

Optimism Bias and Student Debt

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A survey of 230 psychology students revealed that they underestimated the time they thought they would need to pay back student debt and overestimated their future incomes relative to the average student. The tendency to overestimate future income was positively correlated to their level of actual debt. Overall, the results suggest a bias towards optimism regarding their future careers.

In recent years, the New Zealand government, like many overseas, has acted to raise university fees and has introduced Government student loans to help students finance their studies. The New Zealand Student Loan Scheme, introduced in 1992, permits students to borrow to pay tuition fees, course costs, and living costs. These loans, which incur interest at approximately market rates from the time they are drawn down, have been a major factor in increasing student debt levels and have given rise to widespread social concern (e.g. Ashby, Robertson, and Parata, 1996; Brett & Chamberlain, 1997; New Zealand University Students' Association, 1998). In turn, both New Zealand and overseas concern about the causes and effects of student debt has given rise to a small but expanding body of research into the phenomenon (e.g. Boddington & Kemp, 1999; Chapman and Harding, 1993; Davies and Lea, 1995; Lea and Webley, 1995; Watson, 1997).

Much of the justification for the new policies is the expectation that those who attend university will recoup their fees and pay off their debts out of the increased earnings they later receive as a result of their education, and, indeed, at least two economic theories suggest that students might voluntarily and rationally accumulate debt while they are at university. According to the life-cycle hypothesis (e.g. Friedman, 1957; Modigliani and Brumberg, 1954) students anticipating higher future incomes may justify borrowing now, in order to maintain their standard of living through a difficult period. According to Becker's (1993) human capital

theory, the costs of tertiary education may be viewed as an investment to obtain the higher future earnings that result from raising one's human capital. Under both theories, the expectation of comfortable future earnings should encourage students to consume now and provide a justification from the outset for borrowing to fund their education.

On the other hand, there are reasons to question whether the growing tendency of students to accumulate debt is rational. One such reason is the existence of optimism bias, under which people display unreasonable optimism about their futures (e.g. Weinstein, 1980; Weinstein and Sandman, 1992). For example, people generally rate their own chances of developing cancers as less than those of similar "average people". As students have voluntarily undertaken the courses they have, optimism bias about their future prospects might result from attempts to reduce cognitive dissonance about accumulating debt that might not lead to compensating returns (e.g. Festinger, 1957).

These considerations suggested the investigation of whether students tended to be overoptimistic about their own career prospects and their ability to repay debt, and whether over-optimism might be reflected in a more pronounced tendency to incur debt.

Method

Participants and procedure

All participants were enrolled in papers (at first, second or third year level) offered by the Psychology Department at the University of Canterbury. Students taking second-year psychology courses completed questionnaires at leisure, those taking first or third year courses during scheduled classes. In all, 275 questionnaires were distributed, with 245 returned (giving an 89% response rate). Of these, 230 questionnaires were retained for final analysis. (A few students with very incomplete data and those reporting mortgages were excluded.)

The final sample contained 68 males and 162 females. There were 80 first-year, 52 second-year, and 98 third-year participants. The overall median age was 20 years with a

range from 18 to 54 years.

Questionnaires

The full questionnaire had 49 items, most of little relevance to the subject of this paper, but the questionnaire contained items designed to ascertain the level of debt and to investigate optimism bias. The latter included: How long do you think it will take you (an average student) to repay your (their) Government student loan?

Participants ticked the appropriate repayment period bracket, indicating the time they thought it would take them (if they had one), and an "average student", to repay a Government student loan. The repayment period brackets (with relevant scoring key in brackets) were: "Not applicable/do not have one" (scored as 0), "Less than 5 years" (1), "Between 5 – 10 years" (2), "Between 11 – 15 years" (3) and "16 years or longer" (4).

Future income questions were: What do you estimate your annual income will be in your first full-time job following graduation? What do you estimate your annual income will be – in 1998 (NZ) dollars – ten years after graduation? and What do you estimate the average graduate's annual income will be ten years after graduation? The respondents were also asked to estimate the likelihood of finding a full-time job, and a full-time job in the vocational area of choice, following their graduation. These estimates were rated on a scale from 1 (Very unlikely) to 7 (Very likely). No information identifying individuals was requested.

Results

Level of debt

Undergraduate psychology students at the University of Canterbury had considerable debt. As can be seen from Table 1, those students studying third-year psychology papers owed the most.

A significant Spearman rank correlation between year of study and total debt existed ($\rho(230) = 0.440, p < .001$). The most frequently used ($n = 138$) form of debt and generally the largest (median = \$8,500 for those with this loan) was money owed to the Government Student Loan Scheme.

Table 1. Debt (in New Zealand dollars) owed by students in their first, second or third year of psychological study.

Year	% with debt	Mean debt (\$)	Median debt (\$)
First	76	3,265	2,712
Second	81	5,857	5,100
Third	87	13,121	11,400
All males	81	9,362	6,600
All females	85	7,629	4,481
Overall	84	8,136	5,000

Note: At the time of the study, NZ \$1.00 = (approx.) US\$0.54.

Estimates of time period to repay student loans

For those students with Government student loans, the mean expected period for repayment of this debt was within the "between 5 and 10 years" bracket ($n = 138$, score mean = 2.13, $SD = 1.02$). (A score mean of 2.13 equates to a mean repayment period of around 5.5 years.) All participants estimated the time an "average" student would take to repay their student loan: The mean estimate was 2.83 (equating to a repayment period around 9 years; $n = 228$, $SD = 0.80$). Participants with student loans estimated the period to repay these as significantly less than the period ascribed to an average graduate (Sign Test, $z = 7.27, p < .001$). Only in 37% of cases was the average student considered able to repay their loan within ten years. In comparison, 72% of students thought they themselves could achieve this.

Estimates of income

Students estimated their own mean income after graduation at \$28,557 (S.D. = \$8,184), their own mean income ten years from graduation at \$54,563 (S.D. = \$23,369), and the mean income of an average graduate ten years after their graduation at \$43,984 (S.D. = \$12,149). The highest income a respondent thought they would have after ten years in the workforce was \$200,000, compared with the \$100,000 estimated for the average graduate at this time in their career. Thus there was evidence of optimism bias amongst the respondents: participants tended to overestimate their income immediately after leaving university. Similarly, estimates of their own income ten years after leaving were significantly greater than estimates for an average graduate at the same point in their career ($t(220) = 7.35, p < .001$).

Estimates of income after ten years in the workforce were significantly related to amount of student loan ($\rho(223) = 0.19, p < .01$), and total debt ($\rho(223) = 0.22, p < .001$). Participants with larger student loans, and/or larger total debts tended to estimate higher incomes for themselves after ten years in the workforce. Similarly, those students with larger total debts tended to make higher estimates of the average student's income ten years after graduation ($\rho(215) = 0.19, p < .01$).

Participants rated their prospects of gaining a job after they graduate as more than likely (mean rating = 5.3, median = 5, $SD = 1.4$). When asked whether they thought it was likely they would find employment in the vocational area they preferred, participants also indicated this to be more than likely (mean = 4.4, median = 5, $SD = 1.6$).

Discussion

The findings suggest an underlying optimistic disposition. This general optimism is evident in students' estimates regarding debt repayment periods. For those students with government student loans, the average period for repayment was around 5.5 years. The majority of participants thought their loans would be repaid within ten years, concurring with Boddington and Kemp (1999). These estimates contrast with Government statistics concerning student loan repayment figures, where males and females are estimated to take an average of 16 and 38 years respectively to repay their obligations (Ashby, Robertson & Parata, 1996), suggesting students are over-

optimistic about their ability to repay the debts they accumulate. When students' estimates of the period to repay their own debts were compared with those relating to the time an average student would take to clear theirs, significant disparities existed. Note that even for the average student, the estimates are considerably less than those of the government, further suggesting students are unrealistically optimistic.

Optimism bias also existed when students estimated their future incomes in comparison to those of their peers. These findings are in line with the empirical work of Weinstein (1980), and more latterly Myers (1993) and Hoorens (1998). Weinstein (1980) found that students perceived their chances of getting a job with a starting salary of US (1980) \$10,000 as 42 percent better and a job with a starting salary of \$15,000 as 21 percent better than their classmates. Similarly, Hoorens (1998) found young people to be self-favouring when estimating the likelihood of negative life events happening to them at some stage in their lives. Reinforcing these notions of the unrealistically optimistic student and self-favouring young person, the current study found that students estimated their own future incomes would be significantly higher than that of the average student.

As with debt repayment periods, students' estimates of future income were more optimistic than statistical projections. Approximately 65% of participants thought they would earn in excess of \$40,000 per annum ten years following graduation, with 50% thinking the average graduate would be in this position. These estimates do not represent reality: only 24% of New Zealanders achieve this level of earnings (Statistics New Zealand, 1998), and only 35% of New Zealanders with bachelor's degrees earn over \$40,000 per annum (Statistics New Zealand, 1996, cited in Lincoln University, 1998, p1). The average income estimate from the current study was also considerably higher than the New Zealand average annual income (Statistics New Zealand, 1998).

Students were also optimistic regarding their job prospects, rating both their chances of gaining full-time employment after graduation, and their prospects of this being in their preferred vocational area, as 'more than likely'. In fact only around half of all bachelor's degree graduates find full-time employment after graduation, with approximately 25% finding no work, even at the part-time level (New Zealand Vice-Chancellors' Committee (NZVCC), 1998). Further, students from the social and behavioural sciences (such as those in the current study) make up around one-third of all bachelors' and bachelor with honours' graduates actively looking for employment (NZVCC, 1998). Whilst the current study indicates that the present sample of students are unrealistically optimistic about their job prospects, given the field of study they pursue, they are also over-optimistic compared with the prospects for any bachelor's degree graduate (NZVCC, 1998).

In conclusion, students appear to be unrealistically optimistic. Moreover, for students' estimates of their own income following graduation, and estimates of their own, and the average student's, income ten years after graduation, their financial optimism was significantly linked to borrowing behaviour. These results suggest that over-optimism may be a factor in the accumulation of student debt.

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Psychometric Evaluation of the Profile of Functional Impairment in Communication with Traumatically Brain-injured Children

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The Profile of Functional Impairment of Communication (PFIC) was employed to examine communication by children with a traumatic brain-injury (TBI) during a family problem-solving discussion. Communication by 11 children with a TBI was compared with that of 11 children with orthopaedic injuries. Children with a TBI evidenced impaired communication on five of the 10 subscales of the PFIC. Injury severity was significantly correlated with scores on nine of the 10 PFIC subscales. Adequate inter-rater reliability was found for eight of the PFIC subscales. These results provide encouraging preliminary evidence for the use of the PFIC in assessing children with a TBI.

Although gross aphasia is thought to be rare in children with a Traumatic brain injury (TBI), subtle problems with language use are common (Ewing-Cobbs, Levin, Eisenberg, & Fletcher, 1987; Jordan & Murdock, 1993; Ylvisaker, 1986). Despite the subtle nature of language impairments following TBI, these impairments are thought to undermine social adjustment (Godfrey & Shum, 1999; Godfrey, Knight & Partridge, 1996). One mechanism through which language impairment is thought to affect psychosocial adjustment is by compromising the injured child's ability to communicate effectively with family and peers. Consistent with this notion, analyses of narrative discourse by children with a TBI has documented impaired functional language use during social interaction (e.g., Chapman et al., 1992).

Assessing functional language use can be a difficult task. For example, discourse analysis of the type undertaken by Chapman et al. (1982) involves the transcription and qualitative analysis of speech samples derived from naturalistic speech contexts. This method provides a powerful means of identifying subtle deficits in

communication, and of comprehensively describing these deficits. However, this method is of less use for clinical assessment. The main limitations of discourse analysis include the large amount of time involved in undertaking such analyses, the lack of standardisation of this method, and the difficulty in deriving indices of severity of impairment.

This article reports on the application of the Profile of Functional Impairment of Communication (PFIC; Linscott, Knight, & Godfrey, 1996) with children. The PFIC was designed to provide a more practical means for assessing communication impairment. The scale provides a comprehensive qualitative description of communication difficulties as well as a clinical index of the severity of communication impairment.

Method

Subjects

Medical records at the Neurological Unit at Dunedin Hospital were reviewed to identify children aged between 6 and 15 years who had suffered a moderate or severe TBI between one and five years previously, and who were discharged from hospital in a conscious state. A moderate or severe TBI was defined as a brain injury resulting from a blunt trauma associated with any of the following criteria:

- Post-traumatic amnesia (PTA; Russell, 1961) of more than one day.
- Glasgow Coma Scale (GCS; Jennett & Teasdale, 1974) score of 3-12.
- GCS score of 13-15 when complicated by mass lesion or evidence of brain injury in the computed tomography (CT) or magnetic resonance imagery.

Subjects with a premorbid history of psychiatric disorder, neurological disease or previous TBI were excluded from the study.

Twenty-four families were sent a written invitation to participate in the study, of whom 11 agreed to take part. Of those who declined to participate, 9 did so by written

communication. Two subjects did not respond to the invitation, one subject was untestable due to a psychiatric disturbance, and another because of a severe hearing disability. The final sample comprised 8 males and 3 females.

The mean age of the participating subjects at testing was 13.8 years (S.D.=4.3), and their average duration of PTA was 9.9 days (S.D.=7.4). Eight of the subjects were comatose on admission to Hospital. CT abnormality was evident in 8 subjects, 6 of whom showed evidence of frontal lobe damage (contusions and haematomas). One subject received surgical intervention for the removal of an extradural clot from the right temporal region and another had a marked increase in intracranial pressure (above 30 mm of mercury). The cause of injury for 7 subjects was a motor vehicle accident and the remaining 4 were due to falls.

There were no statistically significant differences between the participating and non-participating TBI subjects in frequency of CT abnormalities, gender distribution, or mean age. Comparison of mean GCS and PTA for those who consented and declined participation was not possible due to incomplete hospital records.

A group of 11 children with orthopaedic injuries was recruited from the fracture clinic at Dunedin Hospital to serve as case matched controls. Several factors were in favour of using a comparison group of orthopaedically injured children. The main reason was the relative ease in matching subjects on demographic variables, such as socio-economic status, age and gender (McKinlay & Brooks, 1984). Children in the orthopaedic control group were invited to participate in the study if they had suffered minor injury, had fully recovered to their pre-injury level of functioning, and had no premorbid history of psychiatric disorder, neurological disease or previous head injury. The orthopaedic control subjects were matched for age and gender. The family socio-economic status (Elley & Irving, 1985) of the two groups did not differ significantly.

Procedure

Families undertook a video-recorded problem-solving discussion that involved a close-other (usually parent) and the subject attempting to resolve a problem. Problem issues were identified by both parties using the Issues Checklist (Robin, 1981), a 44 item scale describing domestic and interpersonal problems.

The communication of participants during the videotaped problem-solving interactions was rated using the *Profile of Functional Impairment in Communication*, the development of which has been described in detail elsewhere (PFIC; Linscott, Knight, & Godfrey, 1996). The subscale structure of the PFIC is based on an elaboration of Grice's (1975, 1978) model of conversational rules of communication competence. The 84 specific behaviour items are separated into 10 subscales. Items in these subscales facilitate the identification of impairments in discrete aspects of conversation behaviour. Complementing the identification of discrete impairments, the feature

summary scales require singular global judgements on the overall adequacy of the aspect of communication assessed by items in the subscale. The subscales of specific behaviour items and the corresponding feature summary scales assess the meaningfulness of the explicit content of utterances (Logical Content), the cooperative and purposeful engagement in conversation (General Participation), the adequacy of the quantity of information in utterances (Quantity), the apparent veracity of utterances (Quality), the relationship among ideas expressed within speaking turns (Internal Relation), the relationship between those ideas expressed by the participant and those ideas expressed by the interlocutor (External Relation), the succinctness with which ideas are expressed (Clarity of Expression), the appropriateness of the style of interaction in light of both the context and the relationship between the participant and interlocutor (Social Style), the appropriateness of the topic in light of the context of the interaction (Subject Matter), and the presence of non-verbal elements of conversation (Aesthetics).

The feature summary scales were rated on a six point scale, *normal, very mildly impaired, mildly impaired, moderately impaired, severely impaired, or very severely impaired*, and scored 0 - 5. Each subscale was headed with a definition of the feature of communication being assessed and concluded with the feature summary scale. Items within each feature summary scale were rated on a four point scale, *not at all, occasionally, often, or almost always or always*, and were scored 0 - 3. Definitions of specific behavioural items and extended definitions of the feature summary scales were included in an accompanying raters' manual (Linscott, Knight, & Godfrey, 1993). Two independent observers who were blind to the subjects' group assignment rated the PFIC.

Raters received 2 hours of training on the operational definitions of feature summary scales and the behavioural items included therein. Following this, raters viewed and rated three videotapes judged to be normal, mildly impaired and moderately impaired. These training ratings were compared and discussed, and any questions relating to the use of the scale were clarified. Raters were instructed to rate the 84 behavioural items objectively, independent of the child's age, but to consider the child's age in making the overall impairment ratings on the feature summary scales.

Results

Descriptive statistics and inter-rater reliability

Means and standard deviations for the orthopaedic control group and TBI group on the feature summary scales are presented in Table 1. In all cases, means favour the control group, although the magnitude of the difference is modest for some scales. The Quality and Subject Matter subscales means were low for both groups and were associated with small variance. With the exception of these two scales, inter-rater reliability was in the moderate to high range (Table 1). Scales associated with greater between subject variability tended to produce higher reliability coefficients. This pattern of results is consistent with the notion that for scales with