

AN OPPORTUNITY MISSED: FEATURES OF COLLEGE DROPOUTS A CASE STUDY: THE ACADEMIC COLLEGE OF JUDEA AND SAMARIA

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Abstract

*The massification of higher education, which took place since the second half of the 20th century, gave rise to the grave problem of student dropout. The paper deals with the issue of student attrition and student retention. It presents a case study examining the profile of college dropouts and their reasons for dropping out of undergraduate studies at the Academic College of Judea and Samaria (below: ACJS) in Israel. The paper compares dropout rates worldwide and nationwide. It then proceeds to analyze the profile of the 1,580 students, who dropped out of studies in the years 2001-2005. The authors' analysis is based on both computerized data of the college and a representative sample survey. Following Tinto's **Student Integration Model** and Bean's **Model of Student Departure** the authors dwell on the interplay between the academic system and the social system, between institutional variables, personal variables, background variables and study system variables as contributor to withdrawal from studies. The paper attempts to define the term "dropout" and distinguishes between those who withdraw from studies altogether and those who transfer to other schools. It illustrates the dropouts' profile and illuminates predictors to help locating potential dropouts and students likely to transfer to other schools.*

Key words: *Massification of higher education, student attrition, student dropout, student retention.*

The expansion of higher education

Over the past twenty years, human resources have been increasingly recognized as contributing to economic growth from a qualitative and not quantitative perspective. Moreover, manufacturing productivity and technological developments are perceived as products of the human mind as well. Thus they too are defined as a result of the quality of human resources! The primary breeding ground of human capital is the educational system. Higher education, as the highest level of this pyramid, serves as its pinnacle (Sagi, 2001). Thus the great significance attributed to higher education and to attempts at reducing dropout.

The massification of higher education is a recent phenomenon comparatively. The expansion of higher education started as late as the second half of the 20th century. It was led by the United States. At the beginning of the 20th century less than 30,000 people in the US earned bachelor's degrees

(NCES [National Center for Educational Statistics], 2007) Most college graduates were upper class and upper middle class whites (Forest & Kinser, 2002). One hundred years ago higher education in the US was almost exclusively a rich white boys club (Roettger et al., 2007). The second half of the twentieth century saw rapid educational expansion as well as improvement in educational opportunity. In 1940, about 15 per cent of the 18 to 21 year-old age group attended colleges and universities in the US. Their rate reached 45 per cent in 1970 (Hurn, 1985). The number of undergraduate students rose from 7,376,000 in 1970 to 10,475,000 in 1980, to 11,959,000 in 1990 and to 15,386,000 in 2007 (NCES, 2007). The rapid expansion of higher education typified many Western societies in the 1970s. Hence the talk about “massification of higher education” (Trow, 1974).

Globalization, with its accompanying socioeconomic, demographic as well as technological changes, is having a significant impact on the Western world workforce and its tertiary education. Thus, in the first decade of the 21st century, six out of every ten jobs in the US require some post-secondary education and training (Lotkowski et al., 2004, vi). In 2001 28% of the 25-34 age group attained tertiary education in the OECD countries (OECD, 2003, Table A2.4). According to UNESCO, 82% of the population of tertiary age in North America and Western Europe were in fact in tertiary education in 2006 (UNESCO Institute for Statistics, 2008).

Israel too partook in this process of massification of higher education. The foundations of the higher education system in this country were laid in the 1920s when the Technion (Israel Institute of Technology) and the Hebrew university were opened in 1924 and 1925 respectively. When the State of Israel was established there were about 1,600 students in the two institutions of higher education, and by the end of the first decade of statehood the number of students had increased to about 9,000. During the 1960s there was a rapid growth (about 14% per year) in the number of students. In 1970 there were more than 35,000 students in the higher education system. The rapid growth continued during the 1970s and by 1980 the number of students reached 56,000 (CHE, 2006). Since then Israel has witnessed a huge growth in students' number: from about 56,000 in 1980 to about 250,000 in 2005 (CBS, 2007). It should be noted that while the population of Israel grew 8 fold between the years 1948 and 2005, the student population in the country grew 156 fold!

The topic of student dropout

The massification of higher education gave rise to the problem of student attrition. Student retention and degree completion issues are currently hot topics. College student attrition has been a subject of considerable research over the past 40 years. According to one researcher, in the US, national college dropout rates are around 50%, and data indicate that nearly one in three freshmen fail to complete their degree (Tinto, 2004). There are other data. More and more students are attending college, and most of them aspire to obtain at least a bachelor's degree. For example, already in 1999-2000, four-year college enrollment among Caucasians was 46%, for African-Americans 40%, and for Hispanics 34% (Harvey, 1995). However, only 63% of all undergraduates who began their studies at a given four-year institution in 1995-96 with the goal of a bachelor's degree completed that degree within six years at either the initial institution or at another one (including 67% of Caucasians, 46% of African Americans and 47% of Hispanics) (Lotkowski et al., 2004). The US is unique in the sense that it operates a vast net of two-year community colleges granting an associate degree. 70% of the students entering these two-year institutions state that they intend to earn a bachelor's degree; yet, in reality only 10% achieve that goal (ibid). Furthermore, due to the massification of higher education, 46% of low-income high school graduates are now entering tertiary education institutions immediately. And yet, degree completion figures for these students (around 40%) are significantly lower than for students of high income families (66%) (ibid). According to data published in the British press, dropout rates reached 9.0% by the end of the first year of study at tertiary institutions (Guardian, 2004, Sept. 30).

In Israel as well, the rise in the number of students has been accompanied by a rise in those who drop out of school during their freshman year. CBS data published in 2002 shows that of the 16,706 students who began tertiary studies in 2000, only 14,591 continued to their second year. In other words, the dropout rate at the end of the first year reached 12.7% (CBS, 2002). Data published in the Statistical Abstract of Israel, 2007 shows that over the years there has been a rise in the rate of

students who succeed in completing their studies for a Bachelor's Degree. In 1990 70.9% of those who began their studies five years earlier had succeeded in completing them, in 1995 the rate rose to 73.3%, while in 2000 it reached 76.5 (CBS, 2007, table 8.58). However this also shows that in 2000 about one quarter of all students who began their academic studies five years earlier had not succeeded in completing them. 17.2% dropped out completely (ibid).

These data should be analyzed in the right context. They reveal that in spite of the fact that student attrition is universal there are significant differences in this respect between different countries. Thus, the dropout rate in Italy stood at about 60 % (!) in the early 2000s; in France, Austria and Belgium it stood at about 40%; in Germany, Denmark and the Netherlands it stood at about 30%, while in Japan it was a mere 6%! (OECD, 2004).

Similarly, data indicate that there are differences in attrition rates both between academic institutions and between faculties. Thus, in England you may find on one side of the spectrum institutions like the University of Cambridge with a dropout rate of 1.8% , the University of Durham with a dropout rate of 2.0%, and the University of Bath with a dropout rate of 2.3% in 2004 (Guardian, 2004). At the same time you find at the other side of the spectrum institutions like the University of East London with an attrition rate of 27.1%, the University of Derby with a attrition rate of 24.0% and the University of Greenwich with a dropout rate of 21.8% in 2004 (Daily Mail, 2004).

Table 1. Students completing studies for Bachelor's Degree in OECD countries (%).

Country	Percentage of graduates
Austria	59
Australia	69
Italy	42
Iceland	73
Ireland	85
US	66
Belgium	60
Germany	70
The Netherlands	69
Great Britain	83
Japan	94
Mexico	69
Spain	77
Finland	75
Czech Republic	75
France	59
Korea	79
Sweden	48
OECD average	70
Israel	70

Source: OECD, 2004

Dropout rates differences and explanatory models

Indication of substantial dropout rates among Israeli college students demands investigation of factors influencing dropout rates. Table 1 demonstrates significant differences between the attrition rates in different countries. Moreover, data from Israel and elsewhere show differences in dropout rates between schools and within schools between the different faculties. Research on worldwide dropout rates has found many intervening variables, including type of college, student age, course subject, course level, student or family financial problems, social integration in the school, academic failure, personal problems, parent education, family size, ethnicity, gender, high school achievements, and the school itself (Hall, 2004; Wilkinson, 1996; Yorke, 1999; Scott et al., 1996; Thomas et al., 1996; Tinto, 1975; HEFCE, 2000; Crossman & Gallacher, 2000; Weko, 2004). A high attrition rate is a cause for grave concern in view of the high cost of higher education (especially in the faculties that rely on laboratories, sophisticated and expensive instrumentation, studios etc), the need for graduates and the impact on the college teaching and administrative environment.

This is why several models were developed in order to explain and predict students' withdrawal from a holistic viewpoint. Two of the most popular models were devised by Tinto (1975) and Bean (1982). Student retention models identify academic as well as social integration as the primary predictors of student success (Tinto, 1975). The first embrace academic preparedness, study habits, affective learning, attitudes and values toward learning, grades in college and identification with academic norms. The latter include institutional commitment, overall enjoyment and satisfaction with the college experience, as well as contact with faculty and staff (*ibid*).

The structure of Tinto's model is very simple. He claims that students' background variables, family climate, and educational history, all affect their commitment to goals and commitment to the institution. Commitment to goals in turn affects grades and feelings of intellectual progress (academic system), while commitment to the institution affects students' mutual relations with peers and faculty (social system). According to Tinto the academic system determines academic integration. The social system, in turn, determines social integration. His model ends with the level with which it opened: the level of commitment. Students' academic integration is closely related to their commitment to goals, while their social integration is closely related to their commitment to the institution. Students' decision whether to leave or persevere in their studies is a correlate of these two commitments (Tinto, 1975, 95). All in all, Tinto also concluded that necessary conditions for students' retention include social and intellectual integration of students in the institution's life (Tinto, 1993). According to him, the attrition-persistence outcome is a result of a longitudinal interaction between the student and the academic and social systems of the college.

The second classical model which attempts to explain student dropout, formulated by Bean (1982), is simple as well. Its main tenet is that views and behavior are interrelated. He states that views and norms anticipate intentions, and intentions anticipate action. Students' intentions to persevere in their studies or leave school anticipate their actions, while intention is shaped by students' beliefs and views. These in turn are shaped by students' experiences and by various external forces. Thus dropping out of school is explained by intention to leave, grades, opportunity, and family views (Bean, 1982, 295).

Bean says that the decision to drop out of school cannot be appreciated without considering the primary intervening variables. He discerns three groupings of variables: institutional variables (grades, courses), personal variables (educational goals, conviction in selecting field of study) and environmental variables (opportunity to switch to another school, family support). Grades, courses, conviction in selecting field of study, and family support, affect students' commitment or loyalty to the school. Grades, courses, educational goals, conviction in selecting field of study, and family support, also affect students' certainty that they have made the right choice of school. Grades, courses, educational goals, conviction in selecting field of study, and family support, also affect the practical value that students attribute to higher education. Students' commitment to the school, certainty that the school is the correct choice, and practical value attributed to

higher education, all affect their intention to leave or persevere in their studies. Thus dropout is a result of intention to drop out, grades, opportunity to switch to another school, and family support of this step.

It should be noted, though, that on the whole research revealed that the combination of academic and nonacademic factors in as much as retention rates of students is concerned is rather complex. Thus, Lotkowski et al. (2004) used a meta-analysis to examine more than 400 studies of academic and nonacademic factors that contribute to student retention and degree completion. They found out that overall, nonacademic factors carried more weight in predicting retention than academic factors. All in all they concluded that improving student retention and degree completion is dependent on integrating academic and nonacademic programs that strengthen students' formal and informal contacts within the institution. In particular, new students need more time on-campus, interacting with faculty, staff and peers in formal and informal settings.

Student attrition at ACJS

Thus, any analysis of students' withdrawal from studies must include examination of students' personal data: socioeconomic background, ethnicity, previous educational data (matriculation grades) etc., as well as institutional data: faculty, fields of study, etc.

The process of self-evaluation recently initiated by the college included a survey of dropouts. This was based on a questionnaire distributed in the 2004-2005 academic year among a representative sample of 270 of the approx. 1,500 students who dropped out of school during the 2001-2005 school years.

According to the college computerized data, during 2001-2005, 1,580 students left their studies at the various faculties.

Table 2. Breakdown of student dropout by faculty, 2001-2005.

Faculty	Prevalence	Percentage
Engineering	841	53.9
Social Sciences	564	35.5
Architecture	69	4.4
Health Sciences	81	5.1
Natural Sciences	28	1.8

It turns out that most of the dropouts are from the Faculty of Engineering (53.9%) and the Faculty of Social Sciences and the Humanities (35.5%).

Profile of dropouts at ACJS

Age: The average age of college dropouts is 27.88 (SD 5.8), age range of 18-64. A significant difference was found in dropout ages since 2001-2002 – when the average dropout age was 29-30. In 2003-2004 the average dropout age was 27-28, and in 2005 the average dropout age fell significantly to 24.6.

Years in Israel: College dropouts were found to have lived in Israel for an average of 14.47 years (SD 8.7) with a range of 2-54 years.

Table 3. Personal variables.

Variable	Distribution	Prevalence	Percentage
Country of birth	Israel	356	22.5
	Soviet Union	216	13.7
	Ethiopia	190	12.1
	India	143	9.1
	Middle East	146	9.2
	Argentina	114	7.2
	Brazil	88	5.6
	US	46	2.9
	Australia	7	0.4
	Unknown	About 275	
Marital status	Single	1221	77.3
	Married	337	21.3
	Divorced	15	0.9
	Widow/er	3	0.2
Gender	Male	959	60.3
	Female	539	34.1

The computerized data did not include information on the countries of origin of approximately 17% of the dropouts.

Most of those who decided to drop out of school are single (77.3%) males (60.3%). The prevalent group is the Israelis (22.5%). Other conspicuous populations are immigrants from the former Soviet Union (13.7%) and immigrants from Ethiopia (12.1%). In 2005 the percentage of Israeli-born dropouts rose significantly and reached 82.3% of all dropouts for this year in sheer contrast to previous years, 2001 – 2004, in which it was 6.1%, 6.8%, 0.6% and 4.1%, respectively.

In this year the percentage of female drop-outs rose and reached 44.3%. This differs from previous years, 2001 – 2004, in which it was 28.4%, 27.7%, 38.2% and 37.8%, respectively.

Significant differences were found in the age of dropouts. In 2005 dropout ages were significantly lower (24.6) than in previous years (27-30).

Admission data: 302 dropout students (about one fifth of all dropouts) scored on the psychometric exam. The average psychometric grade of dropouts is 553.72 (SD 72.8), with a range of 401-750 (overall score span of the psychometric grades is 200-800).

931 dropout students (about 59% of all dropouts) have matriculation grades. The matriculation average of all dropouts is 86.41 (SD 10.29) with a range of 51-119. Significant differences were found in the matriculation grades of dropouts as follows: In 2001-2002 the matriculation average was 84.1 and 83.7, respectively. These grades differ significantly from the grades in 2004 and 2005. The average matriculation grade in these years was 87.6 and 87.9, respectively. In 2001 and 2002 the grade average was significantly lower than for the 2004 and 2005 school years.

Definition of dropouts according to the administrative computerized data

The ACJS computerized database includes data on the attrition process of 1,039 of 1,580 dropouts (approx. 66%). The great majority (over three quarters of all dropouts) terminated their studies. Slightly more than one fifth suspended their studies. The studies of a very small group were discontinued by the school.

Table 4. Type of studies' suspension.

	Prevalence	Percentage
Studies terminated independently	801	77.1
Studies suspended independently	224	21.6
Studies discontinued by the school	14	1.3

Distribution of dropouts by year

Examination of the data shows that although the number of dropouts rose annually, their proportion of the total number of students has decreased. While in the 2001 school year they comprised over 10%, in the 2005 school year they comprised only 6.5% of all students.

Table 5. Distribution of dropouts by year.

Year	No. of dropouts	% of all dropouts	Total no. of students	% of all students
2001	262	16.58	2527	10.36
2002	287	18.16	3108	9.23
2003	309	19.55	3887	7.94
2004	354	22.40	4847	7.3
2005	368	23.29	5577	6.5
Total	1580	100%		

In 2001 and 2002 dropouts comprised the highest percentage of all college students – 10.36% and 9.23%, respectively (the matriculation average of students who dropped out in these years is significantly lower than other years, and this might have affected the total percentage of dropouts).

Distribution by year and department

Examination of attrition data over the years shows that dropout rates differ both between departments within the same faculty and between faculties. Moreover, in each year the majority of dropouts originate from different faculties. In 2001-2004 dropouts were composed mainly of students from the Faculty of Engineering. Furthermore, during the first two years students of this faculty comprised approx. 70% of all dropouts! In 2005 students of the Faculty of Social Sciences and the Humanities were the most prevalent dropouts. Moreover, they also formed a clear majority: approx. 56% of all dropouts. This change in the balance of attrition between faculties stems among other things from changes in the relative weight of the faculties within the college. For example, in 2001 students of the Faculty of Engineering comprised approx. 65% of all college students, and in 2002 – approx. 60% of all college students. In contrast, in 2005 students of this faculty comprised only about one third of all students. The faculty is diminishing in size. The opposite was true of the Faculty of Social Sciences and the Humanities. In 2001 students of this faculty comprised approx. 32% of all college students. In 2002 their relative weight dropped and reached approx. 26% of all college students. In contrast, in 2005 they comprised 40% of all college students. This faculty is now the largest in the college. In 2007, 49% of the students pursued their degree in its departments. Despite all these variances one may indicate a constant rate of low dropout from two faculties: Architecture and Health Sciences.

Survey research results

In light of these findings, which were based on the administrative database, the research team decided to perform a random sample survey of dropouts through questionnaires. The original intention of the researchers was to conduct a random survey of 300 dropouts – approximately one fifth of all dropouts. The names of sample participants were retrieved from the complete list of college withdrawals. Due to various difficulties, ultimately 271 of the students listed were interviewed, forming 90.333% of all dropouts on the original list. These included students from four faculties and one autonomous department (architecture).

The two large groups of dropouts participating in this study were from the Faculty of Social Sciences and the Humanities (42.1%) and the Faculty of Engineering (35.8%). These are appropriately also the two largest faculties in the college.

Evaluation of the students' answers is based on their responses to the questionnaire utilizing the 1-5 Likert scales. The correlation between background data and dropout attributes was examined through common breakdowns and chi-square tests. Bonferroni tests were conducted to identify the source of any correlations found between variables.

Faculty and year of dropout

As it turns out, the first month in school seems to be of very great importance inasmuch as decision to drop out is concerned. About a third of the dropout students left school during their first month of studies. The great majority of those who dropped out (about 83%) did it within their first year in school.

Table 6. Distribution of dropouts by faculty and time of dropout.

	During 3 first weeks of school		End of first or second semester		2 nd or 3 rd year		Total	
	Prevalence	%	Prevalence	%	Prevalence	%	Prevalence	%
Social Sciences & Humanities	42	37.8	55	49.5	14	12.6	111	100
Health Sciences	19	59.4	11	34.4	2	6.3	32	100
Engineering	18	18.8	56	58.3	22	22.9	96	100
Natural Sciences	4	25.0	9	56.3	3	18.8	16	100
Architecture	3	25.0	5	41.7	4	33.3	12	100
Total	86	32.2	136	50.9	45	16.9	267	100

Table 6 and chi-square tests indicate a correlation between time of dropout and faculties ($\chi^2(8) = 24.74, p < 0.01$). The highest percentage of students who dropped out before beginning their studies or during the first 3 weeks is from the Faculty of Health Sciences (59.4%). In the Social Sciences and the Humanities, Engineering, Natural Sciences and Architecture, the majority dropped out during the first year at the end of the first or second semester.

Faculty and initiation of studies

Findings reveal that close to fifty percent of the dropout students (47.8%) entered school while working. Another 25% of the dropout students already had previous tertiary school experience.

Table 7. Breakdown of dropout sample by faculty and studies' initiation.

	Immediately following military / national service		Following previous studies		While working		Total	
	Prevalence	%	Prevalence	%	Prevalence	%	Prevalence	%
Social Sciences & Humanities	41	39.8	23	22.3	39	37.9	103	100
Health Sciences	3	9.7	3	9.7	25	80.6	31	100
Engineering	16	18.4	27	31.0	44	50.6	87	100
Natural Sciences	4	28.6	5	35.7	5	35.7	14	100
Architecture	4	40.0	2	20.0	4	40.0	10	100
Total	68	27.7	60	24.5	117	47.8	245	100

Table 7 and chi-square tests indicate a correlation between the time at which studies were initiated and the faculty ($\chi^2(8)=27.46, p<0.01$). 47.8% of students began studying while working, 27.7% immediately after completing their military or national service, and 24.5% after previous studies. The Faculty of Health Sciences had the highest percentage of students who began studying while working (80.6%), and the faculties of Social Sciences and Humanities and of Architecture had the highest percentage of students who began studying immediately after completing their military / national service (approx. 40%).

The most conspicuous finding in this table is the high rate of withdrawals among working students. The rate of workers among dropouts is significantly higher than all other groups. This is definitely an indicator worthy of attention.

Differences between faculties in the contribution of various factors to the decision of college students to drop out of school

Through the survey, an attempt was made to examine reasons presented by students for leaving school. In addition, an attempt was made to examine differences between various faculties on this issue.

In order to examine differences between faculties in the contribution of various factors to the decision to drop out of school, one-way analyses of variance were performed for each factor by faculties. The analyses were performed in two manners:

Average of dropout responses, with scores in a range of 1-5 (the higher the score the greater the contribution of the factor);

Percentage of dropouts who stated that one of the factors had a great or very great significant contribution to their decision to drop out of school.

The most salient finding in the analysis of the survey is the three main reasons for leaving school as reported by dropouts by order of significance: difficulties stemming from the distance from home, financial problems, and mistaken choice of field of study. Personal problems and heavy school load are two additional significant reasons.

Table 8. Means, standard deviations, and F values of the average contribution of various factors to the decision to leave school.

		Social Sciences & Human- ities N=111	Health Sci- ences N=32	Engineer- ing N=97	Natural Sciences N=16	Architecture N=12	Total N=268	F
I was admitted to a different department at another school	Mean	1.57	1.66	1.42	1.63	1.75	1.54	0.36
	SD	1.37	1.47	1.13	1.41	1.54	1.30	
I found the studies difficult	Mean	1.62	1.72	2.01	1.88	2.08	1.81	1.35
	SD	1.15	1.35	1.38	1.45	1.68	1.31	
Incorrect choice of study field	Mean	2.33	1.97	2.00	2.25	3.25	2.20	2.00
	SD	1.68	1.64	1.49	1.53	1.86	1.62	
I didn't find study partners	Mean	1.22	1.00	1.18	1.38	1.25	1.19	1.08
	SD	0.64	0	0.66	1.09	0.87	0.66	
I had financial problems during my studies	Mean	2.35	1.97	2.29	2.44	2.17	2.28	0.39
	SD	1.67	1.64	1.55	1.59	1.64	1.61	
I had personal problems during my studies	Mean	1.88	1.97	2.10	2.06	1.75	1.98	0.36
	SD	1.54	1.56	1.51	1.61	1.29	1.52	
Family expansion	Mean	1.61	1.45	1.62	1.25	1.18	1.55	0.62
	SD	1.38	1.15	1.32	1.00	0.40	1.28	
Heavy school load	Mean	1.62	1.84	2.11	1.63	3.33	1.91	5.33***
	SD	1.27	1.39	1.44	1.02	1.50	1.39	
Study level too high	Mean	1.35	1.56	1.51	1.69	1.42	1.45	0.85
	SD	0.82	1.13	0.94	1.01	0.67	0.91	
Study level too low	Mean	1.55	1.44	1.38	2.50	1.33	1.52	3.71**
	SD	1.16	1.11	0.93	1.63	0.89	1.12	
I had difficulties due to distance from home	Mean	2.13	3.22	2.16	2.50	2.17	2.30	3.22*
	SD	1.53	1.77	1.63	1.41	1.64	1.62	
I had difficulty finding dorms	Mean	1.15	1.16	1.14	1.00	1.25	1.14	0.27
	SD	0.70	0.63	0.68	0	0.62	0.66	
Security reasons	Mean	1.24	1.47	1.28	1.19	1.25	1.28	0.48
	SD	0.79	1.11	0.96	0.54	0.62	0.88	

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

Table 8 shows differences between faculties in three factors:

Heavy school load (F (4,261) =5.33, p<0.001): This factor was found to contribute more in architecture (M=3.33) than in other faculties. Moreover, no other factor was cited so intensively in any other faculty as a reason for leaving school.

Study level too low ($F(4,262)=3.71, p<0.01$): This factor was found to contribute more in the Faculty of Natural Sciences ($M=2.50$) than in the Faculty of Social Sciences and the Humanities ($M=1.44$), Health Sciences ($M=1.44$) and Engineering ($M=1.38$).

“I had difficulties due to the distance from home” ($F(4,262)=3.22, p<0.05$): This factor was found to contribute more in the Faculty of Health Sciences ($M=3.22$) than in the Faculty of Social Sciences and the Humanities ($M=2.13$) and the Faculty of Engineering ($M=2.17$).

Suspension of studies and intention to return to school in the near future

One of the points which the survey attempted to clarify was whether students who decided to drop out of school did so as a final decision or whether they intended to resume their studies. This is obviously an examination of intentions and not actual practice.

Thus, students were asked whether they suspended their studies temporarily and whether they intend to return in the near future.

Table 9. Distribution of subjects by faculty and by intention to resume studies.

Faculty	Intends to return (n=146)		Does not intend to return (n=109)		Total (n=255)	
	Prevalence	%	Prevalence	%	Prevalence	%
Social Sciences and Humanities	65	60.2	43	39.8	108	100
Health Sciences	18	62.1	11	37.9	29	100
Engineering	53	56.4	41	43.6	94	100
Natural Sciences	7	53.8	6	46.2	13	100
Architecture	3	27.3	8	72.7	11	100
Total	146	57.3	109	42.7	255	100

The most noticeable finding is that nearly 60% of the dropouts declared that they intend to resume their studies. The most conspicuous exceptions are dropouts from the Department of Architecture, of whom nearly three quarters declared that they do not intend to resume their studies. Table 9 and chi-square tests indicate that no correlation was found between faculties and intention to resume studies ($\chi^2(4)=4.79, p>0.05$). 57.3% of dropouts intended to resume their studies versus 42.7% who did not intend to do so.

Dropouts who intend to resume their studies were asked when they intend to do so. 39% (57 students) declared that they had already returned, 34.2% (50 students) declared that they did not know, and the rest declared that they would return in several semesters.

Studies at other academic institutions

The previous clause dealt with the dropouts' declaration of intentions. The researchers thought that it was important to follow the dropouts practice and clarify whether students who left the college discontinued their academic studies completely or **exchanged** one school for another. Thus, students were asked a simple question: whether they had transferred to another school. It turns out that about 40% of the dropouts have not given up on studying altogether; rather they exchanged one school for another!

Table 10. Distribution of dropouts by faculty and by transfer to other schools.

Faculty	Transferred to another school (n=98)		Did not transfer to another school (n=170)		Total (n=268)	
	Prevalence	%	Prevalence	%	Prevalence	%
Social Sciences & Humanities	49	44.1	62	55.9	111	100
Health Sciences	12	37.5	20	62.5	32	100
Engineering	27	27.8	70	72.2	97	100
Natural Sciences	5	31.3	11	68.8	16	100
Architecture	5	41.7	7	58.3	12	100
Total	98	36.6	170	63.4	268	100

Table 10 and chi-square tests indicate that no significant statistical correlation was found between faculties and transferring to other schools ($\chi^2(4) = 6.28, p > 0.05$).

Studies in another field

The students were also asked whether they switched to a different field of study. The majority, close to two thirds of the interviewees, stated that they did not. About a third did.

Table 11. Distribution of dropouts by faculty and by transfer to different fields of study.

Faculty	Switched to a different field (n=92)		Did not switch to a different field (n=174)		Total (n=266)	
	Prevalence	%	Prevalence	%	Prevalence	%
Social Sciences and Humanities	42	28.2	68	61.8	110	100
Health Sciences	8	25.0	24	75.0	32	100
Engineering	31	32.0	66	68.0	97	100
Natural Sciences	6	40.0	9	60.0	15	100
Architecture	5	41.7	7	58.3	12	100
Total	92	34.6	174	65.4	266	100

Table 11 and chi-square tests indicate that no significant statistical correlation was found between faculties and switching to different fields of study ($\chi^2(4) = 2.69, p > 0.05$).

Receiving scholarship during studies

As already mentioned, financial problems were cited by many dropout students as an important reason for suspending studies. Students were therefore asked whether they received a scholarship or other financial assistance during their studies. It turns out that the great majority (about 85%) have indeed not received any financial assistance.

Table 12. Distribution of dropouts who received assistance by faculty and by receiving a scholarship or other financial assistance.

Faculty	Received assistance (n=41)		Did not receive assistance (n=222)		Total (n=263)	
	Prevalence	%	Prevalence	%	Prevalence	%
Social Sciences & Humanities	16	14.8	92	85.2	108	100
Health Sciences	2	6.5	29	93.5	31	100
Engineering	15	15.6	81	84.4	96	100
Natural Sciences	5	31.3	11	68.8	16	100
Architecture	3	25.0	9	75.0	12	100
Total	41	15.6	222	84.4	263	100

Table 12 and chi-square tests show that no significant statistical correlation was found between faculties and receiving a scholarship or other financial assistance ($\chi^2(4) = 5.81, p > 0.05$). However the survey showed that the highest rate of participating dropouts who received assistance was from the Faculty of Natural Sciences (31.3%). The lowest rate was from the Faculty of Health Sciences (6.5%).

Approaching college officials for help with studies before leaving

Dropouts who participated in the survey were asked whether they approached college officials for help with their studies before leaving. The responses show that over one fifth of dropouts indeed approached various institutes for help.

Table 13. Distribution of faculties and of requesting help from the college before leaving.

Faculty	Requested (n=54)		Did not request (n=208)		Total (n=262)	
	Prevalence	%	Prevalence	%	Prevalence	%
Social Sciences and Humanities	24	22.2	84	77.8	108	100
Health Sciences	4	12.9	27	87.1	31	100
Engineering	20	21.1	75	78.9	95	100
Natural Sciences	2	12.5	14	87.5	16	100
Architecture	4	33.3	8	66.7	12	100
Total	54	20.6	209	79.4	262	100

Table 13 and chi-square tests show that no significant statistical correlation was found between faculties and requesting assistance ($\chi^2(4) = 3.14, p > 0.05$). However, the data shows that the highest rate of dropouts who requested assistance was from the Faculty of Architecture (one third of the students!). The lowest rate was from the Faculty of Natural Sciences (12.5%).

Most of the interviewees went through a variety of difficulties while attending the college. The research team tried to find out how many of them addressed the college staff before reaching their decision to drop out. The analysis reveals that only about 20% of the dropout students requested help. About a third of them succeeded in their efforts. Their requests were answered affirmatively.

Table 14. Distribution of sources of assistance approached by dropouts and the rate of compliance.

Source of assistance	Requested assistance		Complied with request		Did not comply with request	
	Prevalence	%	Prevalence	%	Prevalence	%
Counselor	15	27.8	7	46.7	8	53.3
Department head	7	13.0	1	14.3	6	85.7
Student dean	5	9.3	2	40	3	60
Student administration	4	7.4	2	50	2	50
Mentor	3	5.6	1	33.3	2	66.7
Office	3	5.6	0	0	3	100
Head of allowances	2	3.7	1	100	0	0
Special exceptions committee	1	1.9	1	100	0	0
Social worker	1	1.9	0	0	1	100
Not stated	14	25.9	5	35.7	9	64.3
Total	54	100	20	37	34	64

Table 14 shows that of the 54 dropouts who appealed for assistance with their studies before leaving, 27.8% approached a counselor, 13.0% approached the head of department, 9.3% approached the student dean, and 7.4% approached the student administration. Thus, the data shows that the primary figure approached in request of assistance was **within the department** (counselor or Department Head: 40.8% of all requests).

In addition, requests of 20 of the 54 dropouts (37%) for help with their studies were found to have met with compliance.

About 15% of the interviewees stated they experienced difficulties in their studies. Another 5% stated they found the standard of studies in the institution too high. Another 17% mentioned the heavy load of study as a reason for suspending studies. Altogether, great many of the dropouts reached their decision to suspend studies due to these scholastic reasons. About 20% of the interviewees requested help from the institution.

Table 15. Distribution of dropouts by response received to request for help with studies.

Response to request for assistance	Students who met with compliance		Students who did not meet with compliance	
	Prevalence	%	Prevalence	%
I was assigned a mentor	7	100	0	0
There authorities are overburdened by requests and I was not treated properly	0	0	4	100
Did not return to me with an answer	0	0	1	100
Response was received too late	2	50	2	50
Encountered lack of concern by element approached	0	0	3	100
Refused to see me	0	0	1	100
Said they tried and did not succeed	2	66.7	1	33.3
Not detailed	9	29	22	71
Total	20	37	34	63

Table 15 shows that 20 students met with compliance when requesting help with their studies: 7 students were assigned mentors (of these 1 appealed to the student dean, 1 to a counselor, 1 to a mentor, and 4 did not state who they approached), 2 were answered too late (1 approached the student administration and 1 did not state who was approached), 2 students said that they tried and did not succeed (1 approached the student administration and 1 a counselor), and 9 students said that their appeal for help was answered but did not state how (5 appealed to a counselor, 1 to the student dean, 1 to the head of department, 1 to the head of allowances, and 1 to the special exceptions committee). This information shows that even the 37% of students whose appeals for assistance were fulfilled eventually discontinued their studies.

The survey included a question which attempted to clarify whether it might have been possible to prevent the students from deciding to discontinue their studies. More than 30% declared that nothing would have changed their decision. Another 11% tied their decision to financial difficulties which if solved could have averted their decision.

Recommending ACJS

The decision to suspend studies is an extreme act. It is very often accompanied by negative feelings toward the institution the student is leaving. The researchers wished to clarify whether termination of studies is accompanied by a comprehensive, all-encompassing disappointment with the college, leaving negative feelings which could hurt its image. Thus, participants were asked whether they would recommend the college to their friends despite the fact that they themselves had discontinued their studies. On this topic the researchers were pleasantly surprised: Approx. 80% wrote that they would definitely recommend the college to their friends.

Table 16. Breakdown of dropouts by faculty and by their willingness to recommend the college to their friends.

Faculty	Recommend (n=190)		Do not recommend (n=48)		Total (n=238)	
	Prevalence	%	Prevalence	%	Prevalence	%
Social Sciences & Humanities	75	80.6	18	19.4	93	100
Health Sciences	18	72.0	7	28.0	25	100
Engineering	74	79.6	19	20.4	93	100
Natural sciences	14	87.5	2	12.5	16	100
Architecture	9	81.8	2	18.2	11	100
Total	190	79.8	48	20.2	238	100

Table 16 and chi-square tests show that no significant statistical correlation was found between the faculties and recommending the college to friends ($\chi^2(4) = 1.61, p > 0.05$). 79.8% would recommend ACJS to their friends.

Towards the end of the survey, dropout students were asked to state whether they have any additional remarks concerning the college. 78 of the 271 survey participants (28.8%) added remarks. 35.9% of the remarks may be considered complimentary. Since these were people who had left the college, this fact has positive implications for the college.

It must be stated that only 26% of all negative remarks about the college related to academic aspects. The great majority of the remarks related to various administrative aspects. Administration seems to be the school's Achilles heel.

Prediction of transfer to other schools

As stated, dropouts may be classified as belonging to one of two groups: those who dropped out of school completely, even if temporarily; and those who dropped out of the college and transferred to other schools. The latter group is worthy of special analysis since it may be possible to cut this “loss”. Thus, the research staff attempted to predict the tendency to transfer to other schools. The tool used was logistical regression. The predictors entered in the regression are:

Time of study termination, study initiation (entered in two dummy variables: immediately after the army versus while working; and after previous studies versus while working), intention to resume studies (no, yes), transfer to other field of study (no, yes), receiving scholarship or financial assistance during studies (no, yes), appealing to college officials for assistance with studies before leaving (no, yes), recommending ACJS to friends (no, yes) and the degree to which each of 13 different variables contributed to the decision to leave the college.

Table 17. Results of logistical regression for predicting transfer to other schools.

Predictor	B	Wald	Exp(B)
Time of study termination	-0.29	1.27	0.75
Initiation of studies: right after the army versus while working	1.45	7.98	4.26**
Initiation of studies: after previous studies versus while working	1.25	6.52	3.49*
Intention to resume studies	-0.95	5.34	0.39*
Switching to different field of study	2.01	18.47	7.44***
Receiving scholarship or financial assistance during studies	-0.75	1.63	0.47
Approaching college officials for help with studies before leaving	0.82	2.41	2.27
Recommending ACJS to friends	-0.54	1.57	0.58
I was accepted to another department at a different school	0.71	10.94	2.04**
I had difficulty with my studies	0.05	0.07	1.05
Incorrect choice of study field	-0.21	2.15	0.81
I did not find study partners	0.01	0.001	1.01
During my studies I had financial problems	-0.34	4.55	0.71
During my studies I had personal problems	-0.17	1.16	0.85
Family expansion	-0.28	1.74	0.76
Heavy study load	-0.01	0.001	0.99
Study level was too high	0.002	0.000	1.00
Study level was too low	0.08	0.21	1.08
I had difficulty due to the distance from home	0.28	4.13	1.32*
I had difficulty finding dorms	0.39	1.27	1.47
Security reasons	0.33	1.66	1.39

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

Table 17 shows that this set of variables predicts 83.7% of the transfer to other schools (χ^2 (21) =127.66, p<0.001). The significant predictors are:

Switching to a different field of study (OR=7.44, p<0.001): The probability of transferring to another school is multiplied by 7.44 when switching to a different field of study.

Initiation of studies: right after the army versus while working (OR=4.26, p<0.01): The prob-

ability of transferring to another school is multiplied by 4.26 when students begin their studies right after the army versus while working.

Initiation of studies: after previous studies versus while working (OR=3.49, $p<0.01$): The probability of transferring to another school is multiplied by 3.49 when students begin their studies after previous studies versus while working.

Contribution of the reason “I was accepted to a different department at another school” (OR=2.04, $p<0.01$): The probability of transferring to another school is multiplied by 2.04 for each point added in the evaluation of this reason.

Contribution of the reason “I had difficulties due to the distance from home” (OR=1.32, $p<0.01$): The probability of transferring to another school is multiplied by 1.32 for each point added in the evaluation of this reason.

Intention to resume studies (OR=0.39, $p<0.05$): The probability of transferring to another school is reduced by a factor of 0.39 when students intend to resume their studies.

The most important reason for transferring to other schools is switching to different fields of study than those originally chosen.

Prediction of recommending ACJS

As mentioned, one of the surprising findings was that over 80% of all dropouts declared that they recommend the college to their friends. In this context as well an attempt was made to examine the profile of recommending students. For this purpose of predicting recommendations to friends, again a logistical regression was performed. The predictors entered in the regression are:

Time of study termination, study initiation (entered in two dummy variables: immediately after the army versus while working; and after previous studies versus while working), intention to resume studies (no, yes), switching to other study field (no, yes), receiving scholarship or financial assistance during studies (no, yes), appealing to college officials for assistance with studies before leaving (no, yes), and the degree to which each of 13 different variables contributed to the decision to leave school. Table 18 presents the results received.

Table 18. Results of logistical regression for predicting recommendation of the college to friends.

Predictor	B	Wald	Exp(B)
Time of study termination	0.51	6.24	1.66*
Intention to resume studies	-0.06	0.03	0.95
Initiation of studies: right after the army versus while working	1.45	7.98	4.26**
Initiation of studies: after previous studies versus while working	1.25	6.52	3.49*
Transfer to other school	-0.83	4.47	0.43*
Switching to different field of study	0.15	0.15	1.16
Receiving scholarship or financial assistance during studies	-0.23	0.27	0.80
Approaching college officials for help with studies before leaving	-1.19	8.43	0.30**
I was accepted to another department at a different school	0.10	0.64	1.10
I had difficulty with my studies	0.41	5.57	1.50*
Incorrect choice of study field	-0.03	0.09	0.97
I did not find study partners	-0.16	0.43	0.85
During my studies I had financial problems	0.13	1.18	1.14

Predictor	B	Wald	Exp(B)
During my studies I had personal problems	0.04	0.12	1.04
Family expansion	0.05	0.10	1.05
Heavy study load	-0.23	2.55	0.80
Study level was too high	0.05	0.05	1.05
Study level was too low	-0.09	0.52	0.91
I had difficulty due to the distance from home	-0.04	0.13	0.96
I had difficulty finding dorms	0.43	2.00	1.54
Security reasons	-0.35	3.98	0.71*

* $p < 0.05$ ** $p < 0.01$

Table 18 shows that this set of variables predicts 74.1% of the recommendation of the college to friends ($\chi^2 (19) = 48.64, p < 0.001$). The significant predictors are:

Time of study termination (OR=1.66, $p < 0.05$): The probability of recommending the college is multiplied by 1.66 with every added year of study at the college.

Transfer to other schools (OR=0.43, $p < 0.05$): The probability of recommending the college is reduced by a factor of 0.43 when students transfer to other schools.

Approaching college officials for help with studies before leaving (OR=0.30, $p < 0.01$): The probability of recommending the college is reduced by a factor of 0.30 for dropouts who appealed for help with their studies.

Contribution of the reason "I had difficulty with my studies" (OR=1.50, $p < 0.01$): The probability of recommending the college is multiplied by 1.50 for each point added in the evaluation of this reason.

Contribution of the reason "security reasons" (OR=0.71, $p < 0.01$): The probability of recommending the college is reduced by a factor of 0.71 for each point added in the evaluation of this reason.

Discussion and summary

The research analyzed here deals with the problem of student attrition and student retention – a grave problem indeed, which arose worldwide in the wake of the massification of higher education. The case study illustrated above focuses on dropout students in the largest public college in Israel, in actual fact – a middle-sized institution of higher education with roughly 8,500 students in 2008.

The paper, which is based on both the computerized data of the college and a representative sample of the dropout students, investigates the factors influencing attrition rates and tries to pinpoint predictors to help locating potential dropouts as well as students likely to withdraw from the college and transfer to other schools. The focus of the researchers was on what Bean (1982) referred to as primary intervening variables (institutional, personal and environmental).

All in all, the underlying assumption of the research team was that student retention is largely dependent on institutional commitment, overall enjoyment and satisfaction with the college experience, as well as daily contact with faculty and administrative staff (Bean, 1982). The research team also agreed with the tenet that students' decision whether to leave or preserve in their studies is a correlate of two commitments on their part: commitment to goals and commitment to the institution (Tinto, 1975). Students' academic integration is closely related to their commitment to goals. Students' social integration is closely related to their commitment to the institution.

Moreover, the team further agreed with the supposition that it is impossible to understand the decision to drop out of school without considering three groupings of intervening primary variables (Bean, 1982):

- Institutional variables (grades, courses),
- Personal variables (educational goals, conviction in the selected field of study),
- Environmental variables (opportunity to transfer to another school, environmental difficulties like distance from home).

Finally, it was clear to the team that overall, nonacademic factors carry a great weight in predicting students' retention and degree completion (Lotkowski et al., 2004).

In sum, the underlying assumption of the research team was that student retention is largely dependent on institutional climate as seen by the student. The questionnaire administered to the students included variables dealing with all these aspects. The research focuses on the *primary intervening variables*.

Analysis of the findings revealed several interesting points, some of which were of technical nature, the other- of more substantial nature.

Important points of technical nature were the following:

1. The crucial period for withdrawal from college is the first year of study. More than 80% of the student attrition happened by the end of the 1st and 2nd semesters of the first year. The first month is crucial for the freshmen. About a third of the dropout students left school within the first month of studies.
2. About 75% of the students who withdrew from studies actually dropped out of the college. 22% stated that they merely suspended studies.
3. About 40% (!) of the students who withdrew from studies in the college relocated into another institution of higher education.
4. Close to 60% of the dropouts stated that they meant to resume studies.

Important points of more substantial nature were the following:

1. Close to 50% of the dropout students work full time job. Working full time hampers chances of student retention.
2. The relative weight of immigrant students from Ethiopia and the former Soviet Union among the dropouts (roughly 26%) is much higher than their rate among the college students. Belonging to a minority immigrant group is working against student retention.
3. The main reasons cited by the dropout students for leaving college were difficulties due to distance from home (27.7% of dropouts), financial problems (27.0% of dropouts) and mistake in the choice of field of study (26.3% of dropouts).
4. About 35% of the dropout students switched into another field of study after commencement of studies.
5. 20% of the dropouts cited personal problems as reason for withdrawal from studies.
6. About 17% of the dropouts cited load of studies as reason for withdrawal.
7. Roughly 15% of the dropouts cited difficulties in study as reason for withdrawal. About 20% of the dropouts asked for help in their studies before quitting. Less than 40% of the requests for assistance met a positive response.
8. About 30% of the dropouts complimented the college on various points.
9. 80% of the dropouts stated they meant to recommend the college to their friends.
10. Close to 40% of the dropouts who added personal comments to the questionnaires had harsh words of criticism against the college administration.
11. Logistical regression came up with the following factors as predictors of transfer to another school: Change of field of study; initiation of studies immediately following military service; initiation of studies following previous higher education

studies; admittance into a department at another school; difficulty due to distance from home.

One may conclude therefore that among the intervening primary variables impacting student attrition, personal variables (mistake in the choice of field of study) as well as environmental variables (distance from home, opportunity to transfer to another school) and institutional variables (load of studies, difficulties in studies, functioning of the administration) play an important part. Bean's concept of the impact of the three groupings of primary intervening variables (institutional, personal and environmental) on the student decision to drop out has been validated by the research findings.

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