Cognitive Complexity of Expectations and Adjustment to University in the First Year

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Expectations about university and subsequent adjustment in the first year were examined in a longitudinal study of the transition to university. Two hundred and twenty-six students (158 females and 68 males) completed a preuniversity questionnaire in the summer prior to beginning university, and another questionnaire in February of their first year. The preuniversity questionnaire contained measures that assessed perceived stress and the amount and sources of information students had about university, as well as open-ended questions concerning their expectations about university. Responses to the open-ended questions were coded for integrative complexity of thought. The February questionnaire contained measures of adjustment to university. Results indicated that students with more complex expectations about university tended to adjust better to stressful circumstances than did students who had simpler expectations. The stress-buffering properties of complex expectations are discussed, as are some of the factors that may contribute to more complex thinking about university.

The majority of students who are about to enter university appear to approach this transition in their lives with feelings of joy and anticipation (Jackson, Pancer, Pratt, & Hunsberger, in press). In the weeks and months leading up to their first classes at university, they envision a life free of parental control, filled with interesting and novel activities, new people to meet, and stimulating academic work. They also expect university life to offer them significant opportunities for personal, social, and intellectual growth.

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Although many of these expectations are certainly realized, the positive affective tone that characterizes their preuniversity expectations is often replaced by feelings that are more negative after the student has spent some time at university. The reality of students' experiences at university is harsher and more stressful than many of them anticipated (Compas, Wagner, Slavin, & Vannatta, 1986). First-year students must learn not only to adjust to the new demands of adult independence, they must also cope with an environment that is very different from the one they have experienced in their high school years. Individuals often move away from home for the first time during this period and are cut off from family and friends who have provided significant social support in their lives (Rice, 1992). They must also perform many of the tasks, such as managing their finances or doing laundry, that were formerly performed by their parents (Koplik & Devito, 1987). Added to this is the challenge of the academic work, which is often more difficult and voluminous than the work they did in high school (Levitz & Noel, 1989).

Consequently, many students experience considerable difficulty in adjusting to life at university. Significant numbers of first-year students report moderate to high levels of loneliness (Cutrona, 1982) and homesickness (Fisher & Hood, 1988), and many report difficulties keeping up with their academic work (Levitz & Noel, 1989). These stresses can lead to serious consequences. Many students having problems during the transition turn to drugs and alcohol in an attempt to cope with the difficulties they are experiencing (Sadava & Park, 1993). A significant number of students experience health problems and emotional problems during the first weeks and months at university (Fisher & Hood, 1987; Fisher, Murray, & Frazer, 1985). In addition, as many as 30% to 40% of first-year students will drop out of university without completing their degrees as a result of the difficulties they experience in adjusting to university life (Gerdes & Mallinckrodt, 1994; Levitz & Noel, 1989; Rickinson & Rutherford, 1995, 1996).

One of the factors to which difficulties in adjusting to university have been attributed is the discrepancy between the expectations about university life that students have before starting their studies and their actual experience after they have begun their university careers. Stern (1966) used the term "freshman myth" to describe the "naive, enthusiastic and boundless idealism," which he claimed characterized students' expectations about university. He suggested that these expectations were a myth because students' positive expectations were rarely realized; their experiences in the first weeks and months of university were usually much more stressful and challenging than they had anticipated. Several studies seemed to support the notion of a freshman myth, finding that the impressions of students who had spent some

time in a university environment were more negatively toned than the impressions of new students and even transfer students who were just beginning their studies at a particular university (Baker, McNeil, & Siryk, 1985; Berdie, 1966; Buckley, 1971; King & Walsh, 1972; Lauterbach & Vielhaber, 1966; Pervin, 1966). The greatest declines in students' feelings about university life appear to occur during their first year, when the perceived discrepancy between expectations and reality is likely to be the most salient (Berdie, 1966).

A number of studies (Berdie, 1966; Lauterbach & Vielhaber, 1966; Shaw, 1968) suggest that the more students subscribe to the freshman myth, the more negative their experiences at university will be. Lauterbach and Vielhaber (1966) found that students with more idealized expectations tended to perform more poorly academically. Berdie (1966) reported an association between myth-like expectations and lower levels of involvement in campus activities. Shaw (1968) found a relationship between romanticized expectations and student attrition.

More recent investigations, however, challenge the notion that all or even most students have unrealistic, romanticized notions of what university will be like. Although many students may indeed have unrealistically positive expectations about university, there appears to be considerable variation in the kinds of expectations students have about university before they begin their studies (Jackson et al., in press; Zirkel & Cantor, 1990). In one study, Jackson et al. (in press) used cluster analysis to group students according to the kinds of expectations about university that they had expressed in a preuniversity questionnaire. They identified four types of individuals on the basis of their analysis of students' expectations. One of the clusters, which they labeled "optimistic," consisted of individuals who appeared to subscribe to a freshman-myth type of thinking, in that they had very positive expectancies (and few concerns) about university life. These students composed about one third (34.5%) of the those participating in the study. Students in a second cluster, which Jackson et al. labeled "prepared," also showed positive expectations about university; at the same time, however, they were aware that university life would require them to meet challenges, adapt, and grow personally. This cluster contained about a quarter of the study participants (24.8%). A third cluster (labeled "fearful" and composing 13.6% of the participants) was made up of students who expressed high levels of fear and apprehension about university life. The fourth cluster, which made up 27.1% of the sample, appeared to have very few expectations about university life, and were consequently labeled "complacent." Research also indicates that although students may have positive expectancies about some aspects of university life, they may have more negative expectancies in other areas. Gerdes and Mallinck-

rodt (1994) found that although students had generally positive expectancies about the social and academic areas of university life, they showed concern about their ability to adjust emotionally to the changing life circumstances that starting university would entail.

Students about to start university, then, have varying expectations about what life will be like when they begin their studies. These expectancies can have a profound influence on the way in which they adjust to life at university. As the earlier research related to the freshman myth suggests, difficulties in adjustment may stem, in part, from the fact that students' expectations about university have been violated. Jackson et al. (in press), however, found that individuals with optimistic expectations about university tended to adjust better than did students with fearful or more complacent expectations. Indeed, they found that the students who adjusted most successfully to university were those with either optimistic expectations or students who were prepared for university life, in that they had thought ahead about some of the difficulties they might experience but had also given thought to how they might deal with these difficulties.

The notion that individuals will adjust more successfully when they have thought about the ways in which significant events might affect their lives is born out in research on other life transitions. Pancer, Pratt, Hunsberger, and Gallant (in press) demonstrated such a finding in a study of the transition to parenthood. They interviewed couples who were about to become parents, asking them a series of open-ended questions about what they thought it would be like to be a parent, and how parenthood might affect various aspects of their lives. Their responses to these questions relating to their expectations about parenthood were coded for integrative complexity. *Integrative complexity* has to do with the extent to which an individual thinks about an issue or event in a complex or multidimensional fashion (as opposed to a simple or one-dimensional manner), and the extent to which the individual relates or integrates different dimensions or perspectives with one another. Tetlock and Suedfeld (1988) developed a system that enables one to code any connected discourse in terms of its level of integrative complexity, and they and others have applied this system to the analysis of a wide range of materials, from political speeches (e.g., Pancer, Hunsberger, Pratt, Boisvert, & Roth, 1992; Tetlock, 1985) to personal journals and correspondence (e.g., Porter & Suedfeld, 1981; Suedfeld & Bluck, 1993).

According to the system, integratively complex discourses are characterized by a recognition that more than one point of view on an issue can be valid, and that the different perspectives can be integrated or related to one another in some manner. Pancer et al. (in press) found that women with more

integratively complex expectations about parenthood tended to cope better with the stresses of having a new baby, 6 months after their babies had been born, than did women who had had simpler expectations about what parenthood would be like. These authors suggested that higher levels of complexity were indicative of greater cognitive readiness for the demands of parenthood; they reasoned that being aware of the many possible challenges of child rearing would allow prospective parents to prepare themselves by developing strategies to deal with some of the difficulties they might encounter. They also reasoned that individuals with more complex expectations would experience fewer violations of their expectancies (because such expectations would be relatively consistent with a variety of outcomes).

Similar reasoning can be applied to the transition to university. Individuals with more complex expectations about university life would not be as likely to suffer from violated expectations when they are confronted with the inevitable challenges and difficulties inherent in making this transition. In addition, they would be more likely to have developed some strategies for dealing with these challenges and difficulties. In the present study, we examined the relationship between the integrative complexity of expectations about university in students about to enter their first year, and how the students adjusted to university life 6 months into their first year. With regard to the transition to university, we saw people as being situated along a continuum in terms of the integrative complexity of their thinking about this transition. At one end of the continuum would be those who have relatively simple (and usually positive) expectations about how they would experience this transition. At the other end of the continuum would be those who demonstrate more complex thinking about the transition. These individuals would be aware of the possibility that this transition might bring challenges and difficulties (as well as stimulation and gratification) and would have given more thought to the different kinds of impacts that the transition would have in many areas of their lives. Our initial hypothesis was that individuals with more complex expectations would adjust better than would individuals who had simpler, more one-dimensional notions of university life.

We were also interested in how some students might have come to have more complex expectations than others. Hunsberger, Pratt, and Pancer (1994), and Pancer et al. (in press) found evidence indicating that individuals who are more familiar with a particular topic or event may think more complexly about it. They suggest that greater familiarity with a subject would likely provide individuals with more opportunities to encounter different perspectives on the topic, thus increasing the complexity of their thinking. This may be particularly true when one's familiarity with an issue is enhanced by

discussions with other individuals, whose perspectives can be expected to vary. Following from this logic, we reasoned that information from students' parents and other individuals might play an important role in the development of expectations about university life. We expected that individuals who had had more frequent discussions about university with their parents and others would have formed more complex expectations regarding university.

METHOD

Participants and Procedure

This study was part of a longitudinal investigation of the transition to university. The participants were all students entering their first year of study at Wilfrid Laurier University. Wilfrid Laurier University is one of the smaller universities in the province of Ontario, Canada. It has an enrollment of approximately 7,000 undergraduate students (of which about 1,700 are enrolled part-time) and 500 graduate students. The university is located in the twin cities of Kitchener-Waterloo, a region with a population of approximately 300,000, situated about 100 kilometers west of Toronto. The university offers a range of programs in arts and sciences, music, business and economics, and social work. The great majority (more than 95%) of the student body comes from within the province of Ontario; the small minority of students not from Ontario come from across Canada and from five different continents.

Students entering their first year of study at Wilfrid Laurier University (N = 1,147) in 1993 were contacted by mail in early August to ask if they would be interested in participating in a study of the transition to university. Of these, 548 students returned a consent form indicating their interest in participating and were sent a preuniversity questionnaire. A total of 303 individuals returned completed questionnaires by the first day of classes. At the end of February 1994, another questionnaire was sent to these individuals to assess their adjustment to university at this time. Of the 303 individuals, 226 (74.6%) who had completed the August questionnaire also completed the February questionnaire. Of these, 158 were female and 68 were male. Most of the respondents reported that they were studying either arts (46%) or business and economics (36.3%). Smaller numbers indicated that science (8.8%), music (5.3%), or physical education (2.7%) was their major subject. The majority (85%) of participants lived in residence on campus, with a smaller number living either at home (11.1%) or off campus but not at home (3.1%).

The vast majority (98.7%) indicated that they spoke English (either alone or in combination with another language) in their home.

Measures

Integrative Complexity of Expectations

The preuniversity questionnaire included six open-ended questions asking students to describe their expectations about university life. Students were asked the following:

1. In general, what do you expect university life to be like?
2. What do you expect classes and school work to be like?
3. What do you think university social life will be like?
4. What aspects of university are you looking forward to?
5. What kinds of things are you fearful or apprehensive about in connection with attending university?
6. How do you think your sense of who you are or what kind of person you are will change while you are at university?

All responses made to these open-ended questions were coded for integrative complexity of thinking (see Baker-Brown et al., 1992). In coding for integrative complexity, two aspects of a response are assessed. The first, differentiation, refers to the extent to which different perspectives on, or dimensions of, an issue are addressed in the response. The second aspect, integration, has to do with the extent to which different perspectives or dimensions are related to one another. Responses were coded on a 7-point scale. A score of 1 was given to responses that showed neither differentiation nor integration. Responses that demonstrated differentiation but not integration were coded as 3. Answers that demonstrated both differentiation and integration were given a score of 5, and responses that demonstrated a high level of integration were coded 7. Scores of 2, 4, and 6 represent levels of differentiation and integration that lie at intermediate points between the odd-numbered anchor scores. Examples of responses given each of the anchor scores are presented in Table 1. Interrater reliability for 30 of the responses, which were coded by the main coder (who was unaware of the study hypotheses) and a second, reliability coder, was .87 (as assessed by means of a Pearson product-moment correlation between the scores of the two raters). We computed a total complexity score for each individual by summing the codes for the responses that individual had made to all six questions.

TABLE 1: Examples of Responses Coded 1, 3, and 5 on Integrative Complexity

Score of 1: no differentiation or integration
I expect life to be very busy, from attending classes to doing the activities I wish to do.
Score of 3: differentiation, but no integration
I expect university to be challenging, hard work, stressful . . . but also a lot of fun, exciting, and extremely rewarding.
Score of 5: differentiation and integration
I think the change in my lifestyle would be my biggest "fear." Moving away from home, meeting all new people, and a stricter academic schedule all mold together to cause a sense of insecurity.
Score of 7: high level of integration
No responses in this sample received this score.

Information About University

The preuniversity questionnaire also included a series of measures designed to assess the amount of information students perceived they had about university and how much they had discussed various aspects of university life with their parents and other individuals. The first question in this series asked individuals to indicate on 5-point scales, ranging from 1 = *none* to 5 = *a lot*, how much information they had about what university life will be like, what classes will be like, what professors will be like, and what social life at university will be like. Their responses with respect to these four aspects of university life were summed to yield a total score reflecting the amount of information students perceived they had about university. This measure demonstrated adequate internal consistency, with a coefficient alpha of .76. The second question in the series asked them to indicate their satisfaction with the amount of information they had about university life, classes, professors, and social life, on 5-point scales ranging from 1 = *very dissatisfied* to 5 = *very satisfied*. Responses were summed to provide an index of individuals' satisfaction with the amount of information they had. Coefficient alpha for this index was .75. The next question asked respondents to indicate how much discussion they had had with their parents about these four aspects of university life, and the final question in the series asked how much discussion they had had with others (not including parents) about these areas. Respondents indicated their answers to these last two questions on 5-point scales ranging from 1 = *none* to 5 = *a lot*. Responses to each question were summed to yield indexes reflecting the amount of discussion participants had with their parents and with others about university life. Both mea- sures dem-

onstrated adequate internal consistency, with alphas of .83 and .72, respectively.

Perceived Stress

Also included in the preuniversity questionnaire was a measure designed to assess the amount of stress students were experiencing at the time they were about to begin university. Stress was assessed at this time because it is typically at the beginning of the transition (the first few weeks of classes) that students experience the greatest amount of difficulty (Baker et al., 1985), particularly in the social domain, as many students anticipate leaving their friends and family to go off to university (see Cutrona, 1982; Shaver, Furman, & Buhrmester, 1985). The Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983), is a 14-item self-report measure in which respondents indicate the extent to which they appraise situations in their lives as unpredictable, uncontrollable, overloading, and generally stressful (e.g., "In the last month, how often have you felt that you were unable to control the important things in your life?"). Participants respond to each statement by indicating how often during the last month they have experienced the feeling described in the statement, on a scale ranging from 0 (*almost never*) to 4 (*very often*). The Perceived Stress Scale (Cohen et al., 1983) was originally tested on two college samples and a sample of adults enrolled in a smoking-cessation program. The measure was found to have good internal consistency, with coefficient alphas for the three samples of .84, .85, and .86, respectively (coefficient alpha for our own sample was .83). Test-retest correlations for the samples assessed by Cohen et al. (1983) were .85 (2 days) for the college sample, and .55 for the smoking sample (6 weeks). The Perceived Stress Scale was found to correlate with the number of stressful life events experienced by both the college and smoking cessation samples, and has also been found to be correlated with the number of physical illness symptoms experienced.

Adjustment to University

The February questionnaire, sent to students in late February of their first year at university, was intended primarily to assess students' adjustment to university. Adjustment to university was measured by means of the Student Adaptation to College Questionnaire (SACQ) (Baker & Siryk, 1984), a 67-item self-report questionnaire that is widely used to measure the quality of adaptation to university life. The SACQ provides an overall index of adjust-

ment as well as scores on four subscales that focus on academic adjustment (e.g., "I have been keeping up to date on my academic work"), social adjustment (e.g., "I am very involved with social activities in college"), personal-emotional adjustment (e.g., "Being on my own, taking responsibility for myself, has not been easy"), and attachment to university (e.g., "I wish I were at another college or university"). The scale demonstrates good internal consistency (with Cronbach's alphas ranging from .92 to .95 for the full scale, and from .77 to .91 for the subscales; for our own sample, the alpha was .94 for the full scale, and from .83 to .88 for the subscales). Evidence for the scale's validity comes from studies that indicate significant correlations between the SACQ and a wide range of other indicators of adjustment, including grade point average, involvement in university activities, and scores on measures of depression and anxiety (Baker & Siryk, 1989).

RESULTS

Integrative Complexity and Adjustment to University

Table 2 presents descriptive statistics for integrative complexity of students' expectations, perceived stress at the time students were about to begin their studies, and adjustment to university, as assessed by the SACQ total score and its four subscales. The mean level of integrative complexity (M = 2.74) that we obtained for our sample might seem low given the range of possible scores, but it is comparable (and actually somewhat higher) than mean levels of complexity obtained in studies of other life transitions (see Pancer et al., in press; Suedfeld & Bluck, 1993). The mean and standard deviation for perceived stress in our sample (M = 22.7, SD = 7.4) were very similar to those reported by Cohen et al. (1983) for two college student samples (their means were 23.2 and 23.7, with SDs of 7.3 and 7.8). The mean and standard deviation of our sample's SACQ total scores (M = 415.3, SD = 61.9) were comparable with those reported by Baker and Siryk (1989) in their manual on the SACQ. They reported mean SACQ total scores ranging from approximately 400 to approximately 440, with standard deviations ranging from 53.5 to 78.2, from a wide range of colleges and universities. Means and standard deviations on the subscales for our sample were also within the ranges reported by Baker and Siryk (1989).

We conducted a series of hierarchical regressions to examine the extent to which complexity of expectations prior to university related to adjustment

TABLE 2: Descriptive Statistics for Integrative Complexity of Students' Expectations, Perceived Stress Prior to Beginning University, and Adjustment to University in February of First Year

Measure	Range of Possible Scores	Range in This Sample		Mean	Standard Deviation
		Minimum	Maximum		
Perceived stress	0 to 56	7	45	24.7	7.37
Integrative complexity	1 to 7	1.83	3.50	2.7	0.29
SACQ (total)	67 to 603	269	552	415.3	61.92
SACQ (academic)	24 to 216	80	195	141.2	24.15
SACQ (social)	20 to 180	71	172	126.5	24.09
SACQ (emotional)	15 to 135	30	131	85.4	20.66
SACQ (attachment)	15 to 135	54	135	107.8	15.33

NOTE: SACQ = Student Adaptation to College Questionnaire.

after students had been attending university for 6 months. We first entered perceived stress, followed by overall complexity of thinking, and then the interaction of stress and complexity, into the regression. The dependent variables, in turn, were overall adjustment as measured by the SACQ, and then academic, social, and emotional adjustment, as well as attachment to university as assessed by the SACQ subscales.

Parallel and consistent patterns of results were obtained using the SACQ total score and the various subscales as dependent variables (see Table 3 for a summary of the regression results). As Table 3 indicates, perceived stress was a significant predictor of overall adjustment (as reflected by the SACQ total score), and in each of the areas assessed by the SACQ subscales, accounting for 6% to 30% of the variance in adjustment when entered on the first step of the regression analysis. On its own, integrative complexity did not predict adjustment, as indicated by the nonsignificant increase in R^2 when complexity was entered on the second step of the regression procedure. The addition of the stress by complexity interaction term, however, produced a significant increase in R^2 when entered in the third step of the regression (with the exception of the regression relating to academic adjustment, in which the addition of the interaction term produced only a marginally significant increase in R^2).

The nature of the interaction between stress and complexity in predicting overall adjustment to university is depicted in Figure 1. To construct this figure, we used the regression equation that included perceived stress, integrative complexity, and the stress by complexity interaction, to compute pre-

TABLE 3: Summary of Hierarchical Regression Analysis for Variables Predicting University Adjustment

Adjustment Measure	*Stepwise Predictors*	*Change in R^2 by Step*	*Standardized β*
SACQ (total)	1. Perceived stress	.18	–0.42***
	2. Integrative complexity	.00	0.01
	3. Stress × Complexity	.04	2.04**
SACQ (academic)	1. Perceived stress	.06	–0.25***
	2. Integrative complexity	.00	–0.02
	3. Stress × Complexity	.01	1.24
SACQ (social)	1. Perceived stress	.08	–0.28***
	2. Integrative complexity	.01	0.10
	3. Stress × Complexity	.05	2.35***
SACQ (personal)	1. Perceived stress	.30	–0.54***
	2. Integrative complexity	.01	–0.09
	3. Stress × Complexity	.02	1.45*
SACQ (attachment)	1. Perceived stress	.06	–0.25***
	2. Integrative complexity	.01	0.10
	3. Stress × Complexity	.03	1.83**

NOTE: SACQ = Student Adaptation to College Questionnaire. Significance of beta weights at entry.
*$p < .05$. **$p < .01$. ***$p < .001$.

dicted values for the SACQ total at low and high levels of stress and complexity. For example, to get a sense of how people who were low in complexity and low in perceived stress were adjusting to university, we computed a predicted SACQ total score from the regression equation, using a perceived stress score one standard deviation below the stress mean as the low stress score, and a complexity score one standard deviation below the complexity mean as the low complexity score. The bars in the figure relating to low stress-high complexity, high stress-low complexity, and high stress-high complexity were computed in a similar fashion, with high levels of stress or complexity being represented by values one standard deviation above the mean. Although these kinds of computations do not allow for statistical comparison of SACQ total scores for various combinations of high and low levels of stress and complexity (because there are no means to compare), they do allow for an accurate representation of the nature of the interaction. As the figure demonstrates, students who experienced low levels of perceived stress immediately prior to entering university showed relatively good adjustment 6 months after they had begun classes. Students who had experienced high levels of stress showed relatively poor adjustment when their expectations

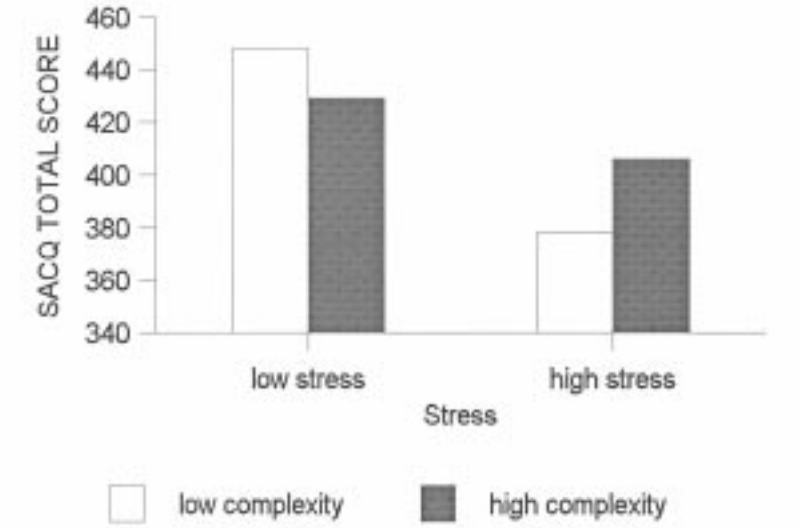

Figure 1. University adjustment as a function of perceived stress and integrative complexity.

about the transition were integratively simple, but better adjustment when their thinking was more complex. Similar patterns were obtained for each of the subscales of the SACQ.

Integrative Complexity and Information From Parents and Others

Table 4 presents the correlations between the integrative complexity of students' expectations and variables relating to the amount of information they had about university from different sources, as well as perceived stress. As the table indicates, the integrative complexity of students' expectations about university was significantly correlated with the amount of information they perceived they had about university life, classes, professors, and social life, as well as with their satisfaction with the amount of information they had. The more information they perceived they had, the more complex their expectations about university. The complexity of their expectations was also significantly correlated with the amount of discussion they reported about

TABLE 4: Intercorrelations Among Integrative Complexity and Information Variables

Variable	*1*	*2*	*3*	*4*	*5*	*6*
1. Perceived stress	—	.03	–.16**	–.22***	–.08	–.09
2. Integrative complexity		—	.41***	.20***	.20***	.21***
3. Amount of information			—	.56***	.34***	.46***
4. Satisfaction with information				—	.25***	.27***
5. Amount of discussion with parents					—	.37***
6. Amount of discussion with others						—

NOTE: All correlations in the table were based on information from the 303 individuals who returned their preuniversity questionnaire by the first day of classes, in addition to 47 individuals who returned their preuniversity questionnaires within 2 weeks of the first day of classes.
**$p < .01$. ***$p < .001$.

university life with both their parents and other individuals. The greater the amount of discussion with parents and others about the various aspects of university, the more complex were their expectations. In addition, the amount of information that students perceived they had about university was significantly correlated with the frequency of their discussions with parents and others about university life; the more frequent their discussions, the more information they felt they had about university. The amount of information students reported having about university, as well as their satisfaction with that information, was significantly correlated with the amount of stress they reported prior to beginning university; individuals with more information experienced lower stress levels than did individuals with less information.

DISCUSSION

Not surprisingly, the amount of stress that students reported immediately prior to beginning their university studies was significantly related to their adjustment to university 6 months later, well into their second semester at university. Students who experienced low levels of stress when they were about to begin their first classes at university appeared to adjust reasonably well, in general, to university life. As the regression analyses and Figure 1 suggest, a very different picture emerges for students who were experiencing

high levels of stress prior to the beginning of their first classes at university. These students tended to show much poorer levels of adjustment. A number of studies (e.g., Baker et al., 1985) indicate that the period of greatest stress during the transition to university may be in the first weeks and months of classes. The present findings suggest that many students may be experiencing stress even prior to beginning university. This stress is likely to carry into the first weeks of classes and well into the first year of university, as the relationship between pre-university stress and adjustment 6 months later suggests.

As we had hypothesized, adjustment to university was also related to the integrative complexity of students' expectations about university. The relationship between complexity and adjustment, however, was not a direct one. Rather, complexity of thinking interacted with students' perceived stress in predicting adjustment. Although the adjustment of students who experienced low levels of stress tended to be relatively good, the adjustment of students who had experienced higher levels of stress appeared to depend, in part, on the complexity of their expectations about university. Those who had relatively complex expectations about university tended to show higher levels of adjustment than did those whose expectations about university were simpler and more one-dimensional. Thus, it appears that integrative complexity of thinking about university can be stress-buffering, in a similar fashion to the way that variables such as social support can be stress-buffering (Cohen & Hoberman, 1985). The stress-buffering nature of integratively complex expectations is very similar to that found in Pancer et al.'s (in press) study of the transition to parenthood. They found that women who had experienced low levels of stress after having their first child tended to report relatively good marital adjustment, regardless of the complexity of their expectations about what parenthood would be like. Women who experienced high levels of stress, however, reported poorer marital adjustment when their expectations about parenthood had been simple than when their expectations had been more complex.

Thinking about things in complex ways, however, may not always be the most functional way to conceive of life changes. Figure 1 suggests the possibility that, for people who are not experiencing stress, lower levels of complexity may be more adaptive than higher levels of complexity. The predicted adjustment score for individuals experiencing little stress (represented by a stress level one standard deviation below the mean) was higher for individuals with simpler expectations (represented by complexity scores one standard deviation below the mean) than it was for individuals with more complex expectations (represented by complexity scores one standard deviation above the mean). Thus, it appears that individuals who do not report high levels of

stress as they undergo this transition may be better off thinking about the transition in an integratively simple manner.

The notion that more integratively complex kinds of thinking may not always be adaptive is consistent with other research (Tetlock, Peterson, & Berry, 1993), which suggests that individuals who think in more complex ways may adapt more poorly at times and in some situations (particularly social situations), than would individuals who exhibit simpler ways of thinking. However, it should be noted that, according to Figure 1, the only individuals at risk for poor adjustment appear to be those who experience high levels of stress and who have relatively simple expectations about university life. Individuals undergoing little stress appear to cope relatively well, even if those with complex expectations might be adjusting a little less well than those with simpler expectations. Furthermore, these findings, in conjunction with those of Pancer et al. (in press) on the transition to parenthood, provide clear evidence that complexity of thinking may prove adaptive across a range of life transitions under many circumstances.

How is it that some students come to have more complex expectations about university than do others? Our results indicate that complexity of thinking about university is, at least in part, a function of the amount of information that students have about university. Students who had more complex expectations tended to report having more information about classes, professors, social life, and life in general at college, and were more satisfied with the amount of information they had than were students with simpler expectations. Both parents and other individuals appeared to be important sources of information, as indicated by the significant positive correlations between the amount of discussion that students reported having with their parents and others about university life, and the amount of information about university that they perceived they had. Discussion with parents and others was also significantly correlated with the integrative complexity of students' expectations, suggesting that such discussions can have an impact on the quality of students' thinking and expectations about university. Of course, it may also be the case that the complexity of students' expectations is the causal factor in this association; students who have more complex notions of what university might be like may seek information from others to validate their ideas, or to help develop strategies that might help them cope with any challenges they anticipate.

Our results are consistent with studies that demonstrate a relationship between freshman-myth kinds of thinking and poor adjustment at university. The romanticized, idealistic thinking about university that characterizes the freshman myth is likely to be integratively simple. The present research sug-

gests that if students subscribing to such a myth undergo stressful experiences, they will cope poorly with them. Optimistic thinking, however, is not necessarily simplistic thinking. Jackson et al. (in press) found that a significant proportion of those about to enter university had expectations about university life that were optimistic but realistic as well, in that these students had prepared themselves for experiences that might challenge them and promote their growth as individuals. Such expectations are likely to be relatively high in integrative complexity. Moreover, an optimistic outlook may serve to enhance adjustment to the transition, in that it can motivate students to bring about positive outcomes, and to construe their experiences in a positive way (Aspinwall & Taylor, 1992; Zirkel & Cantor, 1990). In combination, these studies suggest that expectations that are at the same time optimistic and complex are the most likely to produce good adjustment to university.

Given that complex expectations may serve to protect students from some of the stresses that they may experience at university, how can more complex thinking about university be engendered in those about to begin their university careers? A number of studies in the area of integrative complexity (e.g., Hunsberger et al., 1994; Pancer, Jackson, Hunsberger, Pratt, & Lea, 1995) suggest that greater familiarity with an issue or topic, or higher levels of involvement with that issue, can give rise to more complex thinking. This suggests that programs which provide students with information about what university life will be like or that allow them to experience university life firsthand, may be effective in promoting more complex expectations and increased cognitive readiness for university. The negative correlation between information and perceived stress could suggest that such programs might also serve to reduce the amount of stress that students experience when they start university. Most effective would be programs that prepare students for some of the challenges that they might face while attending university, but give them strategies that they can use to overcome these challenges, and a feeling of optimism about being able to deal with any difficulties they may encounter. Such programs may be best suited for students who are experiencing relatively high levels of stress as they begin their studies, as these students are the ones at greatest risk for poor adaptation to university.

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