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Self-regulated profiles and academic achievement

Antonio Valle, José Carlos Núñez*, Ramón G. Cabanach, Julio Antonio González-Pienda*, Susana Rodríguez, Pedro Rosário**, Rebeca Cerezo* and María A. Muñoz-Cadavid***
University of A Coruña, * University of Oviedo, ** University of Minho (Portugal) and *** University of Santiago de Compostela

To date, research on the relation between learning self-regulation and academic achievement has generally show disparate results. This work intends to look into this relation from a new perspective, which consists in classifying the students as more or less self-regulated depending on diverse indicators and using cluster analysis. The aim of this work was to identify the possible self-regulated learning profiles in a sample of university students. By means of stepwise linear regression analysis, we determined which of the selected variables better predicted metacognitive self-regulation. Then, three significantly different self-regulated learning profiles were obtained by two-step cluster analysis with those variables. Lastly, ANOVA was used to analyse the relation between the self-regulated learning profiles and academic achievement. The implications of these data for the educational practice at university are discussed.

Perfiles de aprendizaje autorregulado y rendimiento académico. Hasta la fecha, la investigación sobre la relación entre autorregulación del aprendizaje y rendimiento académico, en general, ha arrojado resultados no siempre coincidentes. En este trabajo se pretende investigar dicha relación desde una nueva perspectiva, la cual consiste en clasificar a los estudiantes como más o menos autorreguladores en base a diferentes indicadores y con la ayuda del análisis cluster. Por tanto, el objetivo de este trabajo consistió en identificar posibles perfiles de aprendizaje autorregulado en una muestra de estudiantes universitarios. Para ello, mediante análisis de regresión múltiple (método de pasos sucesivos), se trató de comprobar qué variables de las seleccionadas predecían mejor la autorregulación metacognitiva. Posteriormente, a través de análisis cluster, con esas variables se identificaron tres perfiles de aprendizaje autorregulado significativamente diferentes. Por último, mediante un ANOVA, se analizó la relación existente entre tales perfiles de aprendizaje autorregulado y el rendimiento académico. Se presentan y comentan las implicaciones de estos datos para la práctica educativa en la Universidad.

One of the greatest challenges for the university in the coming years consists in providing students with the necessary competences to have autonomous learning. From an educational point of view, autonomous learning implies having the capacity to regulate the own learning process (Schunk & Zimmerman, 2003; Zimmerman, 2002), and this self-regulation capacity plays a key role in success at university (Heikkilä & Lonka, 2006; Nicol & Macfarlane-Dick, 2006; Nota, Soresi, & Zimmerman, 2004).

Some studies evidence that a great majority of the students who reach higher studies are not adequately prepared to face what they are required to do at university (e.g., Allgood, Risko, Álvarez, & Fairbanks, 2000) as they are unable to regulate their own learning process (Rosário, Mourão, Núñez, González-Pienda, Solano, & Valle, 2007). Consequently, this lack of strategies and self-regulation processes are considered to be the main factor leading to university failure (Tuckman, 2003).

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Correspondencia: Antonio Valle
Facultad de Educación
Universidad de A Coruña
15071 A Coruña (Spain)
E-mail: vallar@udc.es

The current existing Self-Regulated Learning models highlight the importance of implication and compromise from learners, as well as the need for students to learn autonomously. Despite their obvious divergence, the backbone for these educational models can be summarised in the need to train the person in permanent and autonomous learning (Núñez, Solano, González-Pienda, & Rosário, 2006a).

Although there are different ways to approach the nature of *Self-Regulated Learning* (*SRL*), it can be defined as an active process in which students establish the objectives leading their learning, trying to monitor, regulate and control their cognitions, motivation and behaviour in order to achieve them. Therefore, research on learning strategies, metacognition, learning objectives and obviously the motivation of students (Heikkilä & Lonka, 2006; Nicol & Macfarlane-Dick, 2006) are all integrated in the SRL concept.

The results in the researches performed under this perspective indicate that students considered to be competent at self-regulation establish short-term specific objectives, prioritising them adequately. Furthermore, while these students are oriented towards learning goals, the more inexperienced students at self-regulation preferably adopt performance goals or those focused on the self personal image. These last students perceive the learning episodes

as threatening experiences in which their academic performance will be evaluated and their cognitive competence questioned, so in many cases they decide to avoid learning opportunities.

Students regulating their own learning focus the academic episodes as occasions to enhance their competence range and value them accordingly. As a result, these students, normally perceive themselves to be more capable than the inexperienced learners. Such self-efficiency beliefs do not only increase learning motivation but also the self-regulation process, facilitating the establishment of ambitious training objectives and the exhibition of self-monitoring behaviour. On the contrary, the students with low self-efficacy tend to be more anxious about their learning and to avoid the training opportunities when they appear. They study only what the teachers prescribe and are reluctant to exhibit themselves in front of their classmates. The expert self-regulated students, in contrast with the inexperienced ones, face their motivation as something they can develop in contact with academic tasks by reading and finding complementary information to a specific topic. On the other hand, inexperienced students, have difficulties to focus on one topic and attribute their lack of interest to external factors such as teachers with a «hardly captivating speech» or uninteresting lectures (Randi, 2004).

Despite the doubts still existing today on the nature, magnitude and type of relationship between the «self-regulation», «learning» and «achievement» constructs, research currently faces one of its greatest challenges in the analysis of how to evaluate the process of self-regulated school learning in a reliable and valid way (Karoly, Boekaerts, & Maes, 2005; Núñez, Solano, González-Pienda, & Rosário, 2006b; Winne, Jamieson-Noel, & Muis, 2002), and not just assessing the product. In general, the «self-report type» scales are the main tools used to evaluate the different components and processes involved in self-regulated learning, mainly due to the facility to be designed, handed out and interpreted (Winnie & Perry, 2000). However, different researchers coincide in pointing out that through this methodology, students generally find difficulties to really report what is happening to them or what they normally do in their study process when it comes to self-regulation (Karoly, Boekaerts, & Maes, 2005; Núñez et al., 2006b; Winnie & Jamieson-Noel, 2003).

It is generally believed that behind the self-report scales lies a restrictive conception of self-regulation skills as abilities, as something stable in the person. According to Patrick and Middleton (2002) self-report questionnaires are designed to measure self-regulated learning as an ability and therefore some of its aspects can remain hidden as they do not show sensitiveness to evaluate the context features, which are so particularly important. Therefore, complementary, even alternative approximations or more dynamic methods, sensitive to the situation are considered to be necessary in order to approach self-regulated learning as an interactive process among the person, the context and the task, thus assessing self-regulated learning as an event made up of individual and context features (Karoly, Boekaerts, & Maes, 2005; Perry, 2002).

However and despite the above, self-report measures are argued to be a useful and valuable tool to «*measure general aptitudes or tendencies to use different self-regulating processes*» (Pintrich, 2004, p. 391), and they can be efficiently used to measure the perceptions students have of their cognitive and motivational implication (Pintrich & DeGroot, 1990; Weinstein, Husman, & Dierking, 2000), but they must be replicated with other measures such as the loud-voice thinking protocols, behavioural measures, structured interviews, etc. However, as pointed by Nenniger (2005), it will always be necessary to put special care on the analysis and valuation of the data coming from different types of measures.

In the present research, this topic is faced from a new perspective. It intends to improve the efficacy of self-report type scales towards the identification of self-regulation competence levels for school learning. The strategy used consists in selecting different self-regulation behaviours and using them in combination to identify the students with different self-regulation levels. According to the results of already performed researches on self-regulation and the fact that the SRL construct is related to independent and effective ways of learning which imply metacognition, intrinsic motivation and strategic action (Perry, 2002), the following have been initially been taken as possible indicators: *cognitive strategies* (organization, elaboration), *metacognitive strategies*, *resource management strategies* (time and study environment management, effort regulation), and motivation (control beliefs, self-efficacy, task value, learning goals).

In short, the objective of this work consists, first, in establishing a set of SRL indicators and later in identifying the possible profiles of university students depending on their SRL levels. Finally, those different profiles will be checked against the different academic achievement levels to see how they relate.

Method

Participants

489 students from different degrees in the Public University in northern Spain took part in this study, 72.8% of whom are women and 27.2% men; 79.8% belong to the first cycle (years 1-3) and 20.2% to the second cycle (years 4-5).

Variables and measuring instruments

The variables object of the study are as follows: *Metacognitive self-regulation* (awareness degree, knowledge and control the students have over their study activities), *time and study environment management* (organization degree the students have of their time and study environment), *organization strategies* (degree to which students organise the materials to facilitate learning), *elaboration strategies* (degree to which the students try to relate the new knowledge to the already learnt one), *effort regulation* (degree to which students insist on the tasks despite the difficulties), *control beliefs* (degree of control the students have over their own learning processes), *task value* (degree to which the students consider the academic tasks and activities important, interesting and useful), *self-efficacy* (beliefs the students have on their capacities to achieve a good performance), *learning goals* (degree to which the students are focused on the wish to learn and increase the knowledge and abilities within a certain scope), and *academic achievement* (evaluated through the record of subjects passed in the corresponding examinations within the year when the rest of variables were collected).

The evaluation of these variables took place through the corresponding MSLQ dimensions —*Motivated Strategies Learning Questionnaire*— from Pintrich, Smith, García, & McKeachie (1991) and, in the case of the learning goals, with the

«*Goal Orientation Scale*» proposed by Skaalvik (1997). As it has already been indicated, the number of subjects successfully passed was used as criterion for achievement measure.

Procedure

In order to decide what variables would integrate self-regulated learning (SRL) indicators, a multiple regression analysis with consecutive steps was performed. It took «metacognitive self-regulation» as dimension criterion variable and elaboration strategies, time and study environment management, organization strategies, learning goals, effort regulation, self-efficacy, task value and control beliefs as predicting variables.

After identifying through Regression Analysis those variables which better predicted self-regulation, they were all jointly considered as SRL indicators. Depending on their SRL levels and by means of a Two-Step Cluster Analysis those indicators were used to establish the student profiles. The significance of each group was evaluated both theoretically and through the results from an ANOVA (taking the three groups of individuals with different profiles as independent variable and self-regulation as dependent variable). Finally, the differences existing among the three groups regarding the academic performance obtained were analysed by means of an ANOVA.

Results

Self-Regulated Learning (SRL) indicators

Table 1 shows the statistical descriptors corresponding to the hypothetically predicting variables for self-regulation. It also shows the values corresponding to the skewness and kurtosis found to be within normal limits.

The results from the Regression Analysis (table 2) indicate that even model 6 adjusts to the data [$F(6,464)= 156.012$; $p<.001$]. The six variables considered in the model explain 66.4% of the variance in self-regulation (R^2 adjusted= .66). Taking into account the data provided in table 2, it is observed that the majority of variance explained corresponds to model 1 which only includes the «elaboration strategies» variable (49.1% of the variance). Despite the statistical significance of the changes in the explained variance corresponding to the consecutive models (1 to 6), the amount of variance explained after the inclusion of a new variable in the new model is really small except for the second variable included – time management-, (a 10%), (see change in R^2). It is necessary to bear in mind that the amount of variance increased when explaining the criterion variable with the inclusion of each new variable is interpreted as the amount of variance which explains the new variable considering what has previously been explained with the variables already within the model. It is not only important to consider this information but it can also be of interest to know how important each of the six values are independently from the influence of the rest of them. This information is provided by the regression values (standardised beta) and the contribution coefficient (C) (table 3). According to the contribution coefficient, learning self-regulation is explained in 24.21% by the use of elaboration strategies, although it is closely followed by the use of organization strategies (17.90%). This information is interesting as it complements table 2 in the sense that the order in which a variable is entered does not indicate the degree of influence over the criterion variable. Based on the data from this table, it is possible to observe three clear levels: first the use of «elaboration strategies» and «organization strategies» (cognitive strategies), which account for the greatest variance regarding the criterion variable; secondly, «time and study environment management» and «effort regulation» (resource management strategies) variables explain self-regulation moderately; and thirdly «learning goals» and «self-efficacy for learning and performance» (motivational type variables) variables only explain 5.55% and 2.21%, respectively.

In brief, t values and their meaning levels, as well as positive regression coefficients indicate that the six variables predict self-regulation skills positively and significantly, however , values and the contribution coefficients (C) indicate that the relative importance each variable has to predict metacognitive self-regulation is notably different.

Self-Regulated Learning Profiles (SRL-P)

After knowing the indicators that better define self-regulated learning, the following step was to identify the possible student profiles depending on their SRL levels. The results of the Two-Step Cluster Analysis (see figure 1) allow to differentiate three groups of students with different SRL levels. The first group is

Table 1
Means, standard deviations, skewness, kurtosis and correlations of the study variables

	M	SD	Skew.	Kurt.	1	2	3	4	5	6	7	8	9
1. Metacognitive self-regulation	3.45	.53	-.56	1.57	–								
2. Elaboration strategies	3.37	.58	-.12	.18	.70***	–							
3. Time and study environment management	3.45	.56	-.49	.62	.56***	.38***	–						
4. Organization strategies	3.74	.84	-.75	.53	.67***	.64***	.43***	–					
5. Effort regulation	3.41	.72	-.38	.44	.58***	.46***	.66***	.44***	–				
6. Learning goals	3.83	.74	-1.01	1.50	.51***	.44***	.39***	.38***	.41***	–			
7. Task value	3.38	.65	-.50	1.20	.47***	.47***	.37***	.39***	.37***	.56***	–		
8. Control beliefs	3.45	.67	-.38	.90	.25***	.21***	.08	.21***	.10*	.33***	.36***	–	
9. Self-efficacy for learning and performance	3.32	.61	-.21	.67	.34***	.31***	.20***	.27***	.25***	.39***	.40***	.47***	–

* p<.05; ** p<.01; *** p<.001

made up of 271 students who represent an intermediate SRL level (Intermediate SRL group). The second group, made up of 134 students with a high SRL level (high SRL group). The third group, made up of 84 students with a low SRL level (low SRL group).

The same analysis was also performed considering the gender variable. The results obtained indicate that within the group of men 53.51% belong to the intermediate SRL group, 15.75% to the high SRL group and 30.74% to the low SRL group. Regarding the women sample, 55.83% belong to the intermediate SRL group, 31.44% to the high SRL group and 12.73% to the low SRL group. The percentage distribution of men and women by clusters is similar in the case of the intermediate SRL, whereas there are substantial differences between the other two groups. While only 15.75% of men belong to the high SRL group, this percentage is nearly doubled (31.44%) in women. On the other hand, only 12.73% of women belong to the low SRL group while in the case of men this figure is more than double (30.74%).

The validity of the three-cluster solution obtained has been theoretically checked and by means of an ANOVA in order to see if the three groups present significantly different scores regarding the self-regulation level. It is expected that the high SRL group presents higher self-regulation levels, followed by the intermediate SRL group and finally the low SRL group which will show the lowest self-regulation level.

The results obtained totally confirm the starting hypothesis, there are statistically significant differences among the self-regulation levels in the three groups [$F(2,486)= 193.622$; $p<.001$; $\eta^2= .443$]. The differences are not only statistically significant but they also show moderate practical significance (as inferred from the size of the effect obtained). The analysis of the post-hoc results also reveal that the commented differences exist for all the possible comparisons: low-SRL vs. Intermediate-SRL ($M_{low\text{-}SRL}= 2.807$; $SD_{low\text{-}SRL}= .577$; $M_{intermediate\text{-}SRL}= 3.445$; $SD_{intermediate\text{-}SRL}= .323$; $difM= -.638$; $p<.001$), low-SRL vs. high-SRL ($M_{low\text{-}SRL}= 2.807$; $SD_{low\text{-}SRL}= .577$; $M_{high\text{-}SRL}= 3.893$; $SD_{high\text{-}SRL}= .393$; $difM= -1.086$; $p<.001$), intermediate-SRL vs. high-SRL ($M_{intermediate\text{-}SRL}= 3.445$; $SD_{intermediate\text{-}SRL}= .323$; $M_{high\text{-}SRL}= 3.893$; $SD_{high\text{-}SRL}= .393$; $difM= -.447$; $p<.001$). Figure 2 shows these results graphically.

«SRL-P» and academic achievement

Once the self-regulating profiles had been identified, the objective was to check if there were significant differences in the average academic achievement obtained by each of the three SRL groups. The results show that there are statistically significant differences in academic achievement [$F(2,486)= 4.901$; $p<.01$; $\eta^2= .020$] among the three SRL groups identified by means of cluster analysis. The data provided by the post-hoc analysis

Table 2
Summary of adjustment and statistical descriptors on change of regression models

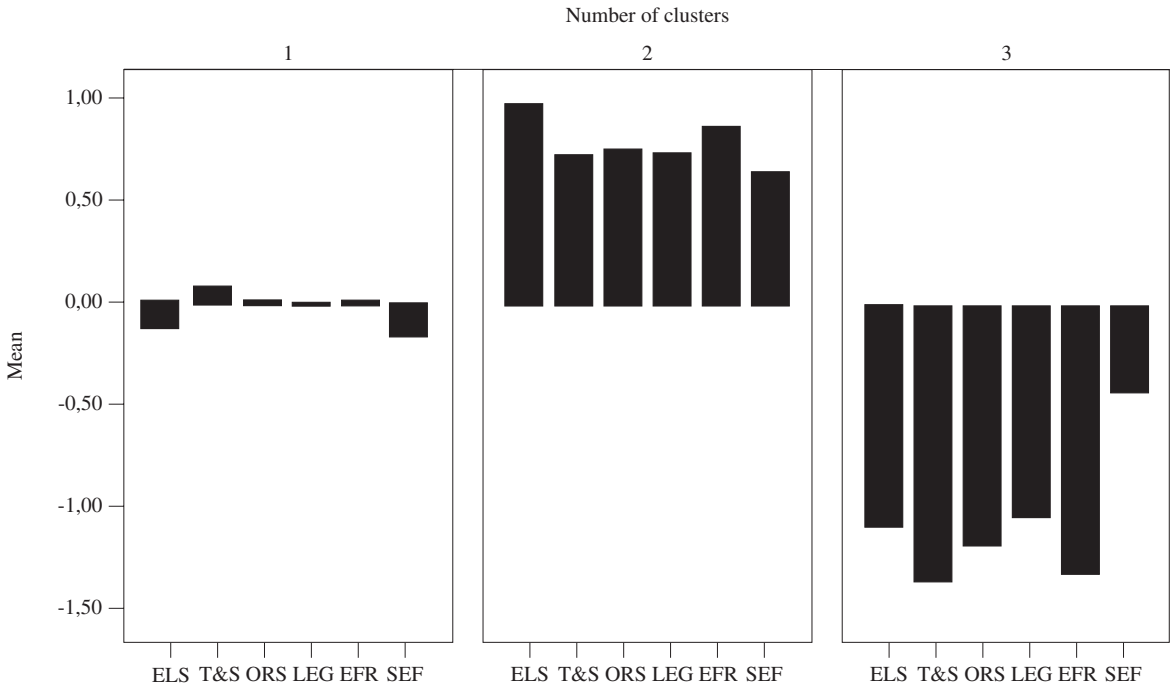
Model	R	R^2	Adjusted R^2	Standard error of the estimate	F(df)	Sig.	Change in R^2	Change in F(df)	Sig.
1	.702	.492	.491	.383	454.482 (1,469)	.000	.492	454.482 (1,469)	.000
2	.769	.592	.590	.344	339.534 (2,468)	.000	.100	114.550 (1,468)	.000
3	.800	.640	.638	.323	276.639 (3,467)	.000	.048	62.139 (1,467)	.000
4	.809	.655	.652	.317	221.013 (4,466)	.000	.015	20.133 (1,466)	.000
5	.816	.665	.662	.312	184.927 (5,465)	.000	.011	14.662 (1,465)	.000
6	.818	.669	.664	.311	156.012 (6,464)	.000	.003	4.493 (1,464)	.035

Criterion variable: Metacognitive Self-Regulation
Model 1: Elaboration Strategies
Model 2: Elaboration Strategies, Time and Study Environment Management
Model 3: Elaboration Strategies, Time and Study Environment Management, Organization Strategies
Model 4: Elaboration Strategies, Time and Study Environment Management, Organization Strategies, Learning Goals
Model 5: Elaboration Strategies, Time and Study Environment Management, Organization Strategies, Learning Goals, Effort Regulation
Model 6: Elaboration Strategies, Time and Study Environment Management, Organization Strategies, Learning Goals, Effort Regulation, Self-efficacy for Learning and Performance

Table 3
Regression coefficients (standardised and non standardised ones) and contribution coefficients for predicting values in model 6

Predicting variables	B	Std. error		Contribution coeff. (C)	C%	t
Constant	.536	.113				4.66***
Elaboration strategies	.266	.029	.338	.24	24.21	9.26***
Time and study environment management	.155	.035	.164	.09	9.11	4.41***
Organization strategies	.171	.023	.269	.17	17.90	7.37***
Learning goals	.078	.024	.107	.05	5.55	3.33**
Effort regulation	.105	.028	.143	.08	8.15	3.63***
Self-efficacy for learning and performance	.055	.027	.063	.02	2.21	2.11**

Criterion variable: Metacognitive Self-Regulation; * p<.05; ** p<.01; *** p<.001



ELS= Elaboration Strategies; T&S= Time and Study Environment Management; ORS= Organization Strategies; LEG= Learning Goals; EFR= Effort Regulation; SEF= Self-Efficacy for Learning and Performance

Figure 1. *Graphic representation of the three-cluster solution for self-regulated learning indicators*

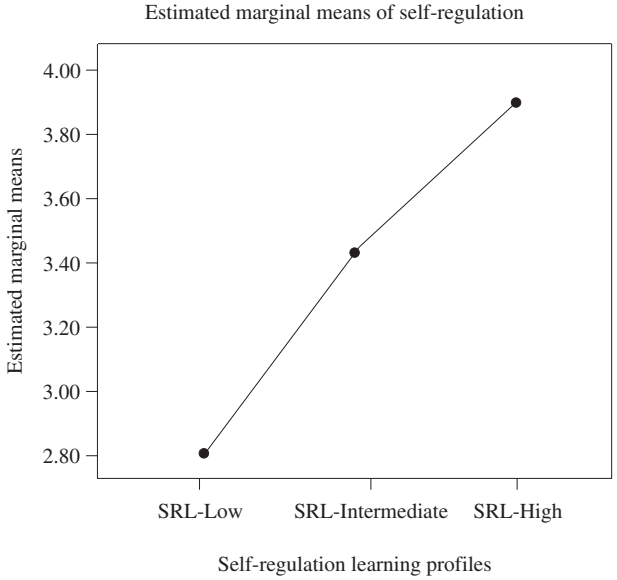


Figure 2. *Graphic representation of covariance among SRL profiles and self-regulation*

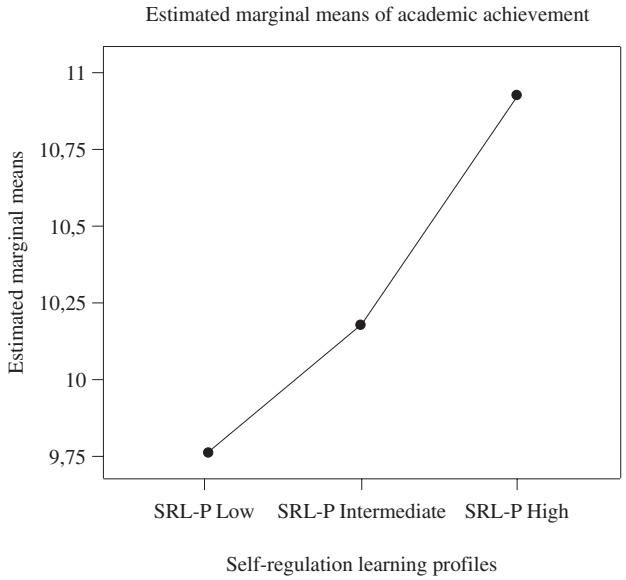


Figure 3. *Relationship between self-regulation learning profiles and academic achievement*

indicate that those differences occur in all the comparisons [high-SRL vs. intermediate-SRL ($M_{high\text{-}SR}$= 10.91, $SD_{high\text{-}SRL}$= 2.637; $M_{intermediate\text{-}SRL}$= 10.18, $SD_{intermediate\text{-}SRL}$= 2.684; difM= .73; p<.05), high-SRL vs. low-SRL ($M_{high\text{-}SRL}$= 10.91, $SD_{high\text{-}SRL}$= 2.637; $M_{low\text{-}SRL}$= 9.76, $SD_{low\text{-}SRL}$= 3.494; difM= 1.15; p<.01)], except for the following comparison: intermediate-SRL vs. low-SRL ($M_{intermediate\text{-}SRL}$= 10.18, $SD_{intermediate\text{-}SRL}$= 2.684; $M_{low\text{-}SRL}$= 9.76, $SD_{low\text{-}SRL}$= 3.494; difM= .42; p<.501).

Discussion

The development of personal and professional skills in higher studies is more and more considered as one of the main quality indicators and a priority need for all the agents implied in this educational level. To reach this objective, the University must speed up routines, reconsider its mission and vision, involving both students and lecturers in the process. This change is above all important regarding «how» students learn (Cochram-Smith, 2003) and it is advised the urge to promote that students assume quality as a continuous improvement process. Changes need to be made regarding the role of students and lecturers, the syllabus design and implementation and the assessment methodologies among other aspects (Valle, Cabanach, Rodríguez, Núñez, González-Pienda, Solano, & Rosário, 2007) in order to materialize this objective on the field of the teaching-learning processes. In this context, the SRL concept is acquiring even greater importance as the research has shown that, in such conditions, the students participate actively in their learning process, monitoring and regulating the product-oriented learning processes (Pintrich, 2004; Rosário, Mourão, Trigo, Núñez, & González-Pienda, 2005).

Nevertheless, one of the greatest problems on the field of self-regulated learning lies on its assessment and on the instruments available to do so (Schmitz & Wise, 2005; Winne & Perry, 2000). Surely the great challenge on this field today lies on finding how to document the components, the dynamics and the result of this type of learning in the most accurate way however, the most unhurried one, as they must be useful not only for research but also on the field of diagnosis and educational intervention.

In this sense, self-report scales are currently the mainly measuring method used for SRL. This is possibly due to the fact that they are relatively easy to design, hand out and score (Winne & Perry, 2000), despite the important drawbacks observed in its use. The present study fundamentally intended to provide some type of solution to the validity of the self-report type scales when they are used to obtain information on the SRL competence in university students. In short, the strategy used in this work, an empirically checked one, has been to combine the information provided by several scales of this type by means of cluster analysis and obtain in this way profiles of students with higher or lower SRL level. From our point of view, deciding if students behave with more or less self-regulation through their scorings in different self-regulated behaviour predictors (even when such scores come from self-report type scales) should be more reliable, valid and useful than only using the scores derived from a single scale.

SRL Predictors

Obtaining some SRL predictive-indicators has been the first task considered in this work, as a previous step to the study of the possible SRL profiles. The results obtained indicate that in self-regulation prediction the cognitive variables have greater importance than the motivational ones. Although they are within the regression model, both learning goals and self-efficacy are two of the —clearly motivational— variables which less explained self-regulation. However, elaboration strategies and organization strategies are the two variables —of cognitive nature— which more contribute to the explanation of self-regulation. In general, these results do not substantially differ from those mentioned by many other researchers in the different stages of education (i.e., Allgood et al., 2000; Cano, 2005; Garavalia & Gredler, 2002; Pintrich & DeGroot, 1990; Pintrich & Zusho, 2002; Valle, Cabanach, Núñez, González-Pienda, Rodríguez, & Piñeiro, 2003; VanZile-Tamsen, 2001; Wolters, 2004; Zusho, Pintrich, & Cortina, 2005).

It is possible that these results can hide some kind of indirect relation between the motivational variables and self-regulation which cannot be found through this kind of analysis. In this sense, it would be interesting to contrast this hypothesis by means of a structural equation model where the emotional variables explained the use of resource management strategies and these in turn explained the use of cognitive strategies, which would exercise a significant influence on the use of self-regulated learning (motivation -> resource management strategies-> cognitive strategies -> learning self-regulation).

What seems to be evident is that the degree to which the students are oriented towards learning, show positive beliefs regarding their abilities, organise their study materials trying to relate them to previous knowledge, manage their time and study environment adequately and persevere despite the difficulties encountered in their learning process, are a series of variables which jointly considered explain for the 67% of the variance of metacognitive self-regulation. Therefore, they can be considered as good indicators to predict the awareness, knowledge and control the students have over their learning activities.

Profiles of SRL (SRL-P), and their relationship with academic achievement

In terms of Self-regulation profiles (*SRL-P*), three groups have been identified which represent intermediate, high and low levels in the indicators of self-regulated learning, being the intermediate SRL group a majority and the low SRL group a minority group. Considering the gender variable, the data indicate that, in general, women show more positive and adaptive self-regulated profiles than men. This is reflected in the different percentages of men and women who belong to the high SRL group and the low SRL group identified by means of cluster analysis.

The results obtained for the differences in academic achievement indicate that there exists a statistically significant positive relation between the SRL and academic achievement. This means that a higher SRL level leads to a higher academic achievement while a low SRL level is connected with lower achievement. However, the mentioned differences do not reach to be statistically significant when comparing the group of students with a low-SRL profile with those with an intermediate-SRL profile. The previous statement would have to be adjusted indicating that it is from an intermediate-SRL level when such skills significantly influence the academic achievement obtained in the academic year. Although it is statistically possible to maintain the relation between both constructors, it should also be

considered that the effect size is really small (according to Cohen criterion) and that such relation is therefore arguable.

At first sight, these results could question the usefulness of the «profiles» as procedures to mitigate the drawbacks of measuring self-regulation by means of a single self-report type scale, as in the majority of researches which study SRL and school achievement, they have a positive relation. However, there are also works in which such relation is not found as the SRL measures used are obtained by questionnaires and academic achievement as a trace for school achievement (i.e., Núñez et al., 2006). All in all, a great deal of the researches which provide a significant relation do not inform of the practical significance such relation has (i.e., magnitude of effect size).

A possible explanation of these results involves going back to certain already classic approaches around the difference between learning processes and results. With certain logic, high SRL levels shall lead to greater quality learning processes, but they do not necessarily have to lead to higher learning results – in terms of achievement.

One possible cause why the learning processes and results do not always go together is due to the assessment systems generally used in our classes. (Valle et al., 2003). These assessment procedures are normally very focused towards the final product and the results, hardly considering the learning process. This involves many risks which constantly threaten the motivation to learn and the achievement of comprehensive learning. One of such risks is that these assessment systems seem to favour that students are also more oriented towards the result than towards the learning process. This generates a result-based strategic student, that is, a student profile whose greatest interest is to know how the examination will be in order to take the most suitable measures to obtain optimum results.

As a consequence, and here lies the paradox, there can be students with good academic results who have not been able to reach the same levels in the main indicators which define quality learning. Therefore, their academic results constitute in fact an over-valuation regarding what they have really learnt in a constructive and meaningful way. Even more, those academic results are sometimes the fruit of a hardly deep and scarcely constructive learning which students perceive to be profitable in order to achieve their goals. This way, both learning and motivation become mere instruments at the service of result achievement which involves giving priority to result-linked motivation and orientating the study only towards those questions in the exam.

In brief, it is possible to argue in favour of the use of SRL-P, instead of the scores from a single self-report scale. The use of profiles is something similar to the use of latent variables in the structural equation models, instead of observed variables. In the same way as in the construction of a latent variable, in the construction of SRL-P each individual is assigned to a group based on the relation among the scores observed in several significant SRL indicators. Therefore, although SRL-P is obviously valid as an alternative to the direct scores from a theoretical point of view, its usefulness in the practice is yet to be demonstrated. This may be an important objective in future research works, although it may be necessary to use «learning» and not «academic achievement» as criterion variable.

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