417	,221
p91	485	1	5	3,48	,048	1,065	−,582	,111	,056	,221
p40	485	1	5	3,69	,049	1,078	−,650	,111	−,065	,221
p69	485	1	5	3,51	,048	1,063	−,408	,111	−,227	,221
p84	485	1	5	3,45	,048	1,064	−,363	,111	−,328	,221
p90	485	1	5	3,50	,051	1,131	−,504	,111	−,321	,221
p12	485	1	5	2,97	,055	1,211	−,057	,111	−,818	,221
p14	485	1	5	2,15	,056	1,222	,763	,111	−,502	,221
p26	485	1	5	2,45	,054	1,182	,405	,111	−,714	,221
p31	485	1	5	2,22	,055	1,210	,682	,111	−,543	,221
p53	485	1	5	2,98	,057	1,264	−,007	,111	−,910	,221
p63	485	1	5	2,67	,055	1,217	,204	,111	−,834	,221
p67	485	1	5	2,62	,059	1,295	,242	,111	−1,010	,221
p72	485	1	5	2,43	,056	1,241	,455	,111	−,785	,221
p19	485	1	5	3,26	,054	1,193	−,203	,111	−,803	,221
p62	485	1	5	3,08	,055	1,210	−,193	,111	−,779	,221
p65	485	1	5	3,30	,053	1,173	−,279	,111	−,601	,221
p76	485	1	5	3,25	,048	1,061	−,235	,111	−,311	,221
p80	485	1	5	3,27	,049	1,088	−,263	,111	−,408	,221
p24	485	1	5	3,45	,045	,990	−,289	,111	−,156	,221
p39	485	1	5	3,34	,051	1,113	−,353	,111	−,451	,221
p42	485	1	5	3,21	,046	1,017	−,182	,111	−,113	,221
p59	485	1	5	3,27	,047	1,043	−,260	,111	−,179	,221
p3	485	1	5	3,80	,045	,992	−,747	,111	,323	,221
p25	485	1	5	3,48	,049	1,077	−,448	,111	−,204	,221
p28	485	1	5	3,62	,046	1,016	−,437	,111	−,144	,221
p33	485	1	5	3,70	,046	1,018	−,590	,111	,014	,221
p36	485	1	5	3,66	,049	1,082	−,584	,111	−,166	,221
p92	485	1	5	3,35	,052	1,153	−,357	,111	−,519	,221
p49	485	1	5	3,41	,050	1,105	−,495	,111	−,240	,221
p23	485	1	5	3,03	,055	1,200	−,078	,111	−,837	,221
p21	485	1	5	2,98	,052	1,136	−,091	,111	−,617	,221
p75	485	1	5	3,34	,050	1,109	−,428	,111	−,340	,221
p83	485	1	5	3,25	,051	1,117	−,294	,111	−,515	,221
p86	485	1	5	3,37	,047	1,026	−,324	,111	−,078	,221
p89	485	1	5	3,38	,045	,990	−,389	,111	−,021	,221
p44	485	1	5	3,39	,051	1,122	−,436	,111	−,412	,221
p15	485	1	5	3,34	,052	1,153	−,400	,111	−,482	,221
p52	485	1	5	2,91	,053	1,157	−,039	,111	−,738	,221
p35	485	1	5	3,40	,052	1,145	−,453	,111	−,361	,221
p46	485	1	5	3,20	,046	1,016	−,195	,111	−,150	,221
p4	485	1	5	3,17	,054	1,189	−,249	,111	−,748	,221
p68	485	1	5	3,51	,047	1,032	−,506	,111	,034	,221
p48	485	1	5	3,20	,050	1,097	−,200	,111	−,438	,221
p13	485	1	5	3,28	,049	1,077	−,397	,111	−,336	,221
p30	485	1	5	3,29	,050	1,100	−,315	,111	−,403	,221
p54	485	1	5	3,19	,049	1,077	−,299	,111	−,344	,221
p27	485	1	5	3,36	,048	1,059	−,426	,111	−,204	,221
p11	485	1	5	3,44	,049	1,087	−,527	,111	−,115	,221
p81	485	1	5	3,15	,047	1,045	−,123	,111	−,341	,221
p58	485	1	5	3,36	,047	1,045	−,326	,111	−,232	,221
p95	485	1	5	3,22	,047	1,029	−,324	,111	−,188	,221

Valid N (listwise) 485

ANNEX II

Self-Motivation Questionnaire: Principal Component Matrix for the 71 variables

Rotated Factor Matrix

	Factor 1	2	3	4	5	6	7	8	9
p70	,292	,164	,086	,533	,208	,052	,113	-,056	,138
p7	,056	,115	-,032	,435	-,018	,130	,007	-,022	,275
p57	,167	,290	,022	,568	-,010	,063	-,055	,064	-,064
p37	,225	,318	-,014	,488	,055	,336	-,019	-,029	,025
p20	,145	,292	,379	-,061	-,067	-,045	-,112	,179	,008
p16	,247	,432	,151	,078	-,107	,077	-,026	,118	,181
p88	,210	,606	,099	,215	,321	-,040	,010	,175	,081
p94	,270	,557	,204	,114	,367	-,093	-,049	,078	,128
p34	,133	,619	,140	,073	,071	,147	-,005	,018	-,031
p45	,231	,612	,021	,263	,318	,219	,045	-,116	-,034
p51	,226	,614	,138	,129	,134	-,010	,165	,081	-,101
p66	,245	,655	,096	,271	,222	,120	-,020	,062	-,105
p74	,249	,655	,088	,256	,212	,010	,116	,031	-,093
p18	,292	,604	,083	,064	-,064	,152	,074	,172	,164
p29	,268	,530	,000	,286	,109	,374	-,063	-,070	,044
p32	,255	,579	-,005	,270	,126	,341	-,014	-,077	,107
p43	,233	,657	,020	,242	,220	,205	,087	-,033	-,059
p47	,274	,306	,198	,146	,473	,258	,036	,028	-,135
p91	,393	,370	,144	,135	,514	,189	,046	,038	,121
p40	,345	,414	,006	,207	,411	,393	,092	,021	-,006
p69	,429	,281	,058	,216	,434	,222	,084	-,004	-,068
p84	,414	,309	,091	,253	,411	,111	,120	-,026	-,079
p90	,309	,466	,086	,171	,503	,208	,029	,067	-,068
p93	,344	,364	,191	,081	,581	,035	,011	,057	,057
p12	,064	,059	,573	,108	,025	,165	,045	,132	-,079
p14	,041	,012	,769	,014	,032	-,052	-,175	-,142	-,022
p26	,116	,062	,761	,109	-,036	,035	-,090	-,049	-,025
p31	,077	,007	,828	,077	-,024	-,005	-,048	-,147	,034
p53	,148	,254	,564	,118	,164	,096	,135	,118	-,143
p63	,015	,048	,746	,151	,119	,045	,152	,137	,052
p67	,062	,018	,733	,072	,094	-,039	,126	,046	,007
p72	,050	,030	,761	,106	,097	-,128	,115	-,005	,077
p19	,192	,200	,506	,008	,057	,349	-,007	,355	,067
p62	,158	,280	,500	,029	,111	-,003	,111	,374	,040

Total Variance Explained

Factor	Initial Eigenvalues Total	% of Variance	Cumulative %	Extraction Sums of Squared Loadings Total	% of Variance	Cumulative %	Rotation Sums of Squared Loadings Total	% of Variance	Cumulative %
1	24,249	34,154	34,154	23,803	33,525	33,525	11,642	16,397	16,397
2	5,287	7,447	41,600	4,878	6,870	40,395	7,325	10,318	26,714
3	3,381	4,762	46,363	2,936	4,136	44,531	5,900	8,309	35,024
4	2,602	3,665	50,027	2,098	2,955	47,485	4,903	6,905	41,929
5	1,972	2,777	52,804	1,518	2,138	49,623	3,222	4,538	46,467
6	1,584	2,231	55,035	1,111	1,565	51,188	2,658	3,744	50,211
7	1,203	1,694	56,729	,721	1,016	52,204	1,061	1,494	51,705
8	1,131	1,593	58,322	,697	,981	53,185	,960	1,353	53,058
9	1,072	1,510	59,833	,589	,830	54,015	,679	,957	54,015
10	,983	1,384	61,217						
11	,963	1,357	62,574						
12	,913	1,285	63,859						
13	,891	1,255	65,114						
14	,877	1,235	66,349						
15	,848	1,194	67,543						
16	,814	1,146	68,690						
17	,789	1,111	69,800						
18	,765	1,078	70,878						
19	,742	1,045	71,923						
20	,717	1,009	72,932						
21	,692	,974	73,906						
22	,677	,954	74,861						
23	,632	,889	75,750						
70	,159	,224	99,789						
24	,622	,877	76,627						
25	,597	,841	77,468						
26	,586	,825	78,292						
27	,563	,793	79,085						
28	,559	,788	79,873						
29	,548	,772	80,645						
30	,532	,749	81,394						
31	,516	,726	82,121						
32	,506	,713	82,833						
33	,501	,705	83,539						

Rotated Factor Matrix

	Factor								
	1	2	3	4	5	6	7	8	9
p65	,232	,246	,374	,059	,170	,070	-,013	,484	-,054
p76	,155	,220	,204	,452	,086	-,030	,252	-,021	-,185
p80	,296	,154	,153	,533	,154	,000	,050	,098	-,025
p24	,206	,195	,184	,515	,126	,182	-,090	,076	,076
p39	,218	,111	,067	,657	,123	,123	-,031	-,097	,167
p42	,159	,030	,222	,626	,074	,041	,054	,046	-,154
p59	,291	,156	,152	,610	,028	,026	,132	,065	-,178
p3	,370	,191	-,090	,145	,197	,411	-,014	,147	,130
p25	,510	,298	,014	,250	,149	,401	-,087	,076	,036
p28	,414	,318	,085	,215	,187	,552	,129	,000	,029
p33	,355	,331	,036	,249	,200	,501	-,012	,026	,040
p36	,427	,308	,037	,181	,108	,442	,045	,032	-,177
p92	,649	,204	,047	,086	,192	,001	,172	,073	,040
p49	,652	,205	,005	,186	,177	,050	,015	,092	,032
p23	,529	,208	,185	,191	-,003	,070	-,039	,101	,162
p21	,620	,081	,213	,045	,003	,017	-,062	,035	,121
p75	,538	,229	,191	,212	,161	,098	,342	,026	-,022
p83	,646	,163	,078	,121	,183	,008	,236	-,066	,177
p86	,547	,182	,112	,264	,219	,090	,236	,073	,044
p89	,568	,244	,100	,236	,201	,140	,278	,035	,099
p44	,648	,284	,037	,130	,081	-,057	,090	-,007	-,046
p15	,699	,131	,008	,072	,021	,207	-,097	-,009	,004
p52	,496	,143	,246	,119	,117	-,122	,271	,002	-,024
p35	,725	,290	,093	,110	-,029	-,243	-,018	-,020	-,073
p46	,528	,153	,214	,180	,250	,004	,077	-,002	-,146
p4	,618	,067	,011	,101	,073	,184	-,163	,043	,035
p68	,600	,183	,052	,196	,184	,088	,078	,061	,023
p48	,499	,221	,126	,189	,198	,042	,099	,053	-,039
p13	,615	,092	,045	-,003	,154	,192	-,024	,050	-,046
p30	,680	,176	,100	,236	,098	,116	-,113	,051	,030
p54	,449	,256	,257	,258	,200	,083	,182	,106	,009
p27	,564	,248	,130	,164	-,032	,244	,018	,015	-,112
p11	,654	,121	-,019	,154	,035	,229	-,130	,058	-,077
p81	,488	,130	,238	,269	,113	,074	,363	,034	-,030
p58	,585	,146	-,014	,294	,065	,020	,081	,038	-,177
p95	,490	,153	,178	,271	,244	-,042	,043	,022	,020
p79	,407	,355	,112	,163	,282	,172	,043	,255	-,016

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 11 iterations.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
34	,481	,678	84,216						
35	,479	,675	84,892						
36	,472	,664	85,556						
37	,462	,651	86,207						
38	,443	,624	86,830						
39	,432	,608	87,439						
40	,414	,583	88,022						
41	,404	,569	88,591						
42	,394	,554	89,145						
43	,382	,538	89,683						
44	,373	,526	90,209						
45	,364	,512	90,721						
46	,360	,507	91,228						
47	,346	,487	91,715						
48	,341	,480	92,195						
49	,333	,469	92,664						
50	,314	,443	93,107						
51	,311	,439	93,545						
52	,305	,430	93,975						
53	,296	,417	94,391						
54	,281	,396	94,788						
55	,280	,395	95,183						
56	,276	,388	95,571						
57	,261	,367	95,938						
58	,256	,361	96,298						
59	,250	,351	96,650						
60	,247	,348	96,997						
61	,229	,323	97,321						
62	,228	,321	97,642						
63	,222	,312	97,954						
64	,213	,300	98,254						
65	,200	,281	98,535						
66	,195	,275	98,810						
67	,182	,256	99,066						
68	,181	,255	99,321						
69	,173	,244	99,565						
71	,150	,211	100,000						