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11. UNIVERSITY STUDENT PARTICIPATION IN OUT-OF-CLASS ACTIVITIES

Consequences for Study Career and Academic Achievement

INTRODUCTION

Student university experience is not limited to class attendance. In fact students may be involved in various out-of-class activities implying both horizontal interaction with peers and vertical interaction with faculty. The participation in these activities may influence both students' performance and career.

The theory of involvement (Astin, 1984, 1993) includes many out-of-class experiences among the factors that affect learning outcomes. Living in a residence hall, academic involvement, student-faculty interaction after class, athletic involvement, socialization and participation in student organizations or in a fraternity or sorority, are some of the experiences that could promote learning. Further, academic and social involvement – or engagement – is considered one of the most important conditions favouring student persistence and graduation (Tinto, 1975, 1997, 2010). In several research works conducted in different contexts and with different methods, the interaction with peers is positively associated with study success measured by various indicators.

Using a qualitative approach, Kuh (1993, 1995) provides a picture of the positive outcomes that students associate with out-of-class experiences. Results show that out-of-class activities contribute to personal development enhancing the "capacity for critical thinking, personal reflection, competence and self-direction" (Kuh, 1993, p. 300). In particular, peer interactions are "mentioned frequently as instrumental to the development of interpersonal competence, humanitarianism, and cognitive complexity" (Kuh, 1995, p. 134). Peer interaction is a major concern in the discussion on "learning beyond the curriculum". Using a narrative approach, the role of peer learning in the process of becoming a university student, adapting to the institutional, social and cultural rules, is emphasized (Havnes, 2008).

Other studies are carried out using quantitative methods. They investigate the association between students' involvement in various activities and study outcomes considering several aspects of their interaction with peers.

The study by Nicpon et al. (2006), based on Tinto's model of academic persistence (1993), shows the great importance of peer relationships in deciding to persist. Students who are satisfied with their social relationships feel less isolated and more

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supported, and are more likely to persist. Although the indicators used in this study are mainly psychological and are not focused on out-of-class activities, its findings are useful to understand the importance of social integration for students' career. Also relying on Tinto's framework, Meeuwisse et al. (2010) show that both formal and informal relationships with peers and faculties are important to develop a sense of belonging, in turn connected with study progress.

Using data from the 2008 National Survey on Student Engagement (NSSE), Webber et al. (2013) examine the relationship between engagement in curricular and co-curricular activities – including conversation with peers and work with other students during and outside classes – and study success measured by cumulative grades and students' levels of satisfaction with their college experience. Authors find that higher levels of engagement are associated with better results: students who report more frequent involvement in academic and social activities accumulate higher grades and express higher levels of satisfaction.

In their analysis of NSSE data, Carini et al. (2006) find that many measures of student engagement – including the quality of the relationship with other people in the university and student-faculty interactions – are positively, although weakly, related to various aspects of academic performance, such as critical thinking and grades. Student engagement in various activities appears to be especially beneficial for students with lower ability or belonging to minority groups. For instance, Kuh et al. (2008) show that students' involvement in educationally purposeful activities has a greater impact on academic achievement and persistence for disadvantaged students.

Some studies focus on learning communities as an opportunity for peer interaction. Participating in a learning community favours working with others, critical enquiry and reflection, communication and articulation of knowledge, understanding and skills, managing learning and how to learn, self and peer assessment, which in turn affect study success (Boud et al., 2001). Further, the participation in a learning community is positively associated with numerous indicators of study success, such as positive perceptions of college environment, self-reported gains, and satisfaction with college experience. It also promotes involvement in academic and social activities that extend beyond the classroom fostering social integration and connection with an affinity group of peers, which are important factors for study success (Zhao & Kuh, 2004).

A vast body of literature covering several decades (Pascarella, 1980; Kuh & Hu, 2001; Pascarella, 2006) shows that students' interaction with faculty is also associated with positive student outcomes. These studies consider a wide range of outcomes varying from academic achievement and institutional persistence to personal development and satisfaction with higher education. Student persistence from first to second year is one of the major focuses of concern (Pascarella & Terenzini, 1977; Pascarella & Terenzini, 1978). Further, academic achievement measured in terms of grades is often taken into consideration (Pascarella & Terenzini, 1978; Endo & Harpel, 1982; Kim & Sax, 2009). Several aspects of

the interaction between students and faculty are investigated: the frequency of it (Pascarella & Terenzini, 1977; Pascarella & Terenzini, 1978; Endo & Harpel, 1982; Cotton & Wilson, 2006; Kim & Sax, 2009), the nature of the interaction – for instance, social or academic (Cotton & Wilson, 2006), formal or informal (Pascarella & Terenzini, 1977; Pascarella & Terenzini, 1978; Endo & Harpel, 1982) – and its contents including both academically focused matters and matters having a broader scope (Pascarella & Terenzini, 1978; Endo & Harpel, 1982; Cox & Orehovec, 2007). For many reasons, attention focuses on students' contact with faculty beyond the classroom. In fact, out-of-class interaction is deemed to be a crucial aspect of students' integration or involvement in the life of colleges and universities (Tinto, 1975), it is considered as an important element of the socialising function of higher education institutions through the action of individual faculty members (Pascarella, 1980) and a crucial part of an institutional environment promoting student retention and institutional completion (Tinto, 2010). Some studies cover a rather short length of time – 1–2 academic years – focusing on freshmen students (Pascarella & Terenzini, 1977; Pascarella & Terenzini, 1978) while others extend the analysis to longer periods of time including also more mature students (Endo & Harper, 1982; Cotton & Wilson, 2006). Both quantitative and qualitative approaches characterise the study of student-faculty interaction. Relying on multivariate analysis, quantitative studies investigate both the general positive effects of student-faculty interaction on outcomes (Pascarella, 1980) and its conditional effects looking at different patterns of interaction for various subgroups of students (Pascarella, 2006; Kim & Sax, 2009). In both cases the association between interaction and outcomes is controlled by various individual and contextual characteristics. Qualitative studies explore not only the frequency of student-faculty interaction but also its complex nature trying to shed light on its determinants, to reveal the processes that underlie the contact between faculty and students outside the classroom, and to identify different types of interaction (Cotton & Wilson, 2006; Cox & Orehovec, 2007). Finally, information on student-faculty interaction is gathered either within a single campus (Pascarella & Terenzini, 1978) or from more than one (Kim & Sax, 2009).

Although results from these studies document an overall positive association between out-of-class interaction with faculty and student outcomes, divergent or different evidences are also reported. Sometimes out-of-class interaction with faculty is associated with academic achievements measured in terms of grades (Pascarella & Terenzini, 1978) while in others informal student-faculty interaction and academic achievement were found to be unrelated (Endo & Harpel, 1982), possibly because two different lengths of students' career were considered in the investigation. According to some authors, only the interaction with faculty in specific areas such as the discussion on intellectual or course related matters and on matters related to students' future career have a positive effect on student outcomes (Pascarella & Terenzini, 1977) while others argue that almost every type of interaction between faculty and students can have positive effects (Cox & Orehovec, 2007).

All these studies – either focusing on the horizontal interaction with peers or the vertical interaction with faculty – mainly refer to the Anglo-Saxon context leaving it open the question on which factors are taken into consideration when studying students' outcomes in other contexts.

In the Italian context, recent contributions on several aspects of university students' career and performance have adopted a multivariate approach. These studies have mainly focused on several measures of dropout and withdrawal (Aina, 2013; Belloc et al., 2010; Agasisti & Murtinu, 2016; Clerici et al., 2015; Ghignoni, 2017; Meggiolaro et al., 2015; Triventi & Trivellato, 2009), degree completion and time to complete degree courses (Aina et al., 2011; Agasisti & Murtinu, 2016; Clerici et al., 2015; Meggiolaro et al., 2015; Triventi & Trivellato, 2009), and formative credits acquisition (Agasisti & Murtinu, 2016). Student outcomes have been related to various students' individual characteristics (Aina et al., 2011; Belloc et al., 2010; Clerici et al., 2015; Ghignoni, 2017; Meggiolaro et al., 2015; Triventi & Trivellato, 2009), several characteristics of their families (Aina et al., 2011; Aina, 2013; Ghignoni, 2017; Triventi & Trivellato, 2009), university facilities, endowments and human resources (Aina et al., 2011; Ghignoni, 2017), financial aid for students through the provision of grants (Agasisti & Martinu, 2016), and labour market conditions (Aina et al., 2011; Ghignoni, 2017). In these studies students' experience within or outside the classroom, including interaction with peers and/or faculty is not taken into consideration.

As a consequence, we would like to contribute to the study of university student outcomes in the Italian context using previous studies as a term of reference and bringing into the analysis a rather neglected aspect of student experience. Thus, this chapter aims at exploring the relationship between students' involvement in extra-curricular and out-of-class activities and two aspects of their academic performance: the regularity of their study career and their academic achievement. It also deals with the different participation in extra-curricular or out-of-class activities according to students' characteristics.

The paper is based on the study of a large random representative sample of students attending a comprehensive institution covering both undergraduate and graduate courses, and a wide range of study fields. Further, it investigates students' university experience and its outcomes profiting from the opportunity to match individual survey data on students' characteristics and behaviours with a vast array of administrative data on students' career.

Our research questions are the following:

1. Is students' involvement in out-of-class activities associated with their academic performance?
2. Which individual characteristics can favour or hinder students' participation in out-of-class activities?

We answer these questions looking at the case of the University of Pavia.

THE UNIVERSITY OF PAVIA

Pavia is a small city with 70,000 inhabitants 40 km south of Milan, the regional capital of Lombardy, one of the more populated and rich Italian regions. The University of Pavia was established in 1361 and until the 20th century has been the only university in the area of Milan and in Lombardy. Todays within the region there are 13 universities, 7 of which are located in Milan. Seven institutions, including Pavia University, are state universities.

Currently, some 24,000 students study at the University of Pavia. About 21,500 students attend short first cycle courses (55%), that is undergraduate or Bachelors' programmes, long first cycle (28%) and second cycle (16%) courses, that is graduate programmes equivalent to Masters'. The rest are doctoral students and students attending advanced specialised courses, especially in medicine.

Students can choose study courses from a wide range of disciplines. First and second level courses' students may be divided into four groups: science and technology (26%), health sciences (30%), social sciences, business and law (33%) and the humanities (11%).

Less than 10% of the students are from Pavia; about 55% of them come from other places within Lombardy, while 35% come from outside the region. Class attendance is very high (90–95%). According to the results of the student survey we have carried out, almost half of attending students commute every day to reach their classrooms. Those who live in the city during term can be divided into three groups: long-term living-in students generally coming from another region (26%), short-term living-in students going back home for the week end (20%), and town citizens (8%). Most of the long and short-term living-in students find accommodation in Pavia renting an apartment (75%), while the rest benefit from the existence of a "college system".

Pavia is one of the very few university cities in Italy hosting a system of special institutions – called "collegi" – providing students with both housing, educational and leisure services. "Collegi" are not colleges in the Oxbridge sense of the term yet they are neither mere residence halls. There are three types of "collegi". Firstly, there are four so-called historical or independent colleges, two of which are very old and reputed institutions. Admittance to these colleges is based on merit. To enrol, students must have obtained very good grades at their secondary school final examination and need to pass an entry examination. Further, to maintain a post within the college, students need to have a grade point average of at least 27/30. Secondly, there are 12 colleges that are owned and managed by a special agency of the University called "Ente per il diritto allo studio" (EDISU). Admittance to these colleges is mainly based on need, while to maintain a post in college beyond first year students must accumulate a certain amount of university formative credits. Finally, there are three private colleges more or less directly associated with the Catholic Church with their own rules.

DESIGN, METHODS, DATA COLLECTION AND LIMITATIONS

In order to answer our research questions, we rely on two sets of data: data from a student survey and administrative data. The student survey was carried out in the academic year 2014–2015.[1] A standard questionnaire (in Italian and English) was administered online to a representative stratified and random sample of the entire student population, excluding doctoral students and students attending advanced specialised programmes. The sample included 6,761 students and – thanks to several reminders by both e-mail and SMS and a communication campaign through old and new media – it was possible to collect information on 2,186 respondents, with a response rate of 32.3%. The questionnaire addressed various thematic areas, including students' university experience (the choice of Pavia University, attendance & learning, the use of some university facilities), their relationship with the city (accommodation & housing, mobility & transportation, leisure & sport activities, social & cultural activities, security) and some personal characteristics (employment & work, family background, time budget).

Table 11.1. Comparing student sample's and population's characteristics (%)

	Actual sample	*Student population 2014/2015*
Gender		
Female	63.5	55.7
Male	36.5	44.3
Age		
19–21 years-old	35.0	29.3
22–23 years-old	29.2	28.9
24–25 years-old	19.9	21.2
25–30 years-old	10.4	13.5
Over 30	5.5	7.1
Study cycle		
Short first cycle courses	53.8	55.4
Long first cycle courses	25.4	27.6
Second cycle courses	19.6	15.8
Other	1.2	1.2
Study field		
Architecture & engineering	14.2	14.2
Science	14.4	12.0
Health sciences	26.0	29.8
Social sciences	26.8	24.0
Law	7.3	9.2
Humanities	11.4	10.9
N	2,186	20,923

Other relevant data on respondents' secondary education, academic performance and career were retrieved from the University's administrative data warehouse and merged with survey data.

The student sample was selected according to two stratification criteria: study cycle and study field. Study cycle included three categories: short first cycle courses (i.e. Bachelors'), long first cycle courses (i.e. mainly EU regulated programmes) and second cycle courses (i.e. Masters'). Study fields were grouped into six categories: architecture & engineering, science, health science, social sciences, law, and humanities. Although the actual sample fits quite well, the student population's characteristics by study cycle and study field (see Table 11.1), it must be noted that women and younger students are slightly over represented in it.

Before illustrating data analysis and results some limitations of the study are worth mentioning. Firstly, it refers to a single case. Thus, any generalisation of its findings to the Italian higher education system is premature. In order to develop further studies on the relationship between students' involvement in out-of-class activities and study performance, the case of Pavia should be compared to more similar other cases according to the characteristics described in the previous section. Secondly, although available, information on secondary school final exam grades has not been included in the analysis. This variable, known to influence student success, was not included because of some missing values in the administrative data, problems with the reliability of final grades in assessing secondary education attainments and difficulties in collecting relevant data. Thirdly, the student survey was not intended to study the relationship between out-of-class activities and academic performance, so the research instrument didn't include questions on individual attitudes and expectations, and personal satisfaction and interests. Thus, important elements affecting our dependent variables were not available. Finally, as we collected cross-sectional data, and not longitudinal ones, we had to limit our analysis to exploring the association between relevant phenomena, and we can say little on causal relations between variables. As it will be shown, sometimes the impact could be supposed but not proved.

DATA ANALYSIS

In order to answer our research questions, data analysis was carried out in two stages. First, we looked at the relationship between students' participation in out-of-class activities and study performance relying on linear regression models. These models were used to: (a) explore the bivariate relationship between students' involvement and academic outcomes; (b) control this relationship by numerous individual and contextual variables.

In the second stage of the study, we utilized linear regression models to see whether some aspects of students' involvement were related to relevant individual characteristics.

In stage one of the analysis, we created two dependent variables measuring study performance and five independent variables measuring students' participation in out-of-class activities. Further, we selected or created a number of control variables (Astin, 1984; Endo & Harpel, 1982; Kim & Sax, 2009; Kuh, 1995; Kuh et al., 2008; Meeuwisse et al., 2010; Pascarella, 1980; Thiele, 2016; Tinto, 2010; Zhao & Kuh, 2004). In stage two of the analysis, variables on students' involvement in out-of-class activities took on the role of dependent variables while control variables were used as independent variables.

All these variables are presented briefly below and more extensively in the Appendix (Tables 11.4–11.6).

Academic Performance

In order to study two aspects of student performance, namely study regularity and academic achievement, we retrieved from the administrative dataset information on credits earned by each individual student and on her or his grades.

Study regularity is measured by the ratio between the credits earned by students at the end of the academic year and those they were expected to obtain according to course regulations. The ratio ranges between 0 and 100.

Academic achievement is measured by the mean of the grades of the exams passed by students within the end of the academic year. We consider this measure as their grade point average ranging between 0 and 30.

Student Involvement

The survey asked students to indicate the frequency with which they were involved in some activities that represent two dimensions of students' participation in the university experience, the interaction with peers and that with faculty. Four of the five dimensions concern the relationship with peers and the remaining one is about the relationship with teachers.

To study the relationship with peers, survey data provide different indicators, aggregated into four constructs, namely:

- Studying with peers;
- Leisure activities;
- Living together;
- Social and political commitment.

For each of these constructs we have built an additive index on the basis of appropriate items measured on Likert scales, except for living together with peers which consists of a single variable in three categories: living with the family or alone, living with peers in a private apartment, living with peers in a college or student residence. We had to distinguish those who live in a private apartment from

those who live in college because the requirements to stay in college affect students' performance, as it is necessary to have a minimum grade point average and/or a minimum numbers of credits.

To study the relationship with faculty, survey data provide only two indicators conflated into a single construct: out-of-class communication with faculty. Also in this case, the indicators were measured on a Likert scale and summed to obtain an overall index.

Control Variables

Each model of regression is controlled by numerous variables. Some of these variables do not require much explanation as they are widely used in sociological studies. In the literature, gender, age, family background, nationality and the type of secondary education are recognized as factors that influence both the participation in student life and study performance. Other selected variables are directly related to study career. The number of years of enrolment, i.e. the length of the career, the year of course enrolment (1st, 2nd, etc.), the field of study and programme's cycle are factors that shape student's university experience. Class attendance, employment status, residence in the city of Pavia and study hours, are other factors that influence students' chance to get socially involved "on campus" and the academic outcomes they achieve.

RESULTS

The results of the bivariate analysis[2] show significant differences between each index measuring students' involvement in extra-curricular and out-of-class activities and the two outcome variables, regularity and achievement. Participation in out-of-class activities with either peers or faculty is associated with higher regularity rates and grade point averages.

Then, we tested whether differences found in the bivariate analyses were robust enough to remain significant controlling for other students' characteristics. We ran five linear regression models for each of the two dependent variables and we estimated the net impact of students' involvement on academic outcomes. In Table 11.2 we show the regression coefficients for each controlled model while the complete models are shown in the Appendix (Tables 11.7 to 11.11).

Involvement in Out-of-Class Activities and Academic Performance

As we look, firstly, at the relationship between students' interaction with peers and study regularity, we can see that studying with peers is associated with study regularity and the relationship remains significant after controlling for various students' personal characteristics and academic attributes.

Table 11.2. Linear regression coefficients on study performance

	Regularity rate	*Grade point average*
Studying with peers	2.419**	.224
Leisure activities with peers	3.631**	.356
Living together:		
• in apartment	3.377	.568
• in a "collegio"	10.295***	1.579***
• not living with peers	0	0
Social and political commitment	.977	–.055
Out-of-class communication with faculty	5.095***	.352

***p-value<0.05; ***p-value<0.001*

The more frequently students are involved in out-of-class shared study activities, the higher is their regularity rate, that is the number of credits they have gained compared to those they were expected to obtain according to course regulations.

Spending free time with peers participating in leisure activities – cultural and recreational initiatives organized by students unions or students groups, practicing sports at the university sport club, simply meeting friends and other students – is connected to study regularity as well, and the relationship remains significant after controlling for students' characteristics. The more students get together in leisure activities, the higher is their regularity rate.

As evident from bivariate analysis, living together with peers is related to study regularity. However, including control variables within the model, the relationship loses its significance. While living with peers in an apartment doesn't make a difference compared to living alone or with parents, staying in a "collegio" does make a difference but this depends on college requirements. As mentioned before, in order to maintain their post in a college, students must acquire a certain number of credits every year. As a consequence their career is more regular.

While social and political commitment appeared to be related to study regularity in the bivariate analysis, controlling for various students' characteristics the relationship fades away.

As far as the relationship between students' interaction with faculty and regularity is concerned, out-of-class communication with faculty – talking with a professor outside the class or office hours and communicating with faculty by e-mail – is also related to regularity.

The more frequently students interact with faculty the higher is their study regularity rate. It has to be noted that – as shown by the value of the B coefficient and the level of significance – this relationship appears to be stronger than those with peers.

Turning to the relationship between interaction with peers and academic achievement, we see that, although studying with other students appeared to

be significantly related to academic achievement in the bivariate analysis, the relationship loses its significance including control variables in the analysis. The same holds true for the participation in leisure activities and social and political commitment.

As it was for the relationship between living together and study regularity, living together and academic achievement appear to be related only when students stay in college. But, again, this is likely due to the fact that some colleges require students to maintain a high grade point average throughout their entire academic career.

Finally, out-of-class communication with faculty is associated with students' academic achievement. The more frequently students interact with faculty the higher is their grade point average. It has to be noted that this is the only aspect of students' out-of-class experience positively – although rather weakly – related to their academic achievement.

Students' Characteristics and Involvement in Out-of-Class Activities

In order to answer our second research question, we now turn to the analysis of the relationship between some personal characteristics of students and of their study programmes, and their involvement in out-of-class activities.

There are only three aspects of student involvement, which are significantly associated with students' academic performance. They are: (a) studying with others, (b) participation in leisure activities, and (c) interaction with faculty.

For each of these aspects we tested whether involvement is associated with some of the individual characteristics deemed important in the literature. In order to estimate the net impact of each of them, we ran three linear regression models, one for each aspects of students' involvement associated with study performance.

To the general overview of the results of this analysis (see Table 11.3; full models are reported in the Appendix, Table 11.12), we can add that students who are over 25 – likely being late in completing their studies – are less involved in studying with peers and in leisure activities, than their younger colleagues. On the contrary, as students grow up, their out-of-class communication with faculty increases. Further, as students progress in their study career their involvement in studying with peers, leisure activities and out-of-class communication with faculty grows.

Parents' education is associated with involvement in leisure activities and out-of-class communication with faculty, but it isn't associated with students' participation in shared study activities.

The characteristics of study programmes are associated with students' participation in out-of-class activities. Architecture and engineering students are more involved in out-of-class shared activities of study than students of any other field. Law students are the least involved in this activity. On the contrary, architecture and engineering students are less involved in leisure activities than their colleagues from the humanities and the social sciences, while no significant relationship is reported for students from the health sciences, science and law.

Table 11.3. Summary of the results of the linear regressions on the involvement in out-of-class activities: is the relationship significant?

	Studying with peers	*Leisure activities*	*Out-of-class communication with faculty*
Gender	No	No	No
Age	Yes	Yes	Yes
Nationality	No	No	No
Parents' socioeconomic status	No	No	No
Parents' education	No	Yes	Yes
Type of secondary education	No	No	No
Field of study	Yes	Yes	Yes
Study cycle	Yes	Yes	Yes
Year of course enrolment	Yes	Yes	Yes
Residential status	Yes	Yes	Yes
Employment status	No	No	No

Students from the humanities, science, architecture and engineering are more involved in out-of-class communication with faculty than their colleagues from law, while no significant difference is reported for students from the health and the social sciences.

Compared to commuters, students living in Pavia during term have more chance to study with their peers, get involved in leisure activities and communicate with faculty.

According to the results of the student survey, some relevant characteristics of the students, such as gender, type of secondary education, employment status during studies, and nationality are not related to the three considered aspects of students' involvement in out-of-class activities. Finally, parents' socioeconomic status is neither related to the two considered aspects of students' horizontal interaction with peers nor to their vertical interaction with faculty.

CONCLUSIONS AND IMPLICATIONS

Looking at the results of data analysis on students' interaction with peers and faculty, we can come to some conclusions often supporting findings from previous researches.

First, studying with peers is associated with students' career regularity measured in terms of credits. Although the survey didn't collect detailed information on the ways students study together, it is likely that studying with others provide individuals with useful resources to meet their course's credits requirements, or nevertheless to take and pass exams, accumulating credits. Studying with peers may give students

the opportunity to acquire or to increase their skills in managing learning and to understand how to learn. It may also help them to manage their study time more effectively and to give pace and order to their study providing as well practical and psychological support in preparing and taking exams (Boud, 2001; Kuh, 1993, 1995; Kuh et al., 2008; Meeuwisse et al., 2010).

Second, a higher rate of study career regularity is also associated with a more intense participation in leisure activities. We haven't questioned students on the contents of these activities, but it may be that meeting frequently with peers at social, recreational and cultural events, or practicing a sport with classmates and other fellow students provide the individual with useful information on lessons' contents, assignments, handouts, study materials, tutorship, seminars, practicals and any other relevant information she or he may have missed or misinterpreted. Thus, a high level of integration in students' social life – although focused on non-educational activities – may result in a more regular study career (Astin, 1993; Nicpon et al., 2006).

Third, out-of-class interaction with faculty is associated with study regularity as well (Pascarella & Terenzini, 1977). Although we lack detailed information on this interaction, it may be that students reporting a more intense out-of-class communication with teachers have entered or can enter a virtuous circle. More regular students – those who sit more frequently at exams – get to know more teachers and/or are more easily known by them increasing their chances to talk or to exchange mails with faculty gaining further elements to proceed more rapidly in their career.

The study sheds light also on another aspect of students' performance, namely their academic achievement measured in terms of grades. While students' involvement in out-of-class activities with peers is not associated with their academic achievement, their out-of-class interaction with faculty is (Pascarella & Terenzini, 1978). This two-fold finding opens up to further lines of inquiry. On the one hand, we can speculate on the links connecting out-of-class communication with faculty and better grades. It may be that students search for contacts with faculty because they may lead to higher grades, or that a relationship with a faculty member – no matter why initiated – motivate students to increase the effort they apply to study leading to better grades (Cotten & Wilson, 2006). It may also be that students reporting a more intense out-of-class communication with teachers have entered or can enter a second virtuous circle. More brilliant students may search for extra-contacts with faculty more than other students. If they succeed they may be able to gain more information and advice improving their academic performance; thus, it seems that student-faculty interaction and student outcomes reinforce each other (Pascarella & Terenzini, 1978; Pascarella, 1980). On the other hand, it seems that the two considered aspects of student career, regularity and achievement, depend on different causes. For instance, studying together, i.e. making study activity a collective effort, doesn't translate into better individual achievements. Likely, better grades depend on other factors, possibly related to individual traits.

As we turn to students' characteristics that may foster or hinder their involvement in out-of-class activities, we can come to three conclusions.

First, being a young student, studying architecture and engineering, attending a second cycle course, the advancement in study career – e.g. passing from first to second year – and staying in Pavia during term all favour studying with peers. On the contrary, being more than 25 years old, studying in other fields, attending a first cycle course, and commuting hinder it.

Second, a high level of family cultural capital, being a young student, studying humanities and the social sciences, the progress in study career and living in Pavia during term facilitate the participation in leisure activities, while a low level of cultural capital, being more than 25 years old, studying other disciplines and commuting hamper it.

Third, a high level of family cultural capital, studying humanities and science, attending a second cycle course, the progress in academic career, and staying in Pavia during term, foster out-of-class communication with faculty, while the reverse is true for the opposite categories. Finally, involvement in out-of-class communication with faculty becomes more frequent as students get older (Pascarella, 1980; Cotton & Wilson, 2006).

Two further comments to these conclusions are worth mentioning. First, some individual characteristics, which often result in inequalities and disparities – such as gender, parents' socioeconomic status, type of secondary education, and nationality – are not related to the participation in out-of-class activities (Kim & Sax, 2009). Thus, we can argue that very likely at Pavia University the three sets of out-of-class activities that are associated with study regularity and, at least partially, with academic achievement are largely open to students' participation irrespectively of their individual traits. Second, as approximately half of the students stay in Pavia during term while the other half commutes every day to attend lessons, their residential status appears to be the more evident cleavage differentiating students as far as their participation in out-of-class activities is concerned.

Findings from the study have practical and policy implications. In discussing them we focus on study regularity that is one of the most important elements in the external assessment and public funding of state universities in our country.

The study's results show that there are at least three areas of activity, namely out-of-class study with peers, the participation in leisure activities, and student-faculty out-of-class communication, that deserve special attention by Pavia University and possibly other Italian higher education institutions because being involved in them helps students to keep up with their exams. Targeting these areas with proper policy measures can foster study regularity preventing student departure and the waste of public money invested in human capital development.

Our findings also show that factors favouring or hindering students' participation in out-of-class activities can be divided into two groups. The first includes the characteristics that it is very unlike or impossible for universities to influence such as students' ageing and their parents' education. The second includes characteristics

that may be influenced by universities such as students' residential status. Providing students with more opportunities to live in Pavia during term may increase their participation in out-of-class activities enhancing the regularity of their study. As a consequence, measures such as the provision of student residences or social housing for students, enacted directly by the university or negotiated with third parts, should be considered as crucial. Our results also show that cultural and recreational activities should be equally considered important. Measures fostering student residence should be accompanied by initiatives and facilities providing students the opportunity to meet with each other and with faculty beyond ordinary academic activities.

Although the University of Pavia displays some peculiar traits – being located in a "university town" with a proportion of students on inhabitants greater than 10%, having a rather high proportion of long-term living-in students coming from other places, the presence of a "college" system – it is also characterised by a rather high proportion of daily commuters as other Italian universities. Very likely, irrespective of all efforts deemed to enhance students' stay during term, many of them will continue to commute daily either for economic reasons or for other motives. As a consequence, measures providing all students – including commuters – services and facilities to study together, for instance suitable learning spaces, should be considered crucial as well.

Thus, to enhance study regularity, policy measures aimed at increasing student residence "on campus", policy measures targeting the quality of student life outside the university and policy measures targeting the quality of learning inside the university should be pursued together.

NOTES

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[2] Please look at B coefficients in the regression models in the Appendix, where we reported both results for bivariate analysis (model 1 in each table) and multivariate analysis (model 2 in each table).

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APPENDIX

Table 11.4. Study performance variables

Name of variable	*Indicators*	*Operations*
Study regularity	Credits acquired at the end of the academic year	Credits acquired / Credits required x 100
	Credits required by course regulation	
Academic achievement	Grade point average at the end of the academic year	Grades / Number of exams

Table 11.5. Student involvement variables

Name of variable	*Indicators*	*Operations*
Studying with peers	Thinking of this academic year experience, how often did you study with…? (Often, sometimes, rarely, never): With my classmates With students from other courses	Assigning a number value (1-never; 2-rarely; 3-sometimes; 4-often) to answer categories. Different indicators are summed and divided by their number.
Leisure activities with peers	How often do you participate in each of the following activities? (Often, sometimes, rarely, never): Meet friends and other students; Take part in cultural and recreational initiatives organized by students unions or students groups; Practice a sport at CUS (the university sport club)	Assigning a number value (1-never; 2-rarely; 3-sometimes; 4-often) to answer categories. Different indicators are summed and divided by their number.
Living together	During term, who do you live with? (Alone; With flatmates, friends, siblings, partner or college fellows; With my parents or other relatives) During term, what is your kind of accommodation? (I rent a room only for myself, I rent a shared room with two or more people, I live in a "collegio", I rent an apartment only for myself, Other)	Recoding indicators into a single variable.
Social and political commitment	How often do you participate each of the following activities? (Often, sometimes, rarely, never): Participate in meetings regarding student and university problems; Taking part in social, environmental or political initiatives (excluding university problems)	Assigning a number value (1-never; 2-rarely; 3-sometimes; 4-often) to answer categories. Different indicators are summed and divided by their number.
Communication with faculty	In your university experience of this year, how often did you… (Often, sometimes, rarely, never): Talk with a professor out of class or office hours; Exchange emails with professors	Assigning a number value (1-never; 2-rarely; 3-sometimes; 4-often) to answer categories. Different indicators are summed and divided by their number.

Table 11.6. Control variables

Name of variable	*Indicators*	*Operations*
Gender		
Age		
Nationality		Recoding into a variable with two categories: Italian; Other.
Family socioeconomic status	Profession of father Profession of mother	Computing a single variable considering the highest professional level of either student's father or mother. Recoding the new variable into three categories: lower status, middle status, upper status.
Family educational background	Father's education Mother's education	Computing a single variable considering the highest educational attainment of either student's father or mother. Recoding the new variable into three categories: lower educational attainment, secondary education, tertiary education.
Type of secondary education		Recoding into a variable with two categories: Lyceum; Other school.
Year of course enrolment		
Number of years of enrolling		
Study cycle	Short first cycle courses Long first cycle courses Second cycle courses	
Field of study	Discipline of study courses	Recoding every course into five categories: Architecture and Engineering; Science; Health sciences; Social sciences; Law; Humanities.

(Continued)

Table 11.6. (Continued)

Name of variable	*Indicators*	*Operations*
Class attendance	During this academic year, how many courses did you attend, even not regularly? (All the courses related to the exams I want to take; Only few of the courses related to the exams I want to take; None)	Recoding into a variable with two categories: Fully attending classes; Attending few classes or not attending.
Employment status	Did you have a job during this academic year? (Yes, I have a permanent job; Yes, I have an occasional job; No, I have no job)	Recoding into a variable with two categories: Working full time during the academic year; working occasionally/not working during the academic year.
Residential status	Where do you live during term? (In the municipality of Pavia; In another municipality of the Province of Pavia; Somewhere else)	Recoding into a variable with two categories: Living in Pavia; Commuting.
Study hours	Please specify how many hours per week on average do you spend in each of the following activities during term: Studying	

Table 11.7. Studying with peers and study performance – Linear regression models, bivariate and multivariate estimates for study regularity and academic achievement

			Study regularity		*Academic achievement*	
Model	*Variable*	*Regressor*	*B*	*S.E.*	*B*	*S.E.*
1	Intercept		62.091***	1.888	23.771***	.345
	Studying with peers index		5.286***	.769	.490***	.140
2	Intercept		20.454**	6.002	14.680***	1.089
	Studying with peers index		2.419**	.740	.224	.134
	Gender	Male	1.253	1.232	.035	.223
		Female	0		0	
	Age		–.179	.185	–.002	.034
	Parents' socio-economic status	Lower	–.891	2.221	–.252	.403
		Middle	.401	1.343	.101	.244
		Upper	0		0	
	Parents' education	Parents with lower educational attainment	–3.699	2.200	–.729	.399
		Parents with secondary education	–2.226	1.362	–.304	.247
		Parents with tertiary education	0		0	
	Type of secondary education	Lyceum	5.082***	1.361	1.248***	.247
		Other schools	0		0	
	Field of study	Science	8.794***	2.232	1.741***	.405
		Health sciences	12.429***	2.212	2.498***	.401
		Humanities	10.853***	2.376	3.283***	.431
		Social sciences	20.430***	1.945	2.670***	.353
		Law	12.561***	3.059	2.600***	.555
		Architecture and Engineering	0		0	
	Study cycle	Second cycle courses	6.079***	1.671	3.890***	.303
		–3.997 2.158	–.122	.391		

(Continued)

Table 11.7. (Continued)

			Study regularity		*Academic achievement*	
Model	*Variable*	*Regressor*	*B*	*S.E.*	*B*	*S.E.*
		Short first cycle courses	0		0	
	Year of course enrolment		7.791***	.689	1.039***	.125
	Number of years of enrolment		–1.904***	.293	–.082	.053
	Study hours		.930	.602	.195	.109
	Residential status	Living in Pavia	3.279*	1.276	.602**	.231
		Commuting	0		0	
	Employ-ment status	Working full time during the academic year	–1.407	1.893	–.152	.343
		Working occasionally /not working during the academic year	0		0	
	Nationality	Italian	11.495***	2.927	1.959***	.531
		Other	0		0	
	Class attendance	Fully attending classes	13.874***	1.536	1.781***	.279
		Attending few classes or not attending	0		0	
	Collegial status	Staying in “collegio”	8.927***	1.933	1.339***	.350
		Not staying in “collegio”	0		0	

****p<0.001; **p<0.01; *p<0.05*

Table 11.8. Involvement in leisure activities and study performance – Linear regression models, bivariate and multivariate estimates for study regularity and academic achievement

			Study regularity		*Academic achievement*	
Model	*Variable*	*Regressor*	*B*	*S.E.*	*B*	*S.E.*
1	Intercept		54.616***	2.096	22.268***	.383
	Leisure activities with peers index		10.466***	1.062	1.401***	.194
2	Intercept		21.040***	5.957	14.698***	1.080
	Leisure activities with peers index		3.631**	1.138	.356	.206
	Gender	Male	1.169	1.232	.027	.223
		Female	0		0	
	Age		–.193	.185	–.002	.034
	Parents' socio-economic status	Lower	–.534	2.224	–.217	.403
		Middle	.470	1.344	.108	.244
		Upper	0		0	
	Parents' education	Parents with lower educational attainment	–3.563	2.202	–.714	.399
		Parents with secondary education	–2.118	1.364	–.293	.247
		Parents with tertiary education	0		0	
	Type of secondary education	Lyceum	5.020***	1.362	1.242***	.247
		Other schools	0		0	
	Field of study	Science	7.967***	2.223	1.664***	.403
		Health sciences	11.882***	2.212	2.446***	.401
		Humanities	9.922***	2.382	3.194***	.432
		Social sciences	19.566***	1.947	2.587***	.353
		Law	11.048***	3.036	2.458***	.550
		Architecture and Engineering	0		0	

(Continued)

Table 11.8. (Continued)

			Study regularity		*Academic achievement*	
Model	*Variable*	*Regressor*	*B*	*S.E.*	*B*	*S.E.*
	Study cycle	Second cycle courses	6.312***	1.668	3.910***	.302
		Long first cycle courses	–3.982	2.159	–.121	.391
		Short first cycle courses	0		0	
	Year of course enrolment		7.792***	.689	1.038***	.125
	Number of years of enrolment at university		–1.936***	.293	–.084	.053
	Study hours		.947	.602	.197	.109
	Residential status	Living in Pavia	2.218	1.356	.495*	.246
		Commuting	0		0	
	Employ-ment status	Working full time during the academic year	–1.592	1.892	–.169	.343
		Working occasionally /not working during the academic year	0		0	
	Nationality	Italian	11.226***	2.929	1.932***	.531
		Other	0		0	
	Class attendance	Fully attending classes	14.039***	1.534	1.795***	.278
		Attending few classes or not attending	0		0	
	Collegial status	Staying in “collegio”	7.577	1.958	1.208**	.355
		Not staying in “collegio”	0		0	

****p<0.001; **p<0.01; *p<0.05*

Table 11.9. Living together and study performance – Linear regression models, bivariate and multivariate estimates for study regularity and academic achievement

			Study regularity		*Academic achievement*	
Model	*Variable*	*Regressor*	*B*	*S.E.*	*B*	*S.E.*
1	Intercept		70.124***	.807	24.211***	.147
	Living together	Living together with peers in apartment	8.613***	1.431	1.403***	.260
		Living together with peers in “collegio”	16.827***	2.128	2.856***	.386
		Not living together with peers	0		0	
2	Intercept		28.370***	5.635	15.472***	1.020
	Living together	Living together with peers in apartment	3.377	1.962	.568	.355
		Living together with peers in “collegio”	10.295***	2.473	1.579***	.447
		Not living together with peers	0		0	
	Gender	Male	1.338	1.236	.047	.224
		Female	0		0	
	Age		–.255	.184	–.008	.033
	Parents’ socioeconomic status	Lower	–.969	2.230	–.265	.404
		Middle	.256	1.348	.084	.244
		Upper	0		0	
	Parents’ education	Parents with lower educational attainment	–4.274	2.209	–.807*	.400
		Parents with secondary education	–2.600	1.369	–.357	.248
		Parents with tertiary education	0		0	
	Type of secondary education	Lyceum	5.002***	1.368	1.232***	.248
		Other schools	0		0	

(Continued)

Table 11.9. (Continued)

			Study regularity		*Academic achievement*	
Model	*Variable*	*Regressor*	*B*	*S.E.*	*B*	*S.E.*
	Field of study	Science	8.200***	2.229	1.689***	.403
		Health sciences	12.083***	2.219	2.460***	.402
		Humanities	10.705***	2.379	3.280***	.431
		Social sciences	19.933***	1.949	2.616***	.353
		Law	11.330***	3.044	2.488***	.551
		Architecture and Engineering	0		0	
	Study cycle	Second cycle courses	6.560***	1.672	3.939***	.303
		Long first cycle courses	–4.034	2.165	–.125	.392
		Short first cycle courses	0		0	
	Year of course enrolment		7.975***	.688	1.053***	.124
	Number of years of enrolment at university		–1.942***	.294	–.085	.053
	Study hours		1.010	.604	.204	.109
	Residential status	Living in Pavia	1.599	1.847	.286	.334
		Commuting	0		0	
	Employment status	Working full time during the academic year	–1.482	1.899	–.149	.344
		Working occasionally/not working during the academic year	0		0	
	Nationality	Italian	10.790***	2.941	1.850**	.532
		Other	0		0	
	Class attendance	Fully attending classes	14.253***	1.537	1.818***	.278
		Attending few classes or not attending	0		0	

****p<0.001;**p<0.01; *p<0.05*

Table 11.10. Social and political commitment and study performance – Linear regression models, bivariate and multivariate estimates for study regularity and academic achievement

			Study regularity		*Academic achievement*	
Model	*Variable*	*Regressor*	*B*	*S.E.*	*B*	*S.E.*
1	Intercept		66.265***	1.527	23.660***	.277
	Social and political commitment index		5.771***	.995	.892***	.181
2	Intercept		26.665***	5.673	15.368***	1.027
	Social and political commitment index		.977	.968	–.055	.175
	Gender	Male	1.274	1.235	.039	.224
		Female	0		0	
	Age		–.263	.184	–.009	.033
	Parents' socioeconomic status	Lower	–.875	2.226	–.253	.403
		Middle	.319	1.346	.090	.244
		Upper	0		0	
	Parents' education	Parents with lower educational attainment	–3.753	2.210	–.759	.400
		Parents with secondary education	–2.269	1.367	–.321	.248
		Parents with tertiary education	0		0	
	Type of secondary education	Lyceum	5.089***	1.365	1.254***	.247
		Other schools	0		0	
	Field of study	Science	8.021***	2.230	1.685***	.404
		Health sciences	12.065***	2.216	2.474***	.401
		Humanities	10.240***	2.397	3.270***	.434
		Social sciences	19.772***	1.962	2.647***	.355
		Law	11.173***	3.044	2.491***	.551
		Architecture and Engineering	0		0	

(Continued)

Table 11.10. (Continued)

			Study regularity		*Academic achievement*	
Model	*Variable*	*Regressor*	*B*	*S.E.*	*B*	*S.E.*
	Study cycle	Second cycle courses	6.467***	1.671	3.929***	.302
		Long first cycle courses	–4.133	2.165	–.123	.392
		Short first cycle courses	0		0	
	Year of course enrolment		7.968***	.689	1.062***	.125
	Number of years of enrolment at university		–1.951***	.294	–.085	.053
	Study hours		.955	.604	.202	.109
	Residential status	Living in Pavia	3.486**	1.298	.660**	.235
		Commuting	0		0	
	Employment status	Working full time during the academic year	–1.633	1.897	–.167	.343
		Working occasionally/not working during the academic year	0		0	
	Nationality	Italian	11.580***	2.934	1.958***	.531
		Other	0		0	
	Class attendance	Fully attending classes	14.114***	1.540	1.821***	.279
		Attending few classes or not attending	0		0	
	Collegial status	Staying in “collegio”	8.363***	1.952	1.326***	.353
		Not staying in “collegio”	0		0	

****p<0.001; **p<0.01; *p<0.05*

Table 11.11. Out-of-class communication with faculty and study performance – Linear regression models, bivariate and multivariate estimates for study regularity and academic achievement

			Study regularity		*Academic achievement*	
Model	*Variable*	*Regressor*	*B*	*S.E.*	*B*	*S.E.*
1	Intercept		56.660***	1.994	21.908***	.362
	Out-of-class communication with faculty index		7.168***	.768	1.217***	.139
2	Intercept		20.270***	5.671	14.831***	1.036
	Out-of-class communication with faculty index		5.095***	.774	.352*	.141
	Gender	Male	.916	1.223	.013	.223
		Female	0		0	
	Age		–.315	.183	–.013	.033
	Parents' socioeconomic status	Lower	–.981	2.203	–.258	.402
		Middle	.510	1.333	.106	.243
		Upper	0		0	
	Parents' education	Parents with lower educational attainment	–3.290	2.183	–.706	.399
		Parents with secondary education	–2.143	1.351	–.302	.247
		Parents with tertiary education	0		0	
	Type of secondary education	Lyceum	5.009***	1.351	1.244***	.247
		Other schools	0		0	
	Field of study	Science	7.403**	2.208	1.629***	.403
		Health sciences	11.770***	2.194	2.445***	.401
		Humanities	9.126***	2.365	3.156***	.432

(Continued)

Table 11.11. (Continued)

			Study regularity		*Academic achievement*	
Model	*Variable*	*Regressor*	*B*	*S.E.*	*B*	*S.E.*
		Social sciences	20.357***	1.927	2.655***	.352
		Law	12.923***	3.021	2.595***	.552
		Architecture and Engineering	0		0	
	Study cycle	Second cycle courses	3.803*	1.703	3.742***	.311
		Long first cycle courses	–2.631	2.152	–.029	.393
		Short first cycle courses	0		0	
	Year of course enrolment		6.756***	.707	.973***	.129
	Number of years of enrolment at university		–1.727***	.292	–.070	.053
	Study hours		.836	.598	.190	.109
	Residential status	Living in Pavia	3.449**	1.259	.625**	.230
		Commuting	0		0	
	Employment status	Working full time during the academic year	–2.183	1.879	–.210	.343
		Working occasionally/not working during the academic year	0		0	
	Nationality	Italian	10.997***	2.905	1.925***	.531
		Other	0		0	
	Class attendance	Fully attending classes	13.575***	1.524	1.769***	.278
		Attending few classes or not attending	0		0	
	Collegial status	Staying in “collegio”	7.652***	1.921	1.244***	.351
		Not staying in “collegio”	0		0	

****p<0.001; **p<0.01; *p<0.05*

Table 11.12. Students' characteristics and participation in out-of-class activities – Linear regression models estimates

		Studying with peers		*Leisure activities with peers*		*Out-of-class communication with faculty*	
Variable	*Regressor*	*B*	*S.E.*	*B*	*S.E.*	*B*	*S.E.*
Intercept		2.422***	.106	1.443***	.071	1.723***	.099
Gender	Male	–.003	.036	.036	.024	.060	.034
	Female	0		0		0	
Age	21-22 years old	.045	.055	–.001	.036	.267***	.052
	23-24 years old	–.027	.070	–.003	.046	.484***	.066
	25-30 years old	–.223**	.081	–.146**	.053	.404***	.076
	Up 30 years old	–.783***	.112	–.426***	.074	.207*	.105
	19-21 years old	0		0		0	
Nationality	Italian	–.016	.085	.064	.057	.122	.080
	Other	0		0		0	
Parents' socio-economic status	Lower	–.010	.066	–.077	.043	.041	.062
	Middle	–.035	.040	–.030	.026	–.029	.037
	Upper	0		0		0	
Parents' education	Parents with lower educational attainment	–.114	.065	–.103*	.043	–.173**	.062
	Parents with secondary education	–.058	.040	–.068*	.026	–.065	.038
	Parents with tertiary education	0		0		0	
Type of secondary education	Lyceum	.004	.040	.042	.026	.034	.038
	Other schools	0		0		0	
Field of study	Science	–.296***	.065	.069	.043	.164**	.061
	Health sciences	–.139*	.065	.082	.043	.068	.061

(Continued)

Table 11.12. (Continued)

		Studying with peers		*Leisure activities with peers*		*Out-of-class communication with faculty*	
Variable	*Regressor*	*B*	*S.E.*	*B*	*S.E.*	*B*	*S.E.*
	Humanities	–.163*	.070	.196***	.046	.270***	.066
	Social sciences	–.174**	.057	.124**	.038	–.070	.054
	Law	–.562***	.089	.064	.059	–.356***	.083
	Architecture and Engineering	0		0		0	
Study cycle	Second cycle courses	.186**	.061	.085*	.040	.353***	.057
	Long first cycle courses	.038	.063	.011	.042	–.211***	.060
	Short first cycle courses	0		0		0	
Year of course enrolment		.044*	.020	.047**	.013	.107***	.019
Residential status	Living in Pavia	.186***	.036	.482***	.024	.110**	.034
	Commuting	0		0		0	
Employ-ment status	Working full time during the academic year	–.102	.055	–.004	.036	.087	.052
	Working occasionally/not working during the academic year	0		0		0	

****p<0.001; **p<0.01; *p<0.05*