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The Role of Motivation and Self-regulation in Dropping Out of School

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Abstract

Dropping out of secondary education is a major problem in modern economies. Several explanations have been put forward, but not all have been systematically tested due to methodological and ethical problems. We compared two groups of pupils from the same secondary school classes. The groups selected by teachers on the basis of their anticipated school outcomes (continuing school, n=585, versus dropping out, n=196). Motivational variables were intrinsic motivation, introjected regulation, and identified regulation, external regulation, a motivation, academic self-efficacy and consistency of interest. Self-regulation variables were perseverance of effort, learning strategies and resistance to peer influence. All these dimensions were measured through shortened versions of validated scales. Statistical analyses showed that most, but not all of the tested dimensions were significantly different for both groups. Significant motivational variables were intrinsic motivation, introjected regulation, a motivation, and academic self-efficacy. Self-regulation variables that differentiated the two groups were perseverance of effort, and some learning strategies (elaboration, organisation, rehearsal, but not monitoring, planning and regulating) as well as resistance to peer influence. The factors, which have been found, are often cited, but in our study they are measured through a systematic design. While motivational factors are difficult to affect, self-regulatory skills could be taught and their systematic integration into school curricula could contribute to reducing dropout rates for students at risk.

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1. Introduction

Dropping out of secondary education without a final diploma is a major problem in modern knowledge-based economies. Several explanations and remedial procedures have been put forward. Dropping out is obviously often linked to school failure, which can be brought back to cognitive as well as motivational causes. Pupils drop out because they do not have the cognitive abilities and/or the motivation to finish school. In an inspiring essay, popular science writer Coyle (2009) has identified two ingredients of success in any life domain: very regular practice and strong motivation. Motivation appears as the fuel for sustained repeated practice, which allows the building up and

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consolidation of skills. Academic research has also focused on both elements. Since the 1980s, there has been a sustained research focus on how motivational and cognitive factors interact and jointly influence student achievement and learning (Linnebrink & Pintrich, 2002; Pintrich & Schunk, 2002; Covington, 2000).

Social cognitive models consider motivation as a multifaceted phenomenon: students can be motivated in multiple ways and assessment instruments that generate a single global "motivation" score for students may be misleading (Linnebrink & Pintrich, 2002). Self-determination theory, especially, has stressed the distinction between intrinsic motivation, interjected regulation, identified regulation, external regulation, and a motivation (Vallerand & Bissonnette, 1992; Ratelle, Guay, Vallerand, Larose, & Sénécal, 2007). These constructs can be measured with the Academic Motivation Scale (Fairchild, Horst, Finney, & Barron, 2005; Vallerand, et al., 1993). Another important motivational component is academic self-efficacy (Schunk, 1991), defined as student's judgement of their capabilities to organize and execute actions necessary to attain designated types of performances at school.

Regular cognitive work is especially critical for success, and its lack is a frequent cause of dropping out. But regular work needs self-regulation of activity (Zimmerman, 2008), i.e. the use of working and studying skills like perseverance of effort (Duckworth, Peterson, Matthews, & Kelly, 2007), and several learning strategies. The latter are for example measured through the Goal Orientation and Learning Strategies Survey (GOALS-S): elaboration, organization, rehearsal, monitoring, planning and regulating (Dowson & McInerney, 2004; Güven, 2008). Finally, resistance to peer influence (Steinberg & Monahan, 2007), especially if this influence tends to draw students away from regular work, is also an important part of self-regulation.

Many studies on the links of motivation and self-regulation to school-related outcomes like academic performance (Pintrich & De Groot, 1990), school grades or perceptions of academic self-efficacy (Zimmerman & Martinez-Pons, 1990) have been published, but they are often correlational and therefore do not allow the establishment of definitive causal links. Ideally, a longitudinal design would be the best method to link motivation and self-regulation to later measurable outcomes, like in the study of Vallerand and Bissonnette (1992). The authors found that motivational styles and behavioural persistence in junior college students enrolled in a compulsory course predicted their dropping out of the course at the end of the semester. Their study, however, was with college students, who have already achieved at least a diploma of secondary education, whereas the case of secondary education students dropping out is often more dramatic.

In the light of the above brief review, the research hypotheses of our study can be summarised as follows:

Hypothesis 1: Potential drop outs have lower motivation, i.e. lower intrinsic motivation, interjected regulation, identified regulation, and external regulation, a higher degree of a motivation, a lower level of academic self-efficacy and of consistency of interest.

Hypothesis 2: Potential dropouts have lower self-regulation skills, i.e. lower perseverance of effort, poorer learning strategies (elaboration, organization, rehearsal, monitoring, planning and regulating) and lower resistance to peer influence.

2. Methods

2.1. Sample

In order to test the above hypotheses, we wanted to compare two groups of pupils from the same secondary school classes, one group of pupils likely to leave school with a diploma (the control group), the other group those who were likely to drop out. Students were from 46 classes from 6 different schools, all being of 2nd, 3rd and 4th grades of secondary technical education in Luxembourg. They were classified into the two groups according to their predicted outcome (continuing school, n=585, versus dropping out, n=196), based on the global evaluation of their main class teacher.

The technical schools are used by two thirds of Luxemburgish students, the remaining third being in general secondary education. The different strands of this school type are also those where young people are most likely to

be in difficulty and at risk of dropping out. A particularly risky point is the end of compulsory education, which at the time of the study was at 15 years and so, for pupils who had had no grade retention, at the end of the 3rd grade.

2.2. Procedure

To measure the constructs, which were our candidate variables, we proceeded in two steps. First, all of the complete scales were translated into French and German by native speakers of these languages, except those, which were already in one of these languages. This was necessary to have two equivalent linguistic versions, which can be proposed as a choice to students. This is necessary due to the complex linguistic situation in Luxembourg, where schooling is done in German, but where there is a huge Romano phone minority, mainly students of Portuguese origin. This two-language procedure is also used in the PISA study in Luxembourg; it permits the participants to complete the questionnaires in the language most familiar to them.

The preliminary version was tested on a sample ($n=192$) of students of 9 classes of 2nd, 3rd and 4th grades of secondary technical education of different strands, including those where the most at risk pupils can be found (the so-called *régimepréparatoire*). Whereas most students of ordinary classes had no problems in filling out the questionnaire, those of the *régimepréparatoire* had a lot of difficulty in completing this task due to the number of questions. It would have been counterproductive to eliminate these pupils from the study, as these are the most at risk of dropping out of the school. Therefore we had to shorten the questionnaire in order to keep the minimum of items per scale (2 to 4 depending on the instrument) that still gave an acceptable level of information and of psychometric qualities. Item analyses were performed in order to determine the items that were best to be retained and those that could be withdrawn.

In a second step, the shortened version of the questionnaire was administered with a new sample ($n=781$) of students from 46 different classes, from the same age groups (2nd, 3rd and 4th grades of secondary technical education), in 6 different schools spread across the country of Luxembourg. As the longitudinal methodology was not possible due to reasons of ethics and confidentiality, a quasi-longitudinal method was used: the groups were, anonymously for the researchers, selected by the main class teacher (who monitors progression of pupils in all subjects) on the basis of their anticipated school outcomes (continuing school, $n=585$, versus dropping out, $n=196$). Teachers got 4 different packages of anonymous questionnaires, two identical French versions and two identical German versions. Students could choose the language. The only difference between two same-language versions was a small mark on the first page for probable drop-outs and a different one for probable school finishers. Students were not aware that two anonymously marked versions were distributed for each language and that a differentiation in two groups took place. No personal data on individual pupils were collected at any moment.

2.3. Measures

All the measured constructs were assessed through abbreviated versions of existing and validated scales, which were shortened based on the results of the initial test ($n=192$). The alpha values indicated below are those of the preliminary test, after item removals.

2.3.1. Motivation

Several motivational variables were measured. We used 5 abridged scales from the Academic Motivation Scale (Vallerand, et al., 1993), of 2 items each, measuring intrinsic motivation ($\alpha=.71$), interjected regulation ($\alpha=.65$), identified regulation ($\alpha=.66$), external regulation ($\alpha=.66$), and a motivation ($\alpha=.78$).

Academic self-efficacy was measured with 4 items of the *Schulbezogene Selbstwirksamkeitserwartung* (WIRKSCHUL) (Jerusalem & Mittag, 1999) ($\alpha=.75$).

Consistency of interest was measured with 2 items of the sub-scale of the same name taken from the GRIT-S scale (Duckworth & Quinn, 2009) ($\alpha=.52$).

2.3.2. Self-regulation

Self-regulation was also measured with several abridged scales. Perseverance of effort was measured with 2 items of the sub-scale of the same name taken from the GRIT-S (Duckworth & Quinn, 2009) ($\alpha=.57$).

Learning strategies were measured through the 5 abridged sub-scales of 2 items each the Goal Orientation and Learning Strategies Survey (GOALS-S) (Dowson &McInerney, 2004). These subscales were elaboration ($\alpha=.66$), organisation ($\alpha=.64$), rehearsal ($\alpha=.61$), monitoring ($\alpha=.55$), planning ($\alpha=.57$) and regulating ($\alpha=.48$).

Resistance to peer influence was measured with 4 items of the Resistance to Peer Influence Scale (Steinberg & Monahan, 2007) ($\alpha=.79$).

3. Results

Correlations between the different construct measures are provided in Table 1. It can be seen that most variables are linked and that correlations are mostly significant.

Table 1. Correlations Between Measured Constructs

	Academic self-efficacy	Intrinsic motivation	Amotivation	Introjected regulation	Identified regulation	External regulation	Consistency of interest	Persistence of effort	Elaboration	Organization	Rehearsal	Monitoring	Planning	Regulating
Academic self-efficacy														
Intrinsic motivation	.34 **													
Amotivation	-.20 **	-.42 **												
Introjected regulation	.26 **	.40 **	-.22 **											
Identified regulation	.29 **	.53 **	-.34 **	.45 **										
External regulation	.26 **	.23 **	-.26 **	.45 **	.42 **									
Consistency of interest	.05 **	.05 **	-.17 **	-.03 **	.01 **	.01 **								
Persistence of effort	.37 **	.39 **	-.27 **	.33 **	.34 **	.22 **	.25 **							
Elaboration	.31 **	.44 **	-.22 **	.30 **	.35 **	.18 **	.01 **	.31 **						
Organization	.28 **	.45 **	-.23 **	.32 **	.34 **	.16 **	.07 **	.43 **	.41 **					
Rehearsal	.24 **	.40 **	-.30 **	.33 **	.28 **	.24 **	.07 **	.37 **	.35 **	.45 **				
Monitoring	.23 **	.32 **	-.22 **	.30 **	.31 **	.21 **	.07 **	.32 **	.37 **	.36 **	.48 **			
Planning	.27 **	.37 **	-.26 **	.27 **	.34 **	.23 **	.11 **	.36 **	.38 **	.50 **	.39 **	.49 **		
Regulating	.24 **	.32 **	-.19 **	.21 **	.25 **	.14 **	-.02 **	.28 **	.35 **	.31 **	.37 **	.30 **	.37 **	
Resistance to peers	-.06 **	.01 **	.22 **	.01 **	-.03 **	-.05 **	-.18 **	-.02 **	.02 **	-.03 **	-.09 **	-.07 **	-.03 **	.03 **

* $p < .05$ ** $p < .01$ (2 tailed)

Non parametric statistical analyses were performed to test the differences between the two groups. We used Mann-Whitney tests (U) and performed r effect size calculations with the formula: $r = Z / \text{square root of } N$ (Field, 2005). Results are given in Table 2.

Statistical analyses showed that most, but not all of the tested dimensions were significantly different for both groups. Significant motivational variables were intrinsic motivation, interjected regulation, a motivation, and academic self-efficacy. The direction of effects goes in the expected direction: potential drop outs have less intrinsic motivation, less introverted regulation, more a motivation, and less academic self-efficacy.

Table 2. Differences Between the two Groups in Measured Constructs

Measure	Mann-Whitney U	Asymmetrically significant (2 tailed)	Effect size (r)	Hypothesis confirmed?
Academic self-efficacy	44877	.000 **	-.16	Yes
Intrinsic motivation	52087	.046 *	-.07	Yes
Amotivation	46957	.000 **	-.14	Yes
Introjected regulation	49108	.002 **	-.11	Yes
Identified regulation	54086	.143	-.05	No
External regulation	52679	.106	-.06	No
Consistency of interest	54926	.615	-.02	No
Persistence of effort	47426	.000 **	-.13	Yes
Elaboration	51150	.019 *	-.08	Yes
Organization	50707	.013 *	-.09	Yes
Rehearsal	50069	.016 *	-.09	Yes
Monitoring	52383	.196	-.05	No
Planning	52821	.087	-.06	No
Regulating	55188	.768	-.01	No
Resistance to peers	51293	.040 *	-.07	Yes

* $p < .05$ ** $p < .01$

Self-regulation variables that differentiated the two groups were perseverance of effort, and some learning strategies (elaboration, organisation, rehearsal, but not monitoring, planning and regulating) as well as resistance to peer influence. The direction of effects goes also in the expected direction: potential drop outs have less perseverance of effort, and poorer learning strategies (less elaboration, organisation, and rehearsal) as well as less resistance to peer influence.

4. Discussion

In our study, significant differences were found in relevant motivational and in self-regularity variables between both groups of students (potential drop outs versus potential school finishers) of 2nd, 3rd and 4th grades of secondary technical education in Luxembourg.

The fact that teachers classified young people in the two groups has ethical and confidentiality benefits, but also has the disadvantage that hard facts (dropping out or not) are replaced with somewhat subjective evaluations known to be affected by halo effects and by errors. However teachers appear to be competent to make accurate if not perfect predictions, based on their experience. Teachers in our study were all experienced, because only these are chosen to become main class teachers. The Cronbach's alphas were also not always optimal, even if one has to consider that with few items it is generally difficult to have high values. Therefore the study must be considered exploratory, but at the same time of more strength than a cross-sectional one.

It must also be considered, that if individual effect sizes are small, they are at least partly cumulative. The factors which have been found are often cited by teachers (Meyers & Houssemand, 2011), but in academic studies their impact has often been shown in correlational studies which give no definitive proof of causality. In our study they

were measured through a quasi-longitudinal design, which allows feasibility by avoiding problems of ethics and confidentiality in research with young minors.

Practical implications of our study may also be considered. While motivational factors are often difficult to affect, self-regulatory skills could be taught and their systematic integration into school curricula could contribute to reducing dropout rates for students at risk.

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