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Morris, Mary

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A naturalistic investigation into the effectiveness of an attributional retraining programme for academic performance

Mary Morris *

Charles Darwin University, Darwin, Northern Territory, Australia

Abstract

The present study represents a naturalistic investigation into the effectiveness of an attributional retraining programme based on the reformulated Learned Helplessness Model. The current study addressed several methodological issues by assessing attributions and performance outcome measures before and after retraining and employed a control and a placebo control group. A total of 134 students volunteered to participate in a series of workshops. The workshops were held over three consecutive days each week for a total of three weeks. Students attended either a placebo control workshop, an attributional retraining workshop in accord with the reformulated Learned Helplessness Model (internal, stable and global information), or a Stability Retraining Workshop. The present study clearly indicates attributional retraining can successfully manipulate attributions. However, although the workshops successfully altered student's attributions, there was no concomitant improvement in performance. As no significant differences were observed between the three workshop groups on any performance indicator, the superior performance relative to the control group may, in effect, be a consequence of increased self-efficacy and self-esteem obtained by simply attending workshops.

For many university students, some form of academic failure is an inevitable consequence of the educational process. However, the failure experience need not be as serious as failing an examination. In fact, the majority of students are more likely to encounter failure experiences that are comparatively minor in nature (eg., not understanding a particular concept or not being able to locate a reference book). Accordingly, experiencing academic failure is not restricted to poorer students as, undoubtedly, even the best students will experience minor difficulties in the course of an academic year.

Independent of the type or nature of the failure experienced, failure is a negative event that can be either motivating or debilitating, depending on how the experience is explained. According to attributional theories (Weiner, 1979, 1985, 1995; Abramson, Seligman & Teasdale, 1978), if a student experiences failure and attributes their failure to lack of ability, the student is likely to experience affective, motivational and cognitive deficits. In contrast, if a student attributes failure to task difficulty or bad luck, the student should experience no behavioural or affective deficits. Therefore, according to these attributional theories, causal attributions determine, in part, the consequences of a failure experience.

As causal attributions influence behaviour, altering attributions should produce behavioural change (Perry, Hechter, Menec & Weinberg, 1993). When applied to an academic setting,

*Email: mary.morris@cdu.edu.au

altering students' causal attributions for a failure experience to an external, unstable and specific attributional pattern, should negate or reduce any negative behavioural or affective consequences of that experience. This is the rationale underlying attributional retraining programs.

In their pioneering study, Wilson and Linville (1982) attempted to improve the overall academic performance of university students by suggesting their low grades were due to unstable factors rather than stable factors. To manipulate the stability attributions, students in the attributional retraining condition were told grades normally improve from freshman to upper class years. This information was reinforced by showing video-taped interviews of upper-level students who reported their grades had improved since their freshman year. A control group received no attributional information pertaining to grade point averages. Their results indicated that students who had received attribution retraining performed significantly better on sample items from the Grade Record Exam, were less likely to leave college, and had a significantly greater increase in their overall Grade Point Average (G.P.A.) one year following the study, in comparison to the no attributional information group. Similar results have been reported in a population of depressed students (Sharma & Mohan, 2002), optimistic students (Ruthig, Perry, Hall & Hladkyj, 2004) and underachieving students (Wilson & Linville, 1985; Menec et al, 1994).

In contrast, studies by Van Overwalle, Segebarth and Goldchstein (1989) and Martin (2001) demonstrated that the performance of university students did not improve by simply informing students their failure was caused by lack of effort or inappropriate strategies. Similar results were reported by Van Overwalle and De Metsenaere (1990) when they employed a retraining procedure that not only provided attributional retraining but also provided some antecedent information (consistency and finality) in order to increase the strength of the attributional manipulation. In their study students were shown video-taped interviews of second year students who had failed their mid-term examination but had improved their grades on their final examinations (low consistency). Congruent with the elaborative learning technique employed by Hall, Hladkyj, Perry and Ruthig (2004), in order to intensify the cognitive work on the information contained in the video-tape, the participants were asked to write down what they considered to be the most important information provided in the video and their personal reactions to this information. In contrast to the predictions, students who had participated in the attributional retraining did not systematically improve their scores compared to the control group. These results are consistent with Martin (2001) who also reported no change in attributional beliefs or performance after remediation.

In their follow-up study, Van Overwalle and De Metsenaere (1990) employed four experimental conditions: attributional retraining, learning strategy, combined attributional retraining and learning strategy, and a control condition. Performance outcome measures were the midterm and final year examination results. Consistent with the previous study, although more students in the attributional retraining program passed the examination session, the overall pass rate showed no clear differences between the conditions. This result suggests attributional retraining procedures may be most beneficial to students who are 'at risk' of academic failure. This possibility may, in part, explain the inconsistencies in the literature as the only studies to observe an improvement in overall performance (e.g. Wilson & Linville, 1982, 1985; Menec et al., 1994; Hall, et al., 2004) pre-selected students on the basis of being academically 'at risk'.

However, as with several previous studies cited, these studies do not demonstrate a relationship between improved performance and attributional change as no attributional

measures were obtained. This theoretical and methodological concern has been addressed in studies that have measured attributions before and immediately after the attributional intervention (e.g. Ho & McMurtrie, 1991; Menec, Perry, Struthers and Schonwetter, 1994; Hall et al, 2006). Although academic performance was not assessed, Ho and McMurtrie remediated the attributions of underachieving students who received training in organisational skills, editing and planning strategies. During the training phase the students also received effort attribution feedback, effort plus ability feedback or no attributional feedback. Baseline attributions and post-retraining attributions were assessed by asking students to rate the extent to which ability, luck, effort and task difficulty were responsible for one generalised success and one generalised failure situation. As predicted, the attribution retraining groups substituted adaptive causal attributions for their pre-existing dysfunctional attributions although the effect of this retraining on actual performance was not assessed.

In addition to demonstrating successful remediation, Menec *et al* (1994) and Hall *et al* (2006) also demonstrated a concomitant improvement in academic performance following attributional retraining. Although employing a highly select group of high and low academic achieving undergraduate students, this study demonstrated improved performance following retraining for at-risk students but no effect of retraining on performance for successful students.

Green-Emrich and Altmaier (1991) implemented a retraining program based on the reformulated Learned Helplessness Model. In their study, undergraduate students completed the Attributional Style Questionnaire and were assigned to either the Non-adaptive, Non-adaptive Retraining or Adaptive group on the basis of their composite attribution score. Students in the retraining group participated in a structured group counselling session and were explicitly instructed that some types of attributions were more adaptive (external, unstable, specific). This information was then applied to personal negative events the students had experienced. After remediation, participants were individually exposed to an uncontrollable failure experience. After this task, the participants completed a brief ASQ-like questionnaire and attempted twenty solvable anagrams. In accord with the predictions, the participants who received attributional retraining made more adaptive attributions and reported lower levels of depression following the uncontrollable task failure in comparison to participants with a similar attributional style who did not receive retraining. In contrast to the prediction of the Learned Helplessness Model, no significant differences were evident between the groups on the anagram task.

Thus, the majority of studies cited above that have implemented an attributional retraining program have demonstrated that adaptive causal attributions are elicited after the training phase. That is, the absolute number of adaptive causal responses has increased in the post training tests. While several studies have assessed attributions both pre- and post-retraining, none of the studies have actually assessed causal attributions and performance, in a general student population, both before and after training to determine if any change in performance is associated with a concomitant change in causal attribution ratings. One method to resolve this issue is to assess attributional style and performance before and after remediation using both 'real' event and 'hypothetical' event attributional measures in a non-selected student population to determine the generalizability of remediation effects. The selection criteria are an important issue as the majority of published studies have selected their participants on the basis of underachievement or an existing maladaptive attributional style (eg. Ho & McMurtrie, 1991). The results of these studies may be somewhat distorted as the participants can, in effect, only improve their performance and attributional ascriptions.

One final point that should be addressed is the durability of the effects of attributional retraining procedures. While some studies (e.g. Van Overwalle and De Metsenaere, 1990) assessed both long-term and short-term performance outcome measures, the majority of studies have tested the target behaviour within a few weeks of the completion of training. As such, it is uncertain whether the change in causal attributions is brief and task-specific or whether it represents an enduring and habitual change in cognition.

In sum, a theoretically and methodologically enhanced study to assess the effectiveness of attributional retraining should (1) not pre-select the participants, (2) assess attributions and outcome measures before and after retraining, (3) employ a control and a placebo control group and 4) assess both the short term and long term effects of remediation. The present study was designed according to these suggestions.

Method

Participant Selection

A total of 134 students, enrolled in an undergraduate Psychology course volunteered to participate in a series of workshops. The self-selected, volunteer sample consisted of 37 males and 93 females (4 did not specify their gender) with an average age of 23.03 years.

Formation of Experimental Groups

Students were required to attend workshops in the latter part of the semester that were designed to provide additional assistance to students in completing their assessments and preparing for their examinations. The workshops were held over three consecutive days each week for a total of three weeks. Workshop one was the placebo control group (N=31) and received no attributional retraining. Students attending workshop two (N=58) received attributional retraining in accord with the reformulated Learned Helplessness Model (internal, stable and global information), while the third workshop group (N=45) received only stability retraining information in an attempt to replicate the Wilson and Linville (1982, 1985) studies. Students who did not attend a workshop were used as a control group (N=232).

Materials

Baseline. A slightly modified version of the Academic Attributional Style Questionnaire (Tiggemann & Crowley, 1992) was completed by all students who volunteered to participate in this study. The questionnaire presented participants with twelve hypothetical bad academic events and each event was rated according to its internality (vs. externality), stability (vs. instability) and globality (vs. specificity). Subjective ratings for each of these dimensions were averaged across events. Students also participated in a practice Short Answer examination which was used as a measure of baseline performance.

Workshop Measures

Real Event Attributions

At the initial workshop, prior to any remediation, a measure of satisfaction with current academic performance was obtained. The students were asked to report the grade they received on their practice examination and to report how satisfied they were with this grade on a 7-point Likert scale ranging from 1 'very unsatisfied' to 7 'very satisfied'. Students were then asked to give one cause for their practice examination performance and to rate this cause on the three attributional dimensions. The grade students expected to receive for their forthcoming end of semester examination was also obtained.

Attributions were assessed at the end of the workshops using a Hypothetical Negative Academic Events Questionnaire developed specifically for this study. The hypothetical academic events were constructed using the same format as the Academic Attributional Style Questionnaire. The academic events used to construct the questionnaire were based on real academic events the students were about to attempt, *viz* a practical report and Short Answer examination. Students responded to these questions in the same format as the Academic Attributional Style Questionnaire.

Post-Workshops Measures

Performance Measures

Two weeks after completing the workshops, the end of semester examination was held. With the explicit permission of the students, the results of this examination were obtained from university records. In addition to the more immediate end of semester examination results, two longer term performance measures, Semester 2 examination results and Final grade, were also obtained and used as performance outcome measures. The grade point average (G.P.A.) of students attending the workshops was obtained from official university records.

Real Event Attributions

Specific Real Event attributions and satisfaction with academic performance were assessed after students received their Semester 1 grade. Examination grades were published in the second week of Semester 2. During this week students were asked to complete a questionnaire relating to their examination performance. Students were asked what grade they received on the examination and to write down the one major cause of their performance. They were then instructed to complete the attributional questions. All students completed the questionnaire within two to five days of the examination results being published.

Preparation and Content of Videos

Three video-tapes, one per experimental group, were produced specifically for this study. The information contained in the video was scripted by the author. Three final year drama students presented the information in the videos.

Information Only Video - Placebo Control Group

This video contained no attributional information and specifically focused on general university life, including resources and facilities available to students (e.g., library tours, Language and Learning Unit). No instruction was given on how the students could improve their performance.

Stability Retraining Video

The stability retraining video depicted a female student and the experimenter discussing her first year at university and, in particular, her experiences in first year Psychology. Only stable/unstable attributional information was presented and indicated that she (1) received low grades and had difficulty with the course at the beginning of the year but had improved her grades by the end-of-year examinations; (2) had made many attempts to improve her grades and to find more adequate study techniques; (3) that insufficient effort, lack of experience, bad luck and inappropriate study strategies, etc., were responsible for her poor performance. Although lack of effort is an internal/unstable cause, and may result in reduced self-esteem, this attribution was included as expectancies for future success are maintained.

Attributional Retraining Video

This video contained information pertaining to the three attributional dimensions. As in the stability information video, the actor discussed their experiences with the experimenter. The internal/external attributional information was presented by a male actor who explained his poor performance in terms of bad luck, task difficulty and insufficient help from tutors. The actor also explicitly stated that lack of ability was not a causal factor. The stable/unstable attributional information video, as described above, was used to impart the stability information. The global/specific attributional information was also presented by a female actor. The student explained: (1) her performance in other subjects was fine but she had performed poorly in Psychology; (2) Psychology was distinctly different to her other subjects as it was more like a science than an arts subject; (3) Psychology required specialised skills, e.g., statistics, practical report writing, etc.; (4) She had not performed as well as she could because she did not know exactly what was required and had not learned the skills required to do well. The causal attributions all indicated the student's poor performance was due to highly specific causes that were related only to Psychology.

Procedures

Non-workshop Group

Students who did not attend the workshops were used as a 'control' group. A non-workshop group has the advantage of enabling the comparison of students who did not attend the workshops, and therefore received no remedial help, with a pure information-only placebo control group and the two retraining groups.

Structure of the Workshops

Workshops were held for three consecutive weeks. During this time practice was given on statistics, practical report writing and examination questions. The workshop sessions were divided into two components - the attributional retraining/no retraining component and the remedial practice exercises.

In week one the students watched the video which was produced specifically for their particular experimental group. The video lasted for approximately 10 minutes. The students, in all three conditions, simply watched the video. No discussion on the content of the video ensued. For the remainder of the workshop the students worked on remedial exercises.

In order to emphasise the attributional information contained in the video, students watched the video again in Week 2. After viewing the video-taped interviews, the students wrote down what they considered to be the most important information contained in the video. A discussion, led by the experimenter, continued until all the areas addressed in the video had been identified. This procedure ensured that some form of cognitive work was achieved on each area. Students in the control group were asked to consider other resources or facilities available to students and were encouraged to discuss their experiences with the group.

Results

Baseline Attributions

Initially, in order to determine if the workshop students constituted a unique subset of the student population, the data from the 125 students who attended the workshops were compared to the data from the 232 students who did not attend. As is evident from Table 1, no significant differences were evident between the workshop and non-workshop students on any attributional dimensions, demographics or performance indicators. As such, the students who attended the workshops do not constitute a unique identifiable subgroup within the course.

Table 1. Comparison of baseline AASQ, performance and demographic details of students who attended the workshops (N=125) and students who did not attend the workshops (N=232).

	Workshop	No Workshop	T value	T prob
Internal	4.89	4.95	-0.67	0.5
Stable	4.09	4.2	-1.16	0.24
Global	4.16	4.15	0.08	0.82
Performance				
Entry Score	364.19	363.32	0.25	0.8
Practice Exam	10.04	10.01	0.08	0.94
Demographics				
Age	23.03	22.35	0.78	0.44
N	125	232		

In order to determine if the attributional retraining differentially altered student's attributions and subsequent performance measures, it was also necessary to ensure the three workshop groups were equivalent before retraining. As is evident from Table 2, no significant differences were observed for any baseline attributional, performance or demographic measures. These results indicate the groups were equivalent before any remedial intervention occurred. As a further methodological test, attributions were also assessed in Week 1 of the workshops. Students who attempted the practice Short Answer examination (N=105) were asked to give a causal explanation for their performance on the practice examination and to rate the cause on the three attribution dimensions. However, as the attributions were made for a real event, students were ascribing causality for a negative (N=29) or positive event (N=76) depending on their performance. No significant differences were observed between the groups when attributions were made for either a positive event, $F(2,75)$ range = .24 to 2.66, $p > .05$, or a negative event, $F(2,28)$ range=.01 to .60, $p > .05$.

Table 2. Results of group comparisons of (a) baseline attributional scores, performance measures and demographic details of students who attended the workshops and (b) attributional ratings for performance on the practice Short Answer examination.

	Workshop Group				F ratio	F prob
	<u>RLH</u>	<u>Stable</u>	<u>Control</u>			
	N=53	N=43	N=29			
(a) Baseline measures						
AASQ Attributions						
Internal	4.89	4.84	4.97	0.23	0.79	
Stable	4.01	4	4.42	2.96	0.06	
Globality	4.15	4.01	4.38	1.77	0.17	
Performance						
Entry Score	363.45	366.8	362.07	0.2	0.82	
Practice Exam	10.14	9.93	10	0.07	0.93	
Demographics						
Age	23.54	21.11	24.9	2.19	0.12	
(b) Real Event Attributions						
Negative Event	N=12	N=7	N=10			
Internal	6.08	5.71	6.3	0.6	0.55	
Stable	4.42	4.43	4.3	0.02	0.98	
Globality	4.38	4.36	4.45	0.01	0.99	
Positive Event	N=33	N=25	N=18			
Internal	6	6.16	5.5	1.99	0.14	
Stable	5.03	4.6	4.28	2.66	0.08	
Globality	4.99	4.84	4.81	0.24	0.79	

In sum, the observed results suggest the group of students who attended the workshops did not differ from the control group of students who did not attend the workshops. Furthermore, the results indicate the workshop groups were equal prior to remediation.

Attributional Retraining

A MANOVA, using the post-remediation negative event attributional dimensions as dependent variables, revealed a significant main effect of workshop, $F(2,114)=7.99$, $p<.01$. As shown in Table 3, subsequent univariate analyses revealed a significant main effect for internality and stability but not for the globality ratings.

Table 3. Descriptive statistics for each workshop group for the negative events (i.e., failed an exam/practical report) assessed post attributional retraining using the ascriptions students gave regarding themselves.

Workshop group	RLH	Stable	Control	F ratio	F prob
	N=48	N=42	N=27		
Internal	4.96	5.45	5.7	5.92	0
Stable	4.08	4.17	4.91	7.07	0
Global	4.52	4.54	5	1.4	0.25

The data were then subjected to Tukey's post hoc analysis. The mean internality score for the reformulated learned helplessness training group (RLH group) ($M=4.96$) was significantly lower, $F(2,117)=5.93$, $p<.01$, than either the control ($M=5.70$) or stable group ($M=5.45$). No significant difference was observed between the control and the stable conditions. This result is consistent with the predictions of the attributional manipulation as only the RLH group received internal attributional information.

Consistent with the predictions, the mean stability ratings for both the RLH group ($M=4.08$) and the Stable group ($M=4.17$) were significantly lower, $F(2,117)=7.07$, $p<.01$, than the control group ($M=4.91$). As expected, no significant difference was observed between the RLH and Stable groups.

Real Attributions

Approximately 6 weeks after the completion of the retraining workshops and within 2-5 days of receiving their examination grade, all Psychology 1 students were asked to complete a Real Event attributional questionnaire relating to their Short Answer examination performance. Accordingly, depending on their examination result, some of the students were making attributions for a positive event while others were attributing causality for a negative event. As the workshops specifically addressed attributions for negative events, only data from students who failed the Short Answer examination ($N=32$) were used in the analyses.

In order to examine the relation between the student's real attributions for their examination performance and attributional retraining, a MANOVA was performed on the three attributional dimensions using the data from students who failed the Short Answer examination.

Table 4. Mean attribution ratings for the three experimental groups. The results of the one-way analysis of variance for students who failed the Short Answer examination are also given.

	RLH	Stable	Control	F ratio	F prob
	N=13	N=14	N=5		
Real Internal	4.84	5.43	5.6	0.53	0.59
Real Stable	3.77	3.79	4.2	0.18	0.84
Real Global	3.23	2.79	3.6	0.49	0.62

A MANOVA revealed no significant main effect of workshop, $F(2,29)=.46$, $p>.05$. These results suggest the manipulation effect observed in the post training measures may not be an enduring attributional change.

The Effect of Workshop on Performance

It was predicted the RLH and Stable retraining groups would evidence superior performance. This was not the case, particularly for Short Answer 1, as the Control group evidenced the highest mean performance score on all performance outcome measures. A MANOVA revealed no significant main effect of workshop, $F(2,126)=.17$, $p>.05$. The same pattern of results was observed when initial ability was controlled. In summary, although the workshops were successful in altering the students' hypothetical attributions, there was no concomitant improvement on any of the performance outcome measures.

Table 5. Means for the 3 workshop conditions and the four performance outcome measures - Short Answer examination 1 (Short1), Short Answer examination 2 (Short2), Final psychology 1 grade (Final) and G.P.A. The results of the univariate analyses are also presented.

Condition	R.L.H.	Stable	Control	F ratio	F prob
	N=54	N=43	N=29		
Short1	42.94	41.65	47.72	1.99	0.14
Short2	49.37	45.33	50.28	1.46	0.24
Final	5.78	5.68	6.05	0.75	0.48
G.P.A.	2.34	2.24	2.3	0.17	0.85

It is possible the workshops were more beneficial to students who were less academically able. In order to examine this postulate, the performance data of students who failed the practice examination (N=32) were analysed.

Table 6. Means for the 3 workshop conditions and the four performance outcome measures - Short Answer examination 1 (Short1), Short Answer examination 2 (Short2), Final psychology 1 grade (Final) and G.P.A. for students who failed the practice examination.

Condition	R.L.H.	Stable	Control	Univariate	F prob
	N=14	N=9	N=9	F	
Short1	33.85	36.33	41.22	0.93	0.4
Short2	41.82	44.78	41.33	0.27	0.77
Final	4.77	5.49	5.74	1.74	0.19
G.P.A.	1.8	2.07	1.97	0.37	0.69

As is evident from Table 7, the means are generally lower in this group of students relative to the total workshop population indicating these students are less academically able. In opposition to the results reported by Wilson and Linville (1982, 1985) but consistent with previous analyses, a MANOVA revealed no significant main effect of workshop, $F(2,24)=.31$, $p>.05$, on subsequent performance.

Workshop versus No Workshop

As no differences were observed on any performance outcome measures, the data from the three workshop groups were combined and compared to the no-workshop group. A MANOVA was used to compare the two groups on the four performance measures. As the main effect of workshop approached significance, $F(1,258)=2.91$, $p=.09$, the data were also subjected to univariate analysis of variance. As is evident from Table 7, students who attended the workshops achieved significantly higher grades in the two long term overall performance measures (Final and G.P.A.) and tended to perform better in the more specific Psychology examinations than students who did not attend the workshops. A similar pattern of results, as shown in Table 8(b) was observed when the Short Answer practice examination was used as a co-variate.

Table 7. Comparison between (a) the unadjusted performance outcome measures between students who went to the workshops and those who did not attend the workshops and (b) the performance outcome measures for adjusted for the practice Short Answer examination.

	Workshop	No workshop	Univariate F	F
	N=113	N=147		prob
(a) Unadjusted performance means				
Short1	43.6	40.9	3.39	0.07
Short2	48.2	45.41	2.95	0.09
Final	5.81	5.26	11.93	0
G.P.A.	2.3	1.8	21.02	0
(b) Adjusted for practice examination scores				
Short1	44.76	42.78	1.77	0.18
Short2	48.78	45.52	3.75	0.05
Final	6.02	5.61	11.87	0
G.P.A.	2.43	2.18	7.31	0.01

Discussion

The present study represents a naturalistic investigation into the effectiveness of an attributional retraining programme based on the reformulated Learned Helplessness Model. In an attempt to address several methodological issues associated with previous studies, the current study did not pre-select the participants, assessed attributions and performance outcome measures before and after retraining and employed a control and a placebo control group. This design was deemed appropriate to clearly determine the effectiveness of attributional retraining on both causal attributions and subsequent performance.

The Effect of Attributional Retraining on Causal Attributions

Although possible differences (eg., motivation, fear of failure) could exist between the workshop and no workshop students, the workshop groups did not differ from each other on any assessed construct. Consequently, differences between the workshop groups on attributional ratings and performance can be directly attributed to the effects of the attributional manipulation.

Without doubt, the attributional retraining procedures successfully manipulated attributions in the predicted direction. Students who were exposed to attributional information based on the reformulated learned helplessness model made more external and unstable attributions for hypothetical failure events than students who did not receive this attributional information. In addition, students who only received the stable attributional information made more unstable ratings for hypothetical failure events than the control group but did not differ from the reformulated learned helplessness group. These results clearly indicate the attributional manipulation was successful and are consistent with results reported by Green-Emrich and Altmaier (1991) and Fresco *et al* (1995).

However, the potential benefits of attributional retraining appear to be short-lived as the two retraining groups did not differ from each other or from the control group on the longer-term real event attributional measure. However, as the means were in the predicted direction, the failure to observe significant differences between the workshop groups on the longer-term attributional measure may be the result of the small sample size. As such, future research should consider increasing the sample size. Alternately, it is possible the two attributional measures may be conceptually different from each other. More specifically, the post workshop attributional measures were based on hypothetical events and evidenced significant and predicted differences. In contrast, the attributions students gave for their examination performance were based on a real event and evidenced no effect of attributional retraining. It is possible that students do not necessarily use the same attributional pattern for ascribing causality for real events as they do for hypothetical events. Accordingly, future studies examining the nature and duration of attributional change should consider employing both hypothetical and real event attributional measures at the completion of the remediation and again several weeks later.

Attributional Retraining and Performance

As previously discussed, several studies have implemented an attributional retraining programme and reported an improvement in performance following the retraining phase. As the attributional retraining employed in the present study successfully altered students' attributions, it was expected the performance measures would reflect this change. However,

in contrast to this prediction, no differences were observed between the groups on any performance outcome measure. This result remained consistent after initial ability and prior performance were controlled. These results suggest performance did not improve as a result of attributional remediation.

As the majority of previous research studies have selected participants on the basis of either poor performance or lower ability, a sub-sample of students who had failed the practice Short Answer examination was selected. These students were considered under-achievers and it is likely these students also evidence lower ability levels in comparison to students who passed the practice Short Answer examination. Consistent with the previous results, but in contrast to Wilson and Linville (1982, 1985), no significant differences were observed on any performance outcome measure.

In an attempt to reconcile these results with previous studies, the performance of students who attended the workshops was compared to the performance of students who did not attend the workshops. Students who attended the workshops performed better than non-workshop students on all performance outcome measures and significantly better on three of the four performance measures when initial ability was controlled. These results indicate performance may have improved as a consequence of simply attending the workshop. This premise is supported by Hall *et al* (2004) who found cognitive consolidation activities, similar to those presented in remediation workshops, enhanced academic performance. This result may also reflect the notion that students who chose to attend the workshop, although not significantly different from the no workshop students on attributional ratings, ability or initial performance, do vary on some personality trait.

In summary, the attributional retraining programme developed and implemented in the present study addressed the fundamental methodological issues arising from previous studies and has clearly demonstrated the effectiveness of the attributional retraining procedures to manipulate attributions but failed to obtain any support for the ability of attributional retraining to improve academic performance.

Limitations

The reformulated Learned Helplessness Model posits that helplessness is a consequence of the experience of an uncontrollable negative event (eg. redundancy, separation/divorce, rejection). As uncontrollability is a fundamental requirement for the development of helplessness, academic performance may not be an appropriate behaviour to test the predictions of the model as academic performance, in most cases, is not an uncontrollable event given academic performance is a complex behaviour that results from a myriad of causal factors. For example, ability, motivation, interest, importance, social and personal factors, and prior knowledge all influence the actual grade the student receives. As such, it is unlikely one personality trait, attributional style, can sufficiently influence the factors associated with academic performance to produce a significant change on this outcome measure.

The results observed between attributional style and academic performance may simply reflect the notion that our students are exhibiting a self-worth protective bias. According to self-worth theory (Craske, 1988), students tend to behave in ways that maintain and protect a self-concept of high ability. Consequently, in order to avoid the negative implications associated with failure (loss of self esteem and inferences of low ability), students may withhold effort or they may attempt to avoid situations of failure as this type of event implies low ability (Thompson, 1996). If, however, failure is experienced, students who

exhibit a self-worth protective bias tend to deflect the implications of low ability by ascribing the failure to stable and external (task difficulty) or unstable factors (lack of effort) (Craske, 1988). Therefore, in situations of high intellectual evaluative threat, students who exhibit a self-worth protective bias, may exert less effort after failure as a strategic defence mechanism and prefer to feel the guilt associated with low effort (Thompson, 1996) rather than endure the embarrassment associated with low ability.

Aside from these limitations, this study demonstrates the effect of attributional retraining, based on the reformulated Learned Helplessness Model, on both causal attributions and academic performance in a general student population. While only short term benefits were observed on the attributional measures, with no concomitant improvement on the performance outcome measures, this does not negate the potential benefits of implementing an attributional retraining programme within an academic environment as these procedures have demonstrated the capacity to alter attributional tendencies which, in turn, have been demonstrated to affect psychological well-being.

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