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ABSTRACT

A field study was conducted to investigate the effect of gender, and gender combined with other variables on within-term changes in junior college student motivation. Intrinsic motivation (IM) refers to doing an activity for the pleasure and satisfaction derived from participating. Extrinsic motivation (EM) refers to engaging in behaviors as a means to an end. In the first week of the fall term, 2,434 students from a junior college in Quebec were asked to complete the Echelle de Motivation en Education (Academic Motivation Scale) and to provide additional personal data (i.e., name, age, academic program, hours of employment, terms completed, and place of residence). After 3 months, students were asked to complete the scale again. Study findings included the following: (1) pre-test mean scores differed significantly between male and female students, with the females tending to be more self-determined on IM, EM, and amotivation subscales; (2) post-test results revealed that the motivation of all students dropped significantly, though females remained significantly more motivated than males on all subscales; (3) male working students became less self-determined, while working did not seem to have a significant effect for female students; (4) a loss in self-determination took place for males during their first academic term, whereas for females the drop occurred during the second or third academic term. (Contains 70 references.) (KP)

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The Influences of Gender Differences on Within-Term Changes in Junior College Student Motivation.

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**THE INFLUENCE OF GENDER DIFFERENCES ON WITHIN-TERM
CHANGES IN JUNIOR-COLLEGE STUDENT MOTIVATION**

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CANADA

OBJECTIVES

The purpose of this field study is to investigate the effect of gender, and gender combined with other variables (such as type of academic program, number of hours spent on a part-time job during academic term, place of residence -with or without parents-, and number of terms completed), on within-term changes in junior-college student motivation.

The originality of the present study lies in that it focuses on student motivation change and how gender influences that change.

THEORETICAL FRAMEWORK

The concept of motivation has been studied from several perspectives (Freud, 1923; Hull, 1943; Skinner, 1953). One perspective which has proven useful over the past 20 years suggests that behaviour can be seen as intrinsically or extrinsically motivated (de Charms, 1968).

In general, intrinsic motivation (IM) refers to the fact of doing an activity for itself, and the pleasure and satisfaction derived from participation (Deci, 1975). Contrary to IM, extrinsic motivation (EM) pertains to a wide variety of behaviors where the goals of action extend beyond those inherent in the activity itself. They are behaviors which are engaged in as means to an end and not for their own sake (Deci, 1975). Originally, it was thought that EM referred to behaviors performed in the absence of self-determination and thus could only be prompted by external contingencies. However, Deci, Ryan and their colleagues (1985, 1991) have postulated a self-determination theory. According to this theory, various types of

EM exist, some of which are self-determined and may be performed through self-regulation. According to these researchers, there are four types of EM which can be ordered along a self-determination continuum. From lower to higher levels of self-determination, they are: *external*, *introjected*, *identified* and *integrated regulation*.

External regulation corresponds to EM as it generally appears in the literature. That is, behaviour is regulated through external means such as rewards and constraints. With *introjected regulation*, the individual begins to internalize the reasons for his actions. However, this form of internalization, while internal to the person, is not truly self-determined since it is limited to the internalization of past external contingencies (Vallerand, Blais, Brière et Pelletier, 1989). To the extent that the behaviour becomes valued by the individual, and especially that it is perceived as chosen by the individual himself, then the internalization of extrinsic motives becomes regulated through *identified regulation*. The most self-determined form of EM is referred to as *integrated regulation*. According to Deci and Ryan (1991), *integrated regulation* occurs when the individual's action is perceived as personally valued and freely done. Thus, *integrated* action is authentic.

An increasing amount of research has been undertaken to evaluate Deci and Ryan's EM formulation. The results consistently support the basic premises of the formulation. For instance, results from confirmatory factor analyses on the motivation scales have supported the presence of three types of EM in education (Ryan & Connell, 1989; Vallerand & al., 1989; Karsenti, 1993).

In addition to intrinsic and extrinsic motivation, Deci and Ryan (1985, 1991) have posited that a third type of motivational construct is important to consider in order to fully understand human behaviour. This concept is termed amotivation (AM). Individuals are amotivated when they do not perceive a link between outcomes and their own actions. They are neither intrinsically nor extrinsically motivated. They are non-motivated. Amotivation can be seen in many ways as similar to learned helplessness (Abramson, Seligman & Teasdale, 1978) since individuals will experience feelings of incompetence, and expectancies of uncontrollability. When students are in such a state, they perceive their behaviors as caused by forces out of their own control. Eventually, they may stop the behaviour (Vallerand & al. 1989).

Finally, it should be noted that Deci and Ryan (1985, 1991) have posited that the various types of motivation can be aligned on a continuum according to the level of self-determination. The types of motivation are: amotivation, extrinsic motivation (*external, introjected, identified and integrated regulation*) and intrinsic motivation (Figure 1).

The aim of this study is to investigate the possibility of gender-related differences in within-term changes in junior-college student motivation. This question stemmed from the works of Carone (1975) and Deci, Cascio, and Krusell (1973), among others, who found that certain rewards tended to have an adverse effect on the motivation of female, but not male, student subjects. Maccoby and Jacklin (1975) reviewed a large body of research and concluded that one of the most consistently found gender difference involves cognitive functioning. There is also both intuitive and empirical evidence for the differential socialization of male and female students. Female students are said to be trained, among other things, to inhibit independent assertiveness (Donelson & Gullahorn, 1977), to evaluate themselves in terms of others' approval (Bardwick, 1971), and to be given less competence-eliciting playthings (Williams, 1979). Green and Foster (1986: 36-38) argue that "*the classroom is not a very important area for the display of masculine competence (...). Girls, in contrast, have fewer other opportunities for displaying competence, are encouraged to prefer more passive pursuits (...)*". Thus, it seems reasonable to assume that motivation may not occur under the same conditions for male and female.

METHOD

Subjects

Subjects were 2434 students (1597 female and 837 male) from a junior college in the Quebec educational system of the Montreal area (Quebec, Canada). Subjects had a mean age of 19 years.

Measures (Questionnaire)

In Canada, a new measure of motivation toward education, the "*Echelle de Motivation en Education*" (EME)¹, has been developed by Vallerand and his colleagues (1989). The EME is based on the tenets of self-determination theory and is composed of five

¹ Known in English as the *Academic Motivation Scale* (AMS).

subscales assessing intrinsic motivation, three types of extrinsic motivation (*external, introjected, and identified regulation*)², and amotivation. Extensive data supports the reliability and validity of the *EME*. Initial data provided support for the reliability (internal consistency and temporal stability), factorial validity and construct validity. There are 28 items in the *EME*. The rating is on a 1-7 scale with 7 representing maximum appropriateness. The *EME* assesses students' motivational styles toward academic activities. Similar to Ryan and Connell's *Self-Regulation Questionnaire* (1989), the *EME* assesses intrinsic motivation and external regulation, introjection and identification toward two main academic activities, "going to school" and "doing homework". In addition, the *EME* also assesses amotivation in the two types of academic activities. Thus, the *EME* assesses most of the concepts proposed in Deci and Ryan's theory. It should also be noted that the *EME* was developed for college students, while the Ryan and Connell scale is designed for elementary-school children.

Procedures

In the first week of the fall term, 2434 junior-college students were asked to complete the questionnaire described above (with some personal data: name, age, academic program, number of hours spent on a part-time job, number of term completed, and place of residence). Three months later, students were asked to complete the *EME* once again.

RESULTS

Motivation change scores for each subscale (intrinsic motivation, three types of extrinsic motivation and amotivation) were analyzed by means of separate analyses of variance.

Gender differences

Pre-test mean scores differed significantly between male and female students, with girls tending to be more self-determined on all the five subscales (Table 1 and Figure 2). Three months later, though post-test results revealed that the motivation of all

² Other studies showed that EM integrated is difficult to assess, therefore it was not included in the *Academic Motivation Scale*.

students dropped significantly, female students remained significantly more motivated (self-determined) than male students on all subscales (Table 2 and Figure 3). When examining motivation change, a main effect for gender was found for the intrinsic motivation scale, for the identified regulation (EM) scale, and for external regulation (EM) scale. A main effect for other variables was also found on at least one of the five motivation subscales.

The analysis of variance revealed a significant interaction between gender and the number of hours spent on a part-time job during the academic term, for the introjected and external regulation (EM) scale (Figures 4 & 5), as well as a significant interaction between gender and the number of terms completed, for the identified regulation (EM) and intrinsic motivation scale (Figures 6 & 7). Male working students become less self-determined whereas for female students work does not seem to have a significant effect. Also, for male students a loss in self-determination takes place during their first academic term whereas for female students the drop occurs in their second or third academic term.

DISCUSSION

Our findings revealed that females were generally more self-determined (IM and EM *integrated* and *identified*) as well as less *externally regulated* and amotivated toward academic activities than males. These results are similar to those obtained in other studies conducted on elementary-school, high-school, or junior-college students and on elderly individuals. It is interesting to note that the female student's variation of motivation differs from that of the male student. Students' intrinsic motivation appears to drop faster for males than for females students, especially in the first academic term of junior college. However, contrary to IM, the least self-determined types of motivation (*external regulation* and amotivation) tend to increase for male students whereas they remain stable for female students. This rise is even more significant for male students holding a part-time job during their academic term. The existence of gender-related differences appears well supported and seems to extend generally across all levels of schooling. Because gender-related differences in motivational styles, with respect to both level of and within-term changes in motivation, seem to have important consequences, future research should focus on their antecedents.

REFERENCES

- ABRAMSON, L.Y., SELIGMAN, M.E.P., & TEASDALE, J.D. (1978). *Learned helplessness in humans: Critique and reformulation*. Journal of Abnormal Psychology, Vol. 87, pp. 49-74.
- AMES, C., & AMES, R. (1985). Research on Motivation in Education, Vol. 1. New York: Academic Press, Inc.
- AMES, R., & AMES, C. (1984). Research on Motivation in Education, Vol. 2. New York: Academic Press, Inc.
- BALL, S. (1977). Motivation in Education. New York: Academic Press.
- BANDURA, A. (1989). *Human agency in social cognitive theory*. American Psychologist, Vol. 44, pp. 1175-1184.
- BENWARE, C., & DECI, E.L. (1984). *Quality of learning with an active versus passive motivational set*. American Educational Research Journal, Vol. 21, pp. 755-765.
- BOWEN, C.E., & MADSEN, C.H. (1978). *Teaching Style: A Primary Determinant of Student Motivation*. Boston University Journal of Education, Vol. 160, No 4, pp. 16-24.
- BROPHY, J. (1991). Looking in Classrooms (5th ed.). New York: Harper Collins.
- De CORTE, E. (1990). Les fondements de l'action didactique (2e édition). Paris: Editions Universitaires.
- DeCHARMS, R.C. (1968). Personal causation: The internal affective determinants of behavior. New York: Academic Press.
- DeCHARMS, R.C. (1976). Enhancing motivation: change in the classroom. New York: Irvington.
- DECI, E.L. (1971). *Effects of externally mediated rewards on intrinsic motivation*. Journal of Personality and Social Psychology, Vol. 18, pp. 105-115.
- DECI, E.L. (1975). Intrinsic Motivation. New York: Plenum.
- DECI, E.L. (1980). The psychology of self-determination. Lexington, Mas: DC Heath.
- DECI, E.L., BETLEY, G., KAHLE, J., ABRAMS, L., & PORAC, J. (1981). *When trying to win: Competition and intrinsic motivation*. Personality and Social Psychology Bulletin, Vol. 7, pp. 79-83.
- DECI, E.L., CONNELL, J.P., & RYAN, R.M. (1989). *Self-determination in a work organization*. Journal of Applied Psychology, Vol. 74, pp. 580-590.
- DECI, E.L., EGHRARI, H., PATRICK, B.C., & LEONE, D.R. (1992). Facilitating Internalization. Manuscrit inédit, University of Rochester.
- DECI, E.L., & PORAC, J. (1978). *Cognitive evaluation and human motivation*. In M. R. Lepper et D. Greene, The hidden cost of reward. Hillsdale, NJ: Erlbaum.
- DECI, E.L., & RYAN, R. (1985). Intrinsic motivation and self-determination in human behavior. New York: Plenum.
- DECI, E.L., & RYAN, R.M. (1980). *The empirical exploration of intrinsic motivational processes*. Advances in Experimental Social Psychology, Vol. 13, pp. 39-80.
- DECI, E.L., & RYAN, R.M. (1987). *The support of autonomy and the control of behavior*. Journal of Personality and Social Psychology, Vol. 53, pp. 1024-1037.
- DECI, E.L., & RYAN, R.M. (1991). *A motivational approach to self: Integration in personality*. In R. DIENSTBIER (Ed.), Nebraska symposium on motivation: Vol. 38, Perspectives on motivation. Lincoln, NE: University of Nebraska Press.
- DECI, E.L., NEZLEK, J., & SHEINMAN, L. (1981). *Characteristics of the rewarder and intrinsic motivation of the rewardee*. Journal of Personality and Social Psychology, Vol. 40, pp. 1-10.
- DECI, E.L., SCHWARTZ, A.J., SHEINMAN, L., & RYAN, R.M. (1981). *An instrument to assess adults' orientations toward control versus autonomy with children: Reflections on intrinsic motivation and perceived competence*. Journal of Educational Psychology, Vol. 73, pp. 642-650.
- ECONOMIC CANADIAN COUNCIL (1992). A Lot to Learn: Education and Training in Canada. Ottawa: Minister of Supply and Services Canada.
- GREEN, L., & FOSTER, D. (1986). *Classroom Intrinsic Motivation: Effects of Scholastic Level, Teacher Orientation, and Gender*. Journal of Educational Research, Vol. 80, pp. 34-39.
- GOTTFRIED, A.E. (1985). *Academic intrinsic motivation in elementary and junior high schools students*. Journal of Educational Psychology, Vol. 77, pp. 631-645.
- GROLNICK, W.S., & RYAN, R.M. (1987). *Autonomy in children's learning: An experimental and individual difference investigation*. Journal of Personality and Social Psychology, Vol. 52, pp. 890-898.
- GUSKEY, T. R. (1988). Improving Student Learning in College Classrooms. New York: Springfield.
- HARTER, S. (1980). *A model of intrinsic mastery motivation in children: Individual differences and developmental change*. Minnesota Symposium on Child Psychology, Vol. 14. Hillsdale, N.J.: Erlbaum.
- HARTER, S. (1981). *A new self-report scale on intrinsic versus extrinsic orientation in the classroom: Motivational and informational components*. Developmental Psychology, Vol. 17, pp. 300-312.

- HARTER, S., & CONNELL, J.P. (1984). *A model on the relationship among children's academic achievement and their self-perceptions of competence, control, and motivational orientations*. In J. NICHOLLS (Ed.), *The development of achievement motivation*. Greenwich, CT: JAI Press.
- HECKHAUSEN, H. (1987). *Causal Attribution Patterns for Achievement Outcomes: Individual Differences, Possible Types and Their Origins*. in *Metacognition, Motivation, and Understanding*. Edité par Weinert et Kluwe. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- HULL, C.L. (1943). *Principles of behaviour*. New York: Appleton-Century-Crofts.
- KARSENTI, T. (1993). *Analyse de la relation entre le style d'enseignement et le changement de motivation scolaire au collégial*. Thèse de maîtrise présentée à l'Université du Québec à Montréal.
- KEEVES, J.P. (1986). *Motivation and School Learning*. *International Journal of Education Research*, Vol. 10, No 2, pp. 117-127.
- LEPPER, M., & HODDELL, M. (1989). *Research on Motivation in Education, Volume 3: Goals and Cognitions*. NJ: Carol Ames et Rossell Ames.
- MACCOBY, E., & JACKLIN, C.N. (1975). *The psychology of sex differences*. Londres: Oxford University Press.
- MAEHR, M.L. (1983). *Learning and motivation in the classroom*. Hillsdale, N.J.: Erlbaum.
- METZ, M.H. (1978). *Clashes in the classroom: The Importance of Norms for Authority*. *Education and Urban Society*, Vol. 11, No 1, pp. 13-47.
- MITZEL, H.E. (1982). *Teacher Characteristics*. In H.E. MITZEL (Ed), *Encyclopedia of Educational Research*, fifth Edition. New York: Macmillan Publishing.
- MOOK, D.G. (1987). *Motivation: The Organization of Action*. New York: W. W. Norton and Company.
- PARKERSON, J.H., SCHILLER, D.P., LOMAX, R.G., & WALBERG, H.J. (1984). *Exploring Causal Models of Educational Achievement*. *Journal of Educational Psychology*, Vol. 76, pp. 638-46.
- PETERSON, C., & SELIGMAN, M.E.P. (1987). *Helplessness and Attributional Style in Depression*. In W. WEINERT et J. KLUWE (Eds), *Metacognition, Motivation, and Understanding*. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- PETRI, H.L. (1990). *Motivation: Theory, Research, and Applications*. Belmont, CA: Wadsworth.
- PINTRICH, P.R. (1986). *Motivation and Learning Strategies interaction with Achievement*. Article présenté in *The annual meeting of the AERA*, San Francisco, CA.
- RYAN, K., & PHILLIPS, D.H. (1983). *Teacher characteristics*. In H. E. MITZEL (Ed.), *Encyclopedia of Educational Research, Fifth Edition*. New York: Macmillan Publishers.
- RYAN, R.M., CONNELL, J.P., & DECI, E.L. (1985). *A motivational analysis of self-determination and self-regulation in education*. In *Research on Motivation in Education, Vol. I: Student Motivation*. University of Maryland: C. Ames et R. Ames éditions.
- RYAN, R.M., CONNELL, J.P., & GROLNICK, W.S. (in presse). *When achievement is not intrinsically motivated: A theory and assessment of self-regulation in school*. In A.K. BOGGIANO et T.S. PITTMAN (Eds), *Achievement and motivation: A social-developmental perspective*. Cambridge University Press.
- RYAN, R.M., & CONNELL, J.P. (1989). *Perceived locus of causality and internalization: Examining reasons for acting in two domains*. *Journal of Personality and Social Psychology*, Vol. 57, pp. 749-761.
- RYAN, R.M., & GROLNICK, W.S. (1986). *Origins and pawns in the classroom: Self-report and projective assessments of individual differences in children's perceptions*. *Journal of Personality and Social Psychology*, Vol. 50, pp. 550-558.
- RYAN, R.M., & STILLER, J. (1992). *The social contexts of internalization: Parent and teacher influences on autonomy, motivation and learning*. In P.R. PINTRICH & M. MAEHR (Eds.), *Advances in motivation and achievement: Vol. 7, Goals and self-regulatory processes*. Greenwich, CT: JAI Press.
- SASS, E.J. (1989). *Motivation in the College Classroom: What Students Tell Us*. *Teaching of Psychology*, Vol. 16, No 2, pp. 86-88.
- SELIGMAN, M.E.P. (1975). *Helplessness: On depression, development, and death*. San Francisco: W.H. Freeman.
- SELIGMAN, M.E.P., & MEIER, S.F. (1967). *Failure to escape traumatic shock*. *Journal of Experimental Psychology*, Vol. 74, pp. 1-9.
- SKINNER, B. F. (1953). *Science and Human Behavior*. New York: International Universities Press.
- TYLER, L.E. (1969). *Sex differences*. In R.L. EBEL (Ed.), *Encyclopedia of educational research* (4th ed.). Toronto: Macmillan.
- VALLERAND, R.J. (1992). *Toward a Hierarchical Interactionist Model of Human Motivation*. Manuscrit inédit, Université du Québec à Montréal.
- VALLERAND, R.J., BLAIS, M., BRIÈRE, N., & PELLETIER, L. (1989). *Construction et validation de l'Échelle de Motivation en Éducation*. *Revue canadienne des sciences du comportement*, Vol. 21, pp. 323-349.
- VALLERAND, R.J., & BISSONETTE, R. (1992). *Intrinsic, Extrinsic, and Amotivational Styles as Predictors of Behavior: A Prospective Study*. *Journal of Personality*, Vol. 60, No 3, pp. 599-620.

- VALLERAND, R.J., & BLAIS, M.R. (1987). Vers une conceptualisation tripartite de la MI; La MI à la connaissance, à l'accomplissement et aux sensations. Manuscrit inédit. Laboratoire de Psychologie Sociale, Université du Québec à Montréal
- VALLERAND, R.J., & HALLIWELL, W.R. (1983). Formulations théoriques contemporaines en motivation intrinsèque: Revue et critiques. *Psychologie Canadienne*, Vol.24, pp.243-256.
- VALLERAND, R.J., & REID, G. (1990). Motivation and special populations: Theory, research, and implications regarding motor behaviour. In G. REID (Ed), Problems in Movement Control. North-Holland: Elsevier Science Publishers.
- VALLERAND, R.J., & SENÉCAL, C.B., (1992). Une analyse motivationnelle de l'abandon des études. Apprentissage et socialisation. 1er trimestre.
- VALLERAND, R.J., & THILL, E. (sous presse). Introduction à la psychologie de la motivation. Montréal: Études Vivantes.
- VALLERAND, R.J., & THILL, E. (1993). Introduction à la psychologie de la motivation. Montréal: Études Vivantes.
- VALLERAND, R.J., GAUVIN, L.I., & HALLIWELL, W.R. (1986). Negative effects of competition on children's intrinsic motivation. *Journal of Social Psychology*, Vol. 126, pp. 649-657.
- WEINER, B. (1990). History of motivational research in education. *Journal of Educational Psychology*, Vol. 82, No 4, pp. 616-622.
- WEINERT, F.E. (1987). Introduction and Overview: Metacognition and Motivation as Determinants of Effective Learning and Understanding. In F.E. WEINERT et J. KLUWE (Eds), Metacognition, Motivation, and Understanding. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- ZIMMERMAN, B. J., BANDURA, A., & MARTINEZ-PONS, M. (1992). Self-Motivation for Academic Attainment: The Role of Self-Efficacy Beliefs and Personal Goal Setting. *American Educational Research Journal*, Vol. 29, No 3, pp. 663-676.

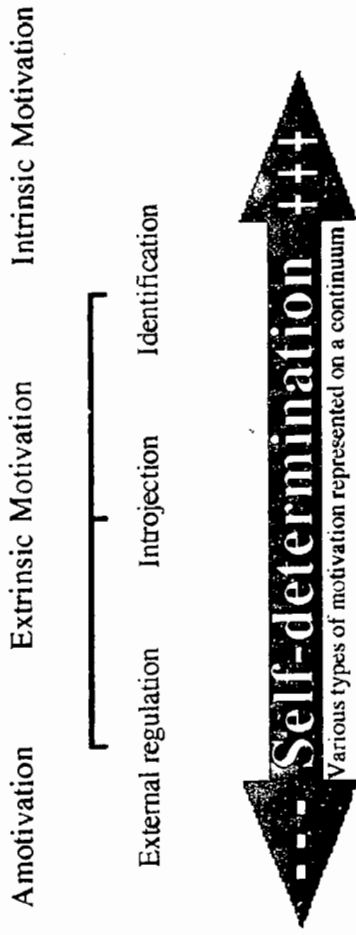


Figure 1
Representation of Deci & Ryan's self-determination theory (1985, 1991).

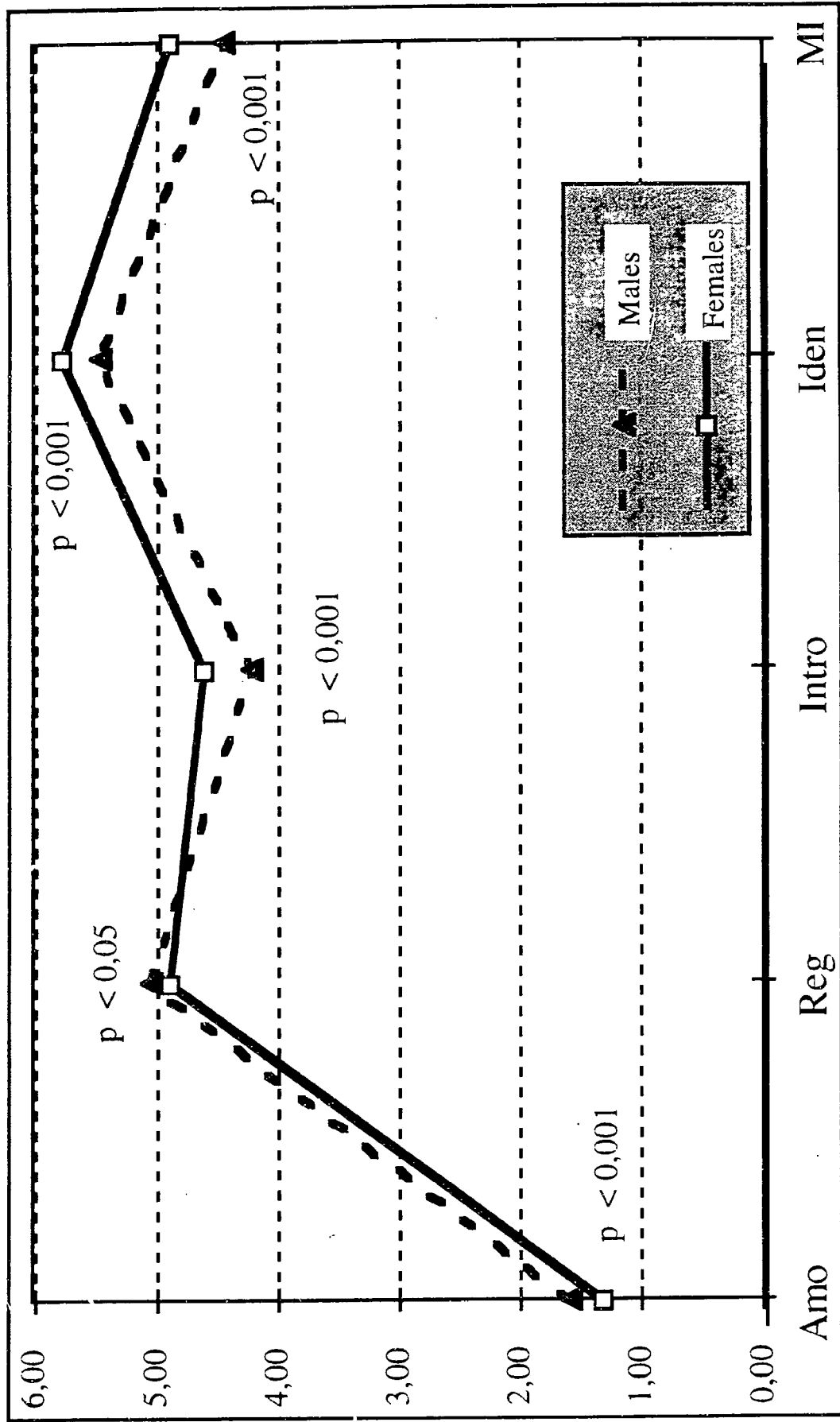


Figure 2 Initial level of the various types of motivation for males (837) and females (1597).

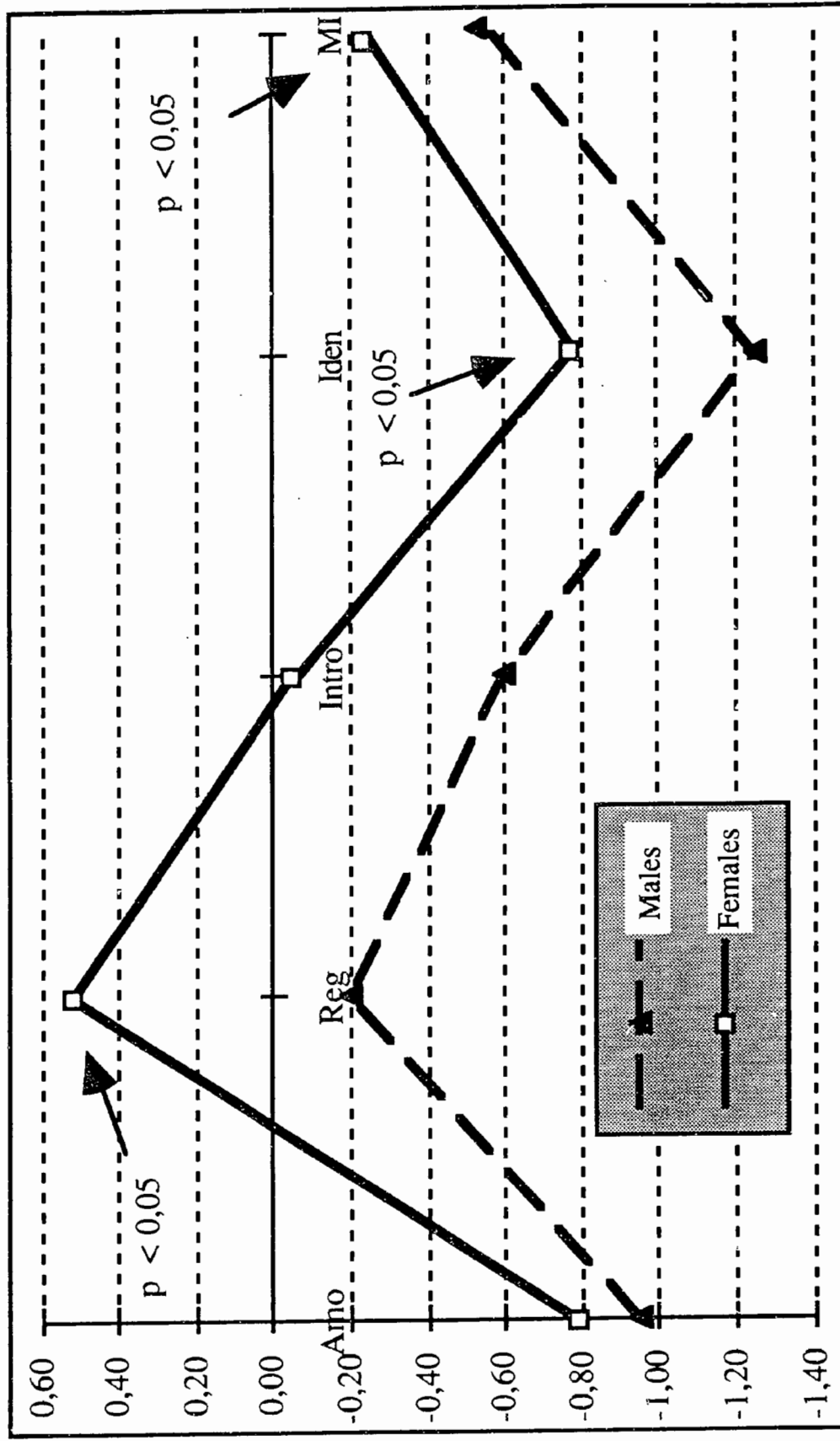


Figure 3
Change of motivation as a function of gender.

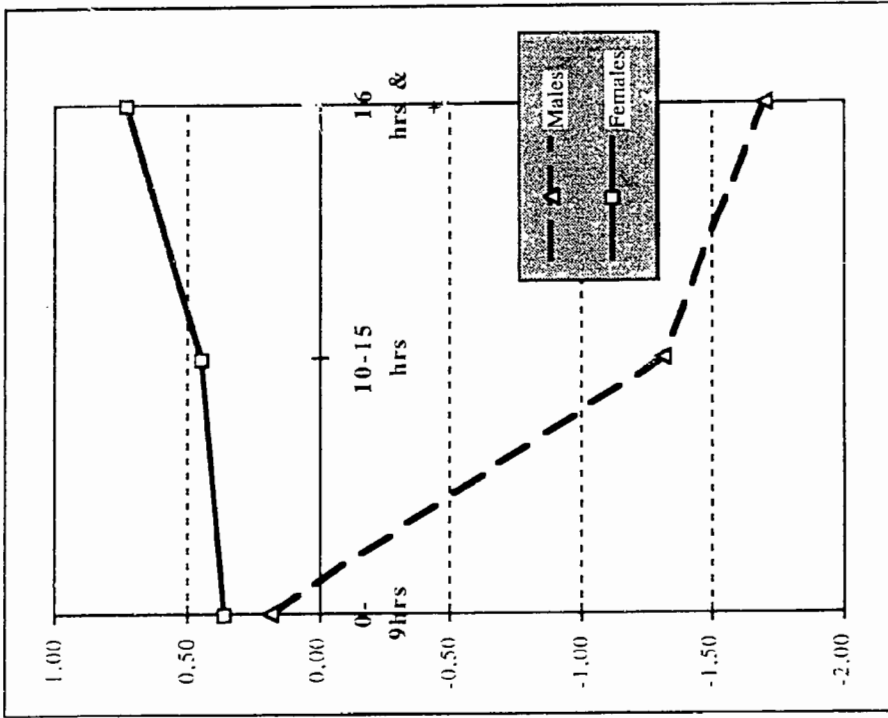


Figure 4

The effect of the interaction between gender and the number of hours spent on a part-time job on the change in external regulation (EM).

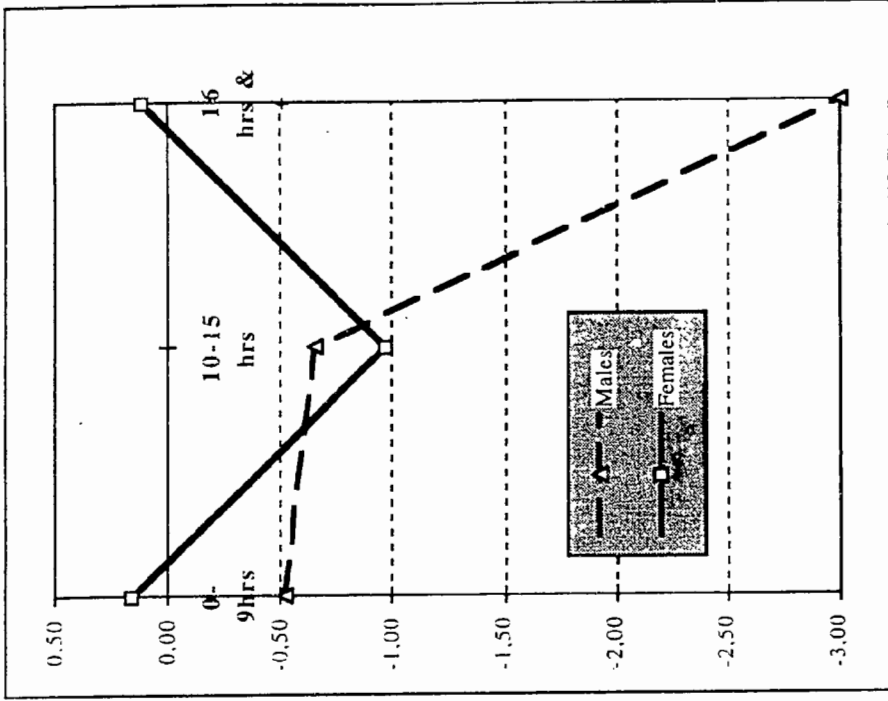


Figure 5

The effect of the interaction between gender and the number of hours spent on a part-time job on the change in introjected EM.

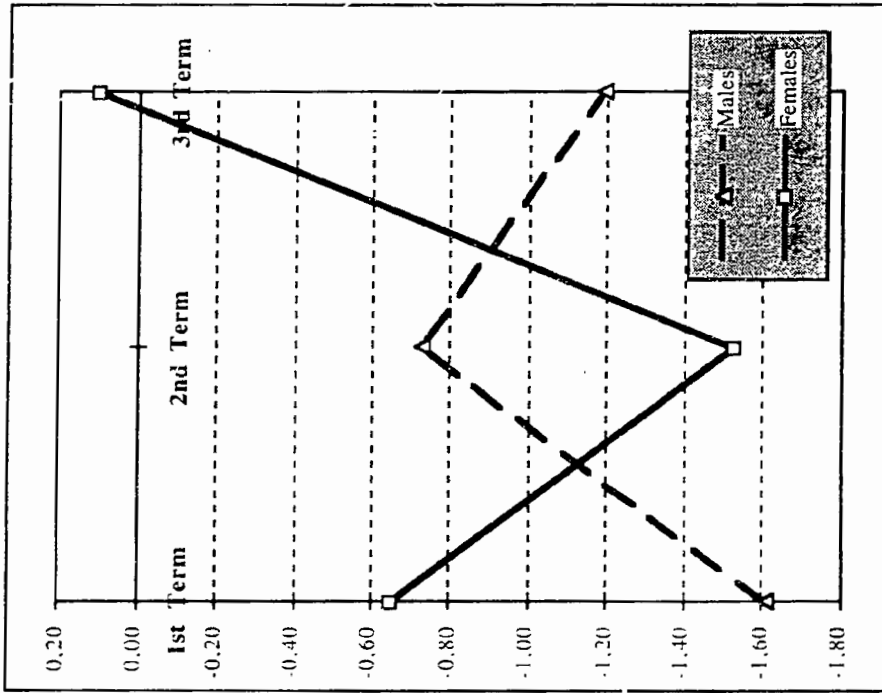


Figure 6
The effect of the interaction between gender and the number of academic terms completed on the change in identified EM.

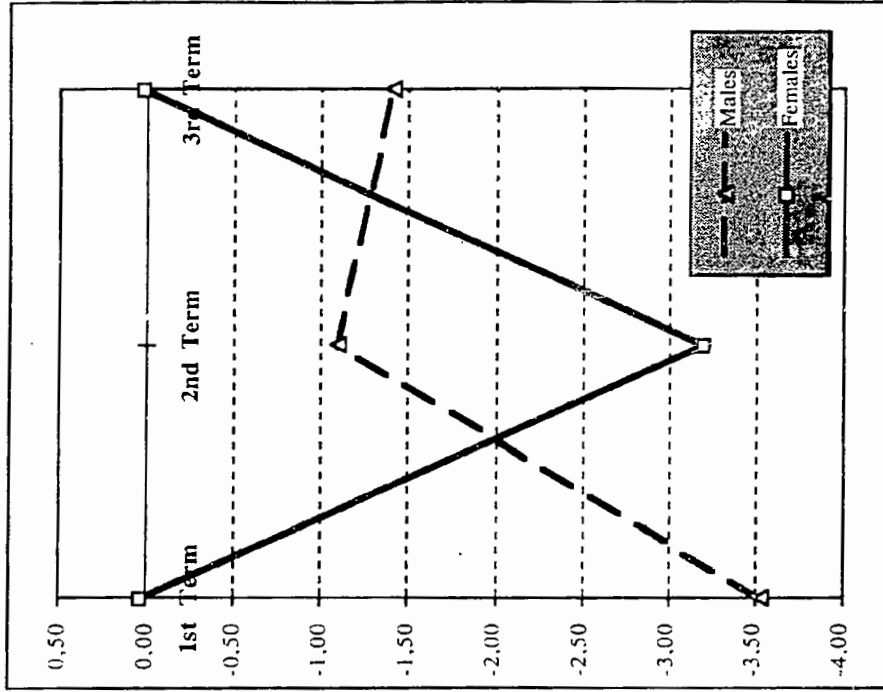


Figure 7
The effect of the interaction between gender and the number of academic terms completed on the change in IM.

Table 1 Comparison of students' initial (pre-test) levels of motivation (for the five subscales) with regards to individual characteristics

Variables	Level of significance (pre-test)									
	AM		EM <i>External regulation</i>		EM <i>Introjection</i>		EM <i>Identification</i>		IM	
	T	P	T	P	T	P	T	P	T	P
<i>Gender</i>	-7.25	<0,001	-2.48	<0,05	5.55	<0,001	6.15	<0,001	8.74	<0,001
<i>Nb of academic terms completed (0 vs 2)</i>	-	N.S.	2.05	<0,05	-	N.S.	1.98	<0,05	-2.08	<0,05
<i>Nb of hours spent on a part-time job (0 vs 10)</i>	-	N.S.	-	N.S.	-	N.S.	-	N.S.	-	N.S.
<i>Place of residence -with or without parents-</i>	7.25	<0,001	2.48	<0,05	5.55	<0,001	6.15	<0,001	8.74	<0,001
<i>Type of program (vocational vs gen.)</i>	2.64	<0,01	-	N.S.	-	N.S.	-	N.S.	-	N.S.

Table 2 Influence of gender and other variables on the change of motivation (ANOVA)

Variables	Level of significance											
	AM		EM External regulation		EM Introjection		EM Identification		IM			
	F	P	F	P	F	P	F	P	F	P		
Gender	-	N.S.	6.09	<0,05	-	N.S.	3.13	<0,05	4.28	<0,05		
Nb of academic terms completed	-	N.S.	-	N.S.	-	N.S.	-	N.S.	3.75	<0,05		
Nb of hrs spent on a part-time job	-	N.S.	-	N.S.	-	N.S.	-	N.S.	8.13	0,01		
Place of residence	-	N.S.	7.30	<0,001	-	N.S.	-	N.S.	-	N.S.		
Type of program	3.41	<0,05	-	N.S.	-	N.S.	-	N.S.	-	N.S.		
INTERACTIONS												
Gender X Job	-	N.S.	7.09	<0,001	6.10	<0,001	-	N.S.	-	N.S.		
Gender X nb /terms	-	N.S.	-	N.S.	-	N.S.	3.98	<0,05	5.25	<0,005		