

1Exploring success and failure with university students:
Layers of attributions, and the highlighting of interest
as a motivational variable.

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Abstract

Fifty-four first year university students were interviewed individually about their attributions for success and failure in subjects they had taken at university or senior high school. Analyses of these interviews revealed the emergence of attributions, such as interest and prior knowledge, that rarely appear in typical questionnaire methods for assessing attributions. Interest emerges as a significant motivational variable deserving more attention by researchers. However, in line with questionnaire data, effort/lack of effort emerges as an important attribution for success and failure. The open-ended nature of the interviews also revealed that students' attributional thinking tends to be multi-faceted and complex, a finding often overlooked in conventional questionnaire approaches.

Attribution theory has been used in social psychology for many years. As Fiske and Taylor (1984) point out, interest in attributions emerged from several quarters and because of this this is no commonly accepted set of theoretical propositions. Heider's (1958) argument that we all are naive psychologists searching for explanations of our own and others' behaviour has been influential. Also influential, but from an individual differences perspective, has been Rotter's (1966) locus of control approach, that some people tend to see themselves in control of events in their lives, while others see events as beyond their control.

Attribution theory in educational contexts

Weiner (1984, 1986, 1991) adapted and extended this early work and applied it to achievement. Like Heider, he saw students engaged in a search for explanations about why events happened, focusing on their

explanations of academic success and failure, especially if they were important or unexpected. From Rotter he took the locus of control dimension: did students take personal credit for their successes or failures, or did they see them as caused by external forces such as luck or the difficulty of the task? Weiner argued for the addition of one, then two, new dimensions, controllability and stability, because they provided more insight into the emotions, attitudes, and behaviour generated by attributions.

Weiner and his colleagues identified four attributions frequently used by students to account for success and failure: effort/lack of effort, ability/lack of ability, easy task/difficult task, and good luck/bad luck. The argument was that the student's "scientific", rational

search would produce the most appropriate attribution. The attribution then would be categorised according to the underlying dimensions of locus, controllability, and stability. For example, an attribution for success to effort could be categorised as internal, controllable, and unstable. Alternatively, attributing failure to a difficult task could be categorised as external, uncontrollable, and stable (if all tasks for that subject were of equal difficulty).

Consequences of attributions

Attribution theorists argue that attributions engender emotional responses, expectations for future performance, and behaviour (Weiner, 1986; Stipek, 1993). For example, attributing success to one's own effort should lead to happiness and pride, the expectation of future success, and the expenditure of future effort. On the other hand, attributing success to good luck should lead to happiness but surprise, little expectation of future success, and little change to current behaviour.

Of particular concern to educators is the attributional state labeled learned helplessness (Dweck, 1975). Here, the student has come to believe that her repeated failure is caused by a lack of ability, an attribution commonly seen as internal, stable, and uncontrollable. There is nothing she can do to avoid failure. There is a sense of shame at exposing incompetence, and this can lead to depression if failure in one field such as mathematics is globalised to other academic fields. She refuses to exert effort because she sees effort as useless. A more adaptive approach would be to attribute failure to factors which can be seen as more under personal control, such as a lack of effort or a lack of effective study strategies. This way, there is hope for future success.

Covington (1984) argued that the attributional search was not the straightforward search-for-truth process described in Weiner's model. Instead the driving force was people's desire to protect their sense of

self-worth. In westernised competitive societies like the United States, sense of self-worth is tied closely to academic achievement (for a discussion, see Nicholls, 1989). To be exposed publicly as incompetent and lacking in ability leads to shame and embarrassment. To avoid this, public and private attributions may differ. For example, a student publicly may attribute failure to a lack of effort, but privately suspect the the real reason for failure was a lack of ability. If presented with the choice, most students would rather be seen by others as bright but lazy rather than as of average ability but conscientious.

Antecedents of attributions

The attributional process has antecedents as well as consequences. Attributional analyses have been shown to make use of consensus information (did many students fail, or was I the only one?), and consistency information (I've failed the last four tests in a row). At a broader level, what other information do students use to form attributions? There is considerable evidence that students look to teachers' behaviour and the behaviour of their peers for cues to help them make attributions. For example, unsolicited help by a teacher can function as a low ability cue (Graham & Barker, 1990; Stipek, 1993), as can a teacher's sympathy in the case of failure, while a teacher's anger or frustration in the case of failure can point to a lack of effort as the cause of failure.

In addition to the analysis of situational cues, there may be more

enduring attributional patterns or dispositions, an approach evident in Rotter's early work on locus of control. In a strange twist on locus of control, for example, learned helpless students have "learned" to externalise their successes and to internalise their failures. Cultural differences in attributional patterns, especially differences between American, Japanese, and Chinese students, have been explored (Lee, Ichikawa & Stevenson, 1987; Chen & Uttal, 1988). Extensive work also has been done on differences in attributional patterns between male and female students, especially in subjects stereotyped as "male."

Measuring attributions for success and failure

Much of the early work of Weiner and his colleagues to discover commonly used attributions involved open-ended questioning, such as "why do you think you did well on that test?" Since this early work, however, most researchers have tried to tap into students' thoughts about causes of success and failure using a questionnaire format. Typically, students are asked to rate on a Likert scale the importance

of a series of possible causes for success and failure. For example, the stem might be "When you do poorly in English, is it usually because: (rate the importance of each explanation)". There follows a list of possible causes ("you didn't study much", "you didn't study the right things", "you are not smart in English", "the teacher didn't explain things well", "the work was hard"), with student rating each statement on a Likert scale from "not an important reason" to "a very important reason." Sometimes, rather than a single response for each attributional dimension, students respond to items over different facets of schooling (success or failure on the sports field, in art class, in the regular classroom).

In carefully arranged experimental settings, the tasks given to subjects may have been contrived to predetermine subjects' success or failure on them, and then attributional questions are advanced. Often, too, hypothetical scenarios (for example, Vispoel & Austin, 1993) are used. This device is useful because it makes it easy for the researcher to manipulate important variables (such as success and failure, and sex of the students), to avoid self-serving biases, or the public rather than private attributions that Covington identified, and to avoid the ethical problems associated with asking students to reflect on their own academic failures.

In the contrived experimental settings, or with the use of hypothetical scenarios, the findings may lack ecological validity, though undoubtedly these studies have produced many insights into students' motivation. When students are asked to provide identify attributions for their own achievement in natural classroom settings, much of the artificiality is reduced. However, there remain limitations with the typical questionnaire format.

There is the obvious limitation that students can only respond to the items supplied by the researcher. There is the possibility that students are being cajoled to respond in a way that does not really represent their attitudes. Doubtless we all can recall feeling frustrated when a questionnaire to which we were responding did not allow us to reply as we wanted. There is another drawback that may emerge particularly with attributional research. That is, the relations among attributions, or the chain of events precipitating a behaviour (such as hard work) may remain unclear.

For example, a student may fail an important examination. He then responds to a questionnaire containing a set of attributional items to account for the failure ("you don't have ability in this area", "you had a poor teacher", "you didn't use good study strategies", "you were unlucky", "you didn't work hard enough"). He may respond quite honestly by indicating that the most important reason was that he didn't work hard enough. Yet if he were asked why he didn't work hard, he may reply that he had decided already that he didn't have much

ability in that area, and that it was a waste of time to study because he was going to fail anyway.

Similarly, a student who responds to a questionnaire by indicating that the most important reason for her success on an examination was the effort she put in is providing useful information. However, it would be more useful to know why she decided to exert effort. Did she want to get the highest mark in the class? Did she want to please her teacher? Did she find the subject matter interesting? Especially for those attributions that can be classified as under individual control, such as effort or the use of effective strategies, it would be useful to know why a student chose to act in that way.

Salomon (1991) points out that there is a danger with what he calls analytic research, of the somewhat artificial isolation of variables: "... one assumes that complex behaviors, settings, and internal events are additively and interactionally composed of more basic elements, the effects of which can be studied in isolation" (p. 13). The sense of the fluid, interconnected aspects of life that may change over time can be lost.

The present study

The present study is an attempt to capture some of this interconnectedness by open-ended questioning of university students about their attributions for success and failure in academic subjects. Three issues in particular arose. First, using an open-ended approach, what sorts of attributions emerge? Second, are these attributions similar to those used in most questionnaire formats? Third, what additional information is provided by the extended questioning of students to uncover what might be called "layers" of attributions, the antecedents to the final attribution? Are attributions typically simple, unidimensional psychological constructs, or are they composed of multiple aspects that are difficult to separate and analyse in isolation?

Method

Fifty-four first year university students enrolled in a Bachelor of Education degree were interviewed individually about their motivation to learn. Among other questions, there were two attributional questions. Students were asked to name a subject they had taken at university, or during the senior years of high school, in which they thought they had been successful. Then they were asked to explain why they thought they had been successful. A similar procedure was followed to elicit attributions for failure: think of a subject at university or at high school for which you didn't get a good grade, or at least not the grade you wanted to get, and then explain why you think that happened.

The interviewer probed the students' replies if it seemed that further questioning might provide useful information. This happened particularly when the student gave an effort-related attribution (I succeeded because I worked hard, or I failed because I didn't work very hard). The interviewer then would ask the student why she worked hard, or why she didn't work hard.

As part of a related study, the interviewed students were asked to complete two questionnaires, one at the end of the first semester of their first year, and a second at the end of their second semester. Changes had been made to one of the first year subjects (Child and Adolescent Development), and the questionnaires were devised to measure any motivational changes that might have occurred. The 54 interviewed students were a sub-group of the over 400 students who responded to the two questionnaires. The interviewed students were chosen to represent a cross section of the specializations within the BEd course (early childhood, primary, secondary). They also represented a range of competence with the subject matter.

The two questionnaires contained identical sections on attributions. The success attribution had the stem: "When you do well in this course, why do you think you are successful? Is it because..." Students then responded to five statements (you have ability in this area, you have worked very hard, you used good study strategies, the work was not difficult, the lecturer did a good job) using a five point Likert scale, anchored by (1) not an important reason and (5) an important reason. The failure attribution followed the same format: "When you do not do very well in this course, why do you think you are not successful? Is it because..." The five statements were the reverse of the success attributions (you lack ability in this area, you did not work hard enough, you did not use good study strategies, the work was difficult, the lecturer did a poor job), and the same five point Likert scale was used.

It should be noted that in the two questionnaires students were making attributions for success and failure in a particular subject, Child and Adolescent Development. In the interview questions, students were free to nominate any subject they wished, and so the majority of attributions did not refer to Child and Adolescent Development.

Results

The transcripts of the interviews with the 54 students were analysed for references to attributions for success and failure on academic tasks. Appendix 1 contains a sample of explanations for success in a subject, while Appendix 2 contains a sample of explanations for failure, or at least relatively poor performance. The most commonly mentioned attributions were good teaching/poor teaching,

interest/boredom, prior knowledge/lack of prior knowledge, and ability/lack of ability. We grouped some references to relevance/irrelevance within the interest/boredom variable. Table 1 shows the percentage of times these attributions were mentioned in the interviews. Because of the open-ended nature of the interview technique, students often made reference to more than one attribution to account for success and failure.

Because we were looking for signs of complexity in self-reflection, we examined the transcripts for layers or patterns of attributions. That is, did students see their success and failure as caused by a single variable or by a sequence of variables? Figures 1 and 2 present these analyses for male and female students. As they show, most students made reference to more than one reason for success and failure. For example, Female No. 25 made references to interest and good teaching to explain success, and made reference to lack of effort, lack of interest, and poor teaching to explain failure. As noted earlier, some of the transcripts are reproduced in Appendices 1 and 2. These give a

flavour of the nature of attributional patterns.

To enable a comparison of attributions emerging from interview and questionnaire data, Table 2 shows means and standard deviations for students' attributions for success and failure in Child and Adolescent Development at two times of testing. As noted earlier, the 54 interviewed students were a sub-group of the group responding to these two questionnaires. The questionnaire data show effort to be perceived as the most important attribution for success and lack of effort the most important attribution for failure. This finding of effort/lack of effort as the most important cause of success and failure appears in many other studies as well. For example, in Archer (1994), using three separate samples of university undergraduates, almost identical patterns of attributions for success and failure emerged using a questionnaire format. Effort as the most important determinant of success also emerges with other interview data, for example, Telfer, Moore and Farguharson (1995).

Discussion

The open-ended questioning of university students did produce some attributions that do not normally appear on questionnaire formats. The most striking was the emergence of the interest/enjoyment attribution. As the results show, a spontaneous reference to interest (in this discussion we are considering enjoyment and perceived relevance as facets of interest) was the most common success attribution. Obviously, interest is tied closely to effort (for example, because it was interesting I spent a lot of time working on it), but it is notable that interest was the first attribution spontaneously mentioned by many students. For a number of students, too, a reference to interest was

not accompanied by a reference to effort. The tone of these interviews seemed to be that the subject matter was so interesting that the effort students expended didn't feel like "hard work." In the case of failure, boredom (the opposite of interest) was mentioned frequently, and linked to not studying. Interest as a significant motivational variable will be discussed in more detail later.

Another attribution that emerged in the open-ended questioning was prior knowledge (for success) and lack of prior knowledge (for failure). Some students attributed success in a university subject to the prior knowledge they had acquired in the subject at the senior high school level, or attributed failure to not studying the subject at the high school level. In the questionnaire format, these students might use the easy tasks/difficult tasks attributions. However, prior knowledge can be seen as a more specific attribution, even a more sophisticated one, than difficulty level of tasks. In addition, in terms of Weiner's underlying dimensions, attributions to the difficulty of a task would be categorised as external locus and uncontrollable, whereas lack of prior knowledge would be categorised as internal locus and controllable (if the student believes he can acquire the missing knowledge).

A comparison of the attributions that emerged from the interviews with the attributions that emerged from the questionnaire data reveal a good deal of agreement. As noted in the results section, effort/lack of effort consistently emerges as an important, usually the most important, perceived cause of success and failure using the typical questionnaire format. With the interview data, attributions to effort combined with attributions to interest (also combining attributions to lack of effort with attributions to boredom) clearly outstrip any other attribution.

In both the interviews and the questionnaires, ability or lack of ability did not figure prominently. In fact, the interview data might exaggerate the importance of ability attributions, because in a number of the interviews, references to ability did not emerge spontaneously but only after probing by the interviewer. The question might be raised of public versus private attributions to protect a sense of self-worth (Covington, 1984). Were the students more concerned with ability than the interview data or the questionnaire data reveal?

This question is impossible to answer. However, we doubt that dissembling was common, because most of the interviews had an open, candid feel to them. Also, if protecting a sense of self-worth was important to these students, then one might have expected differences between success and failure attributions. If lack of ability was downplayed as a cause of failure, then ability would have been highlighted as a cause of success. This did not happen.

A point of divergence between the interview data and the questionnaire did emerge. Although use of good study strategies (for success) and not using good study strategies (for failure) were rated as quite important attributions in the questionnaire, there was virtually no mention of them in the interviews.

The third focus of the present study was the layers or sequence of attributions that students use to account for success and failure. Our analyses demonstrate that students usually see success and failure to be the result of multiple related causes. The most common linkage was the interest/effort (boredom/lack of effort) one, though often students perceived more elaborate linkages involving interest, effort, stimulating teaching, and relevance of the subject matter. It was interesting to note individual differences among students in sequences involving lack of prior knowledge. Some students saw lack of prior knowledge as a cause of failure; other students recognised their lack of prior knowledge as a handicap, but but saw it as a challenge to overcome and achieve success.

It can be argued then that the typical questionnaire approach to success and failure attributions may present a somewhat over-simplified picture of students' causal analyses. This may be particularly the case for adults and older adolescents who are more capable of self-reflection than children and younger adolescents. Additionally, there is the danger in a questionnaire of "putting words into their mouths." As noted earlier, study strategies emerged as important in the questionnaire data but were scarcely mentioned in the interviews.

One of the most noteworthy findings of the present study was the emergence of interest (and its downside, boredom) as a significant motivational variable. Interest was the most frequently mentioned spontaneous attribution students made to account for success. In fact, the connected attribution, effort (for example, I was interested in it so I worked hard) sometimes was not mentioned at all, as though the students did not consider the time they spent on the subject to be work.

Schiefele (1991) argues that contemporary motivational research "has clearly neglected some aspects of interest that are highly significant from theoretical and educational points of view" (p. 299). He notes that early attention to interest in the work of Herbart, Dewey, and James was lost in the march of behaviorism. Further, though recent motivational research makes reference to interest in relation to constructs such as intrinsic motivation and a mastery-orientation, the term remains rather vague and undefined.

Interest can be considered in two ways: as a relatively enduring preference for certain topics; and as a state induced by situational

cues. In relation to situational cues, there has been considerable work done on ways of making text interesting (for a review see Hidi, 1990). It is argued that with both dispositional and situational approaches, interest elicits a spontaneous rather than a selective allocation of attention (Hidi, 1990). Interest has been tied to the use of effective study strategies such as relating new material to prior knowledge, posing questions, searching for main ideas, looking for additional sources of information, and critical evaluation (Schiefele, 1990). Some evidence of this "deep" processing of information emerged in the interviews. Often students who attributed success to interest in a topic made reference to voluntary reading, or to spending a lot of time thinking about the topic.

In sum, the picture that emerges from these interviews, on the whole, is one of mastery-oriented students who attribute success to the work they expend on subjects they find interesting, or enjoyable, or relevant, and who attribute failure to a lack of effort on subjects they find boring or irrelevant. The results highlight interest as a significant motivational variable that deserves more attention, particularly because of its links with attention to and deep processing of information. Comparisons of open-ended interview data with conventional questionnaire data show congruence in terms of the importance of effort attributions in success and failure. Of concern though is the finding that the attribution to strategy use that is rated as important in the questionnaire data was rarely mentioned in the interviews. Finally, the use of interview data has demonstrated that university students' thoughts about the causes of success and failure are more complex and multi-faceted than conventional questionnaire approaches would suggest.

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Appendix 1: Examples of transcripts dealing with success attributions.

The attributional question: Why do you think you went well in ... (the subject nominated by the student)?

"I liked it (biology). Teacher was great. Subject matter was very interesting. And I've always liked science... I put a lot of effort into biology. I could understand it."

"I did work for it (English history) because I liked it. I was interested in it. The teacher was very interested in it as well. If you had any problems you didn't feel wary about going up and asking him. And he was competent, so that sort of rubbed off on you."

"I find it (biology) naturally interesting. I found our lecturer intriguing and very easy to listen to and to ask questions from. It wasn't that I did any more study 'cause I didn't do any more study. Oh actually, I was. I was more prone to pick up something on biology than I was to pick up something on anything else... I went to buy a chemistry book at the second hand book shop and I couldn't find a chemistry book that was cheap enough. And I was looking through the biology books and there was a great big textbook on biology, and so instead of buying a chemistry textbook I bought a biology textbook and stuff like that. And when I read the science magazines, I always go to the biology-based articles before anything in either chemistry or physics."

"I worked. Like, I love history, and so I put a lot of effort into it."

"I think it's because I enjoy it (design). I like sitting down drawing and thinking of design processes. I sort of think in that way, like how things can be done...(Interviewer question: So your interest in it would be strong?) Yes, that would be the main thing. I'm very textiles oriented. I do a lot of my own sewing, and I try to work out how to do a pattern."

"I could relate to it (geography) really easily. It was what I was interested in. Read a lot of things on beaches and waves and things like that I could really get interested in. I think most of the people there were also interested in it, and overall it was a good course. But mainly because I could relate to it and enjoyed actually reading about it and thinking about the weather and stuff like that. And I really enjoy that. I don't mind sitting down and reading through it. I like discovering why these things occurred, why it happened."

"It (syllabus methods) was interesting. Both pedagogy and syllabus methods are about teaching. I related to it because it was what I will eventually be doing. Using different techniques, so it was interesting to find the different techniques that work. We had to make up a behavioural model, the way we want our students to behave in our classrooms. So it was sort of all related to what we eventually are going to be doing."

"I think the lecturer was a big factor in that. As well I find English and reading books, and that sort of thing, very interesting. So that helped me to study for it and do well every time. (Interviewer question: Do you think it had anything to do with the fact that you had a fairly good record with English before you came to university?) Yes, I think that definitely helped, because I had confidence in my ability, and I enjoyed it, because I'd always gotten positive feedback

from that. And I'd really enjoyed English. That really helped, you know."

"We have a string class which is a practical class, where you have to work out how to play a couple of stringed instruments. We got marks back for cello and guitar, so it was a bit of an experience for me. I've quite enjoyed it because it was something I hadn't done before and wanted a bit of a challenge. (Interviewer question: Was there any other reason you think you were successful?) The tutors were excellent. They were prepared to help us. We were all nondescript players, so we had to start from very very basics."

"Probably because I've done it (geography) since Year 7 to Year 12 and again at Uni. I just like it. I like learning about people and the environment. (Interviewer question: And do you think you're good at it too? Or is it something that you enjoy?) Yeah, it's something that I enjoy, so therefore I will try harder, and I will work more at it. If I didn't enjoy it then I wouldn't bother."

Appendix 2: Examples of transcripts dealing with failure attributions.

The attributional question: Why do you think you haven't done well in ... (the subject nominated by the student)?

"I used to fail maths at school constantly, constantly. And that was just because I didn't study for it. I wouldn't, I virtually came to the conclusion that I would rather spend the time studying for other things I knew I could do well in, and just put all the effort into that. I'd just let maths slide right down because I wasn't interested."

"I think I just became really bored with it (poetry). And I didn't particularly enjoy the lecturer's style of teaching. I found it very boring and monotonous. And when it came to preparing for the tasks we had to do, I found I wasn't very enthusiastic because of that....The

tasks weren't interesting.... and because it was one of my least favourite subjects, I left it till the last minute."

"I'm not really into chemistry. I don't really see the point. I don't see the relevancy to what I want to do. So I sort of put it aside, and do things that are more important to what I want to do. Like I think they're going to help me further... I really don't concentrate on it at all."

"I did it (mathematics) poorly because it was really deep maths, really deep maths. I mean the lecturer's a good lecturer, but I think I'm not

interested the way I am in syllabus. I tend to neglect it a bit more. (Interviewer question: Would you say you're less confident of your ability?) Yes, I suppose so."

"I'm finding chemistry a bit hard because I didn't do it for the HSC. We start back at the basics, but we go pretty quick. So I find I've got to put a lot of extra work into it, because it's a lot harder to understand. A lot of people have already done it for the HSC, so people who haven't are finding it pretty difficult."

"Basically because I find it (pedagogy) really boring. If I'm really bored with something, I can't put my attention to it, and, you know, learn it...I was really bored. I can't think of the word, it's just a chore. Like, it's not interesting."

"Because I never did any science in Year 11 or 12. In Year 9 I came at the top of my class, so they put me up a grade in science to the advanced class. And then I was just behind all the other students and I came last in the class the whole way along, and that put me off. So I didn't do any in Year 11 and 12. So I had to sort of start again when I came here. (Interviewer question: So do you feel you don't have any ability in chemistry, that you don't have any understanding in that area?) Yes, but then if I've got to do the chemistry for food technology, then it just clicks. And there's no problem with that. It's the other things that I just don't understand."

"I didn't see the relevance (of maths in senior high school). It was all formulas and figures, and I sort of got a bit lost in all of it. And I knew I didn't want to spend my time doing that. I was more concentrating on the subjects I enjoyed, because I found they were the easiest to study for. (Interviewer question: Are you saying because you felt you lacked ability you thought I'm not going to bother putting effort into it?) Not exactly. Not a lack of ability. I know if I'd applied myself I could have done it. I felt most of the other subjects would help me at Uni, that sort of thing. So I enjoyed putting the time into them. When it came to maths, I still put time into it. I still studied for it, and I actually ended up passing it. What a surprise. But I just didn't enjoy doing it at all, and I think that lack of enjoyment was sort of reflected in my marking... I wouldn't say it was quality time with it."

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