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A study to ascertain the effect of structured student tutorial support on student stress, self-esteem and coping

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Coping

Summary The overall aim of this intervention study was to investigate, and measure quantitatively, the psychological effects of structured student tutorial support, on undergraduate students' level of stress, self-esteem and cognitive coping.

A quantitative research approach was adopted using a quasi-experimental design (post-test only, non-equivalent control group design) in order to ascertain whether there were any significant differences between the experimental conditions ($n = 25$) and a control group ($n = 25$). The independent variable was structured student tutorial support and the dependent variables were student stress, self-esteem and cognitive coping. A total of 50 subjects were randomly assigned to either the experimental or control group. Quantitative data were collected using: the Student Nurse Stress Index (Jones, M.C., Johnston, D.W., 1997a. The derivation of a 22 item Student Nurse Stress Index, using exploratory, confirmatory and multi-sample confirmatory factor analytic techniques. In: Paper Presented at the Annual Nursing Research Conference, 18—20th April, University of Wales, Swansea; Jones, M. C. Johnston, D.W., 1999. Derivation of a brief Student Nurse Stress Index. Work and Stress 13(2), 162—181), the Self Esteem Scale (Rosenberg, M., 1965. Society and the Adolesent Self Image. Princeton University Press, Princeton, NJ) and a Linear Analogue Coping Scale (Gammon, J., 1998. Analysis of the stressful effects of hospitalisation and source isolation on coping and psychological constructs. International Journal of Nursing Practice 4(2), 84—97). The methods of data analysis were the application of the t-test and descriptive statistics.

The results indicated a significantly lower level of stress in the experimental group ($t = -3.85$, $p = 0.001$) and a significantly higher self esteem ($t = 4.11$, $p = 0.001$). Results also suggested that students who were provided with structured tutorial support perceived they coped more effectively with their studies ($t = 4.65$, $p = 0.001$).

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The study concluded that structured tutorial support was an influential variable in reducing student stress, promoting self-esteem and facilitating more effective coping, suggests further interventional research is needed to evaluate this further.

Introduction

Registered nurses embarking on a part-time degree programme, have to cope with the competing demands of their studies, their professional responsibilities, their families as well as many other issues (Shipton, 2002). It is recognised that these circumstances are stressful and anxiety provoking (Lo, 2002; Aherne, 2002), often resulting in students finding these competing demands difficult to cope with (Timmins and Kaliszer, 2002). Davey and Robinson (2002) and similarly Ashton and Shuldham (1994) suggest that frequently, women in particular, have to continue to cope with school age families, often fitting in their studies around household chores, which exacerbates feelings of academic stress. A number of strategies to ameliorate this stress have been investigated such as psychological support (Grant-Vallone and Ensher, 2000), exercise (Bolger, 1997; Anshel, 1996), relaxation (Heaman, 1995), touch (Taylor and Lo, 2001), preceptorship (Yonge et al., 2002), and skills training (Mavis, 2001).

However, research that examines how tutorial support influences stress, a students' self-esteem and coping ability is limited (Liddell et al., 2002), and the extent of intervention research in nurse education is limited. Therefore, this intervention study sought to redress imbalances in current research by evaluating academic stress, self-esteem, and coping ability amongst part-time BSc (Hons) Nursing Studies Students, in particular attempting to ascertain whether the provision of structured tutorial support influenced these constructs.

Literature review

A literature search of studies listed in the Cumulative Index of Nursing and Allied Health Literature (CINAHL) database was conducted from 1990–2003, using the terms student stress, tutorial support, self-esteem, anxiety, and coping. To ensure completeness of the review additional words included: cognitive coping, student support, support groups, empowerment, autonomy, intervention studies and psychological effects. A search was also undertaken to identify other studies that had used the research instruments utilised in this study. International studies were used, however foreign language studies were excluded from the review.

The way in which stress is conceptualised has a major impact on the way coping can be defined and studied. Stress arises from a transaction between an individual and the environment, when the individual construes stimuli as damaging, threatening or challenging (Scott et al., 1980). In general, stressful situations involve awareness of demands that exceed available resources, as appraised by the individual. An inclusive definition of stress does not exist, however a comprehensive description of stress has been provided by Ivancevich and Matteson (1990, p. 34)) who state that stress is: 'an adaptive response, mediated by individual differences and/or psychological processes that is a consequence of any external (environmental) action, situation or event that places excessive psychological and/or physical demands on a person'.

Stress is particularly important in education and educational institutions because it has the potential to impede human learning and functioning (Timmins and Kaliszer, 2002).

Coping is the natural counterpart of stress. It generally refers to a person's efforts to anticipate and respond to challenging or troublesome conditions. Many definitions of coping are documented in the literature although widely quoted is that by Folkman and Lazarus (1980, p. 34)) who define coping as 'the cognitive and behavioural efforts made to master, tolerate or reduce external and internal demands and conflicts among them. Such coping efforts serve two main functions: the management or alteration of the stress (problem focused coping) and the regulation of stressful emotions (emotion focused coping)'. It is this definition of coping that is used for this research because it emphasises the importance of the psychosocial element of coping and views the concept from an interactionist perspective.

Studies that examine student stress range from the andototal and descriptive (Ofori and Charlton, 2002; Yonge et al., 2002; Elliot, 2002), to empirically based research (Radcliffe and Lester, 2003; Shipton, 2002; Sheu et al., 2002). For nurses, academic stress includes examinations, long hours of

study, assignments and grades, lack of free time, lecturers' response to students' needs, academic ability and lack of timely feedback (Davey and Robinson, 2002; Kirkland, 1998). It is widely accepted that the experience of academic stress affects students' academic performance (Ofori and Charlton, 2002; Mavis, 2001), their self-esteem (Lo, 2002), the efficacy of their coping (Shipton, 2002; Jones and Johnston, 2000; Mahat, 1998) and can lead to changes in physiological and psychological health (Aherne, 2002; Jones and Johnston, 1997b).

Research by Marker (2001) examined the perceptions of student stress from the nurse educator's (n = 308) perspective. The research noted that nurse educators were aware of the level of stress among undergraduate students and that most nurse educators understood the sources of that stress. However, Marker (2001) argues that nurse educators expressed frustration at their attempts to help students and suggested that more time should be allocated to help students reduce their stress and support them to develop more effective coping skills.

Previous research has indicated that certain interventions have positive influences on the level of stress students' experience. For example interventions have included: use of action learning groups (Heidari and Galvin, 2003); teaching assertiveness (McCabe and Timmins, 2003); reflection in groups (Haddock, 1997); teaching stress management skills (Jones and Johnston, 1996); complimentary therapies (Lindop, 1993); empowerment (Chally, 1992); increasing self awareness, goal setting, adapting work situations, social support, and relaxation (Kunkler and Whittick, 1991) and humour (Warner, 1991) each have shown a positive effect on stress and coping. Other research studies, which have examined a specific intervention, are highlighted in Table 1.

Benefits of tutorial support

Litchfield (2001) notes that there exists much inconsistency in the way students are supported during their academic studies. Significantly, little research has been undertaken that investigates the effects of one-to-one tutorials (Wilson, 1996; Jacques, 1994) or small group tutorials (Liddell et al., 2002; Ashton and Shuldham, 1994). However, some research has examined the effect of student support on student performance (Heidari and Galvin, 2003), levels of stress (Radcliffe and Lester, 2003) and knowledge and skills development (Liddell et al., 2002).

An interesting, and innovative study was undertaken by Heidari and Galvin (2003) who, using focus groups, evaluated the effect of action learning groups on student's learning and education (n = 288). From their research Heidari and Galvin (2003) argue that significantly one of the major advantages of action learning groups, identified by students, was the support they received from both lecturers and other students. Students were able to express their feelings and worries, 'let off steam' and discuss different issues, which Heidari and Galvin (2003) note facilitated learning and promoted student confidence. Liddell et al. (2002) utilising a quasi-experimental study, evaluated the effect of tutorials in supporting medical students acquire basic procedural skills. The results indicated that students in the experimental group were more confident in applying their skills in practice and utilised their skills more frequently.

Evident from this small body of research suggests that providing structured support for an individual attempting to cope with a stressful academic event may be an influential variable affecting an individual's coping process (Earwaker, 1992).

The effects of self-esteem on education

A considerable amount of research exists that examines the relationship between self-esteem and educational ability (Begley and White, 2003; Hughes et al., 2003; Lo, 2002). Social cognitive theory suggests self-efficacy affects one's behaviour (Bandura and Jourden, 1991), and an individuals perceptions about their own abilities and characteristics, guide their behaviour and how much effort they will put into their performance (Bandura, 1977; Bandura and Jourden, 1991). Lo (2002) evaluated perceived levels of stress, coping and self-esteem amongst Australian undergraduate nursing students, suggesting an association between chronic stress, avoidance behaviour and negative self-esteem. A higher self-esteem was correlated with proactive coping and with more senior students.

Methodology

The overall aim for this intervention study was to investigate and quantitatively measure, the psychological effects of structured tutorial support, on students' level of stress, their self-esteem, and to ascertain its influence on cognitive coping. In order to test the above, a number of specific hypotheses were tested:

Table 1 Intervention studies

Research	Intervention	Results
Taylor and Lo (2001)	Healing touch	No effects of healing touch on the coping ability, self-esteem and general health. However, subjects found the experience positive
Grant-Vallone and Ensher (2000)	Student peer-mentoring programme. Psychosocial and instrumental support given	Students were more satisfied with increased levels of psychosocial and instrumental support.
Bolger (1997)	Exercise programme	Exercise was found to be an effective stress management and provided additional benefits
Anshel (1996)	A 10-week aerobic exercise and progressive relaxation training programme, evaluating it effect on somatic, emotional, and behavioural response to acute stress.	Analysis of results indicated that aerobic exercisers in comparison with the other research groups responded to acute stress with more positive affect, lower stressor task heart rate, reduced systolic blood pressure and superior motor performance.
Jones and Johnston (1996)	Stress management skills	Stress management significantly reduced affective distress and increases adaptive coping in both clinical and academic settings
Heaman (1995)	Didactic information, quieting response training, biofeedback-aided relaxation	Reduction in anxiety amongst students in experimental group. No difference in physiological measures
Schaufeli (1995)	Didactic information giving, relaxation training and cognitive stress training	Significant reduction in emotional and somatic symptoms following intervention
Godbey and Courage (1994)	Cognitive behavioural stress reduction techniques and study skills training	Lower anxiety scores amongst students in experimental group
Lee and Crockett (1994)	Assertiveness training rational emotive therapy	Experimental group had lower scores on perceived stress scale and higher assertiveness scores
Stephens (1992)	Imagery, progressive muscular relaxation	Greater reduction in anxiety in imagery and imagery and progressive muscular relaxation groups.
Speck (1990)	Guided imagery, relaxation training using audiotapes	Intervention group had lover anxiety
Michie and Ridout (1990)	Two day course. Didactic information giving, self awareness and skills training	Reduction in anxiety levels and an increase in job satisfaction

(A) To test whether students who are given structured tutorial support experience less stress.
(B) To test whether students who are given structured tutorial support experience a higher self-esteem.
(C) To test whether students who are given structure tutorial support personally perceive they are coping more effectively with the degree programme and their studies.

Design

This quantitative intervention study utilised a quasi-experimental design. Precisely, this was the post-test only, non-equivalent control group design, meaning the design did not involve any pre-testing of the subjects and the two research groups were not matched to reduce potential confounding variables.

Sample

A total of 50 subjects, were randomly selected for the study, from a total population of 150. This was achieved by including the names, of all students meeting the sample criteria, on a data base and allowing the computer to randomly selecting 50. Subsequently, subjects were randomly assigned into the experimental group ($n = 25$) or the control group ($n = 25$), by the use of 25 green and 25 blue counters, respectively, drawn from a cloth bag. A subject was defined as an registered nurse, in full-time employment between the age of 25—55, and undertaking a part-time BSc (Hons) Nursing Studies degree programme.

Research procedure

The subjects having met the research sample criteria, and randomly assigned into the experimental group or the control group were all given a written explanation, which indicated the purpose of the research and what was expected of them as research subjects. On agreeing to participate in the study, subjects were given a written consent form to sign.

Experimental group procedure

Structured tutorial support was given for one academic year, by the researcher, to all subjects in the experimental group. The precise nature of this structured tutorial support is noted in Tables 2 and 3. Many of the support interventions utilised have been used in previous research and noted in the literature as being effective support mechanisms (Gammon, 1997; Wilson, 1996; Jones and Johnston, 1996; Warner, 1991).

In addition to the support mechanism listed in Table 2, the researcher adopted the five levels of helping proposed by Wilson (1996). Generally, these helping strategies detailed in Table 3 and are based on students' need or desire for practical help, information, to moan or complain, for advice, or for counselling.

In order to facilitate reliability in the implementation of the research intervention, the support and helping interventions were provided only by the research and were written on an index card, which acted as a prompt to the researcher to ensure that all aspects of the research intervention were consistently applied where appropriate.

The research intervention was applied in two ways. First, the tutorial support and helping interventions were provided to three separate groups of experimental subjects on a fortnightly basis, generally, each tutorial lasted for approximately 45 min. The allocation of subjects into one of the three groups was based on the specific module the student was studying. Additionally, students were given the opportunity to see the researcher on an individual basis, and were supported using the same research interventions. Following the implementation of the above research conditions, post-tests were applied for all 25 subjects.

Control group

Subjects in the control group were not exposed to the structured tutorial support. The control group received the tutorial support that was 'routinely' provided to students on the BSc (Hons) Nursing Studies programme by academic staff. Generally, the

Table 3 Levels of helping utilised

Levels of helping	
Practical help	Doing
Giving information	Informing
Allowing the student to ventilate feelings	Listening
Enabling the student to identify the problem	Challenging
Helping the student to manage the problem	Counselling

Table 2 Interventions utilised to facilitate structured tutorial support

Researcher support interventions for students
Familiarising the student with an unfamiliar situation
Introducing to the student a familiar element to unfamiliar situations
Physical touch
Conveying emotional stability to the student using non-verbal communication
Counselling and helping the student to use his/her own skills to overcome their fears
Clarification of facts
Encouraging verbalisation and ventilation of fears by the student
Facilitating coping techniques and divisional techniques

tutorial system was an 'open door' tutorial policy where tutorial support, which was not structured, was provided on an individual basis when requested students. All the research post-tests were to this group applied at the end of the academic year. Tutorial support tended to be reactive and not proactive.

Data collection

Data was collected using structured, previously validated questionnaires and a linear analogue scale. The research instruments were:

Student nurse stress index

While there is a great deal of descriptive material describing the sources of stress in nursing students, few questionnaires with established reliability and validity exist (Brown, 1996; Snape, 1995; Beck and Srivastava, 1991). Beck and Srivastava (1991) have produced a 43 item questionnaire called the Beck and Srivastava Stress Index (BSSI) which describes sources of stress facing student nurses. The BSSI contains many items which do not apply to the students used in this study. Consequently, the Student Nurse Stress Index, (SNSI) developed by Jones and Johnston (1997a, 1999) was considered pertinent. The SNSI, based on the BSSI, consists of 22 items which ask students to rate on a five point scale how stressful they find various events encountered during their period of study. The SNSI has four factor structure with academic load, clinical concerns, personal problems and interface worries as underlying variables. The scale is quantitative in design and sum scores on items 1—22 give an overall total ranging from 22 to 110.

Self-esteem

This construct was measured using the Self-esteem Assessment Scale, developed by Rosenberg (1965). The scale evaluates the self-acceptance (liking or approval) component of self-esteem. The advantage of this scale is that it has been extensively used in previous research (Begley and White, 2003; Hughes et al., 2003; Buddington, 2002; Gammon and Mulholland, 1996; Hall et al., 1996; DeLongis et al., 1988), and the instrument only consists of 10 questions each having a choice of four responses scored from zero to three. A cumulative score is derived, the maximum score being thirty, and thus the instrument predicts that the higher the score the higher one's self-esteem.

Linear analogue coping scale

Perceived coping was measured using a Linear Analogue Coping Scale, assessing subjects' coping ability in a simple and convenient manner. The linear analogue scale was 100 mm in length with anchors at each end to indicate a subject's assessment of their coping. Subjects' coping ability was scored, by measuring in millimetres, the distance from the lower extreme of the scale to the subject's mark. The lower extreme read: 'Totally unable to cope with my course and studies' and the upper extreme 'Totally able to cope with my course and studies.'

There exists strong evidence suggesting the utility of linear analogue scales in measuring psychological and physical outcomes (Cheing et al., 2002; Gammon, 1997, 1998; Scott, 1994; Gooch, 1989; Gift, 1989; Guyatt et al., 1987), and its validity (Gift, 1989a; Luria, 1975).

Data analysis

The data for all three research instruments were numerically scored and quantified. Each of these quantitative scores were entered on to a raw data sheet, for each subject and then entered into a computer for analysis. Inferential and descriptive statistical tests were performed. Specifically the independent *t*-test was applied to calculate any significant differences between the scores from each research group and descriptive statistics were used to calculate means, standard deviation (SD) and range.

Results

Initially, the scores for each research group were analysed using descriptive statistics, the results of which are illustrated in Tables 4 and 5.

Analysis of the data using the independent *t*-test demonstrated significant differences between the two groups for each of the constructs measured. The mean stress score for subjects in the experimental group (68.7) was lower than the control group (82.9). The differences in means, shown by the *t*-test ($t = -3.85$), was strongly significant at a $p = 0.001$ level. The mean self-esteem score for subjects in the experimental group (19.48) was higher than the control group (14.48). The differences in means, shown by the *t*-test (4.11) was significant at a $p = <0.001$ level. Lastly, the mean coping score for subjects in the research group (73.8) was higher than the control group (60), indicating students who were provided with structured tutorial support believed they coped more effectively with the degree programme. The differences in means shown by the *t*-test (4.65), was significant

Table 4 Descriptive statistics for experimental subjects

Descriptive statistics for experimental subjects							
Variable	Mean	Median	SD	Range	Min	Max	No. of subjects
Stress	68.68	67	12.75	44	47	91	25
Self-esteem	19.48	20	4.52	14	12	28	25
Coping	73.76	72	11.98	44	50	94	25

Table 5 Descriptive statistics for experimental subjects

Descriptive statistics for control subjects							
Variable	Mean	Median	SD	Range	Min	Max	No. of subjects
Stress	82.92	87	13.39	50	54	104	25
Self-esteem	14.84	14	3.39	12	10	22	25
Coping	60.0	59	8.66	36	48	84	25

at a $p = <0.001$ level. These results are summarised in Table 6.

Discussion: theoretical explanations for the research findings

Pertinent to discuss, as a consequence of this research is why should students provided with structured tutorial support have a higher self-esteem, cope more effectively with their academic demands and the stressful situations associated with their degree studies? There are numerous possible explanations for the research findings, which can facilitate an appreciation of the precise dynamics that exist between the constructs evaluated in this study. However, these results must be considered with caution, particularly in view of the constraints of research methodology and the many potential extraneous variables that could have influenced the association between the measured concepts. Consequently, the authority of the research to argue that structured tutorial support does reduce student stress, improve their self-esteem and coping ability may still be called into question.

In their coping model Craig and Edward (1983) suggest that effective coping results in less stress and anxiety, while ineffective coping results in higher levels of stress and anxiety. Similar results have been noted by Gammon (1997) who in a model of coping suggests that the provision of support and information results in more effective coping and consequently less anxiety and stress, with

Table 6 Table to illustrate the mean scores and observed *t*-value for each dependant variable

Research group (1)	Control group (2)	
Mean stress score		Observed *t*-value
68.7	82.9	$t = -3.85$
SD 12.7	SD 13.4	($p = 0.001$)
Range 47—91	Range 54—104	
Mean self-esteem score		Observed *t*-value
19.48	14.48	$t = 4.11$
SD 4.52	SD 3.39	($p = 0.001$)
Range 12—28	Range 10—22	
Mean coping score		Observed *t*-value
73.8	60	$t = 4.65$
SD 12	SD 8.66	($p = 0.001$)
Range 50—94	Range 48—84	

enhanced feelings of control. As previously highlighted in the literature review, stress levels are widely regarded as valid indicators of a person's coping ability (Shipton, 2002; Marker, 2001; Jones and Johnston, 2000; Mahat, 1998; Gammon, 1997, 1998). Tutorial support, like action learning groups (Heidari and Galvin, 2003) familiarises students with unfamiliar academic demands (Wilson, 1996), which it is argued, can result in less stress, a better self-esteem and more effective coping. The findings of this research would suggest that these academic demands are ameliorated by tutorial support by enabling students to be familiarised with the requirements of an academic undergraduate programme and thereby reducing stress, fostering feelings of control, autonomy and promoting more effective coping.

Studies have shown that self-esteem can be positively influenced, which consequently affects coping ability ensuring it is more effective (Hughes et al., 2003; Lo, 2002; Ofori and Charlton, 2002; Russler, 1991). It is argued therefore that self-esteem is influenced by the provision of structured tutorial support because it enables students to acquire skills and knowledge that affect their acceptance, self-confidence, and control of academic demands. Consequently, students maintain their independence and a more realistic perspective of academic and programme demands, ensuring they feel more positive about actively confronting academic requirements, demands and situations perceived as difficult, and therefore more able to cope with them.

Structured tutorial support promotes personal control, empowerment, assertiveness and confidence, thus students experience less uncertainty and cope with academic demands more effectively. Uncertainty, academic demands and loss of control amongst students are derived from many sources, including the novelty of the environment, many new and unique academic requirements, the necessity to demonstrate set learner objectives, dramatic role changes, role conflicts, over-stimulation with unfamiliar events, and competing demands. All these sources of uncertainty are particularly apparent in part-time undergraduate students who are also in full-time employment. Fundamentally these variables prevent a person's coping process being comprehensive and complete, and consequently, Gammon (1997) notes that strategies to overcome this can include common problem focused coping skills such as information seeking, seeking social support, changing aspects of the physical environment or exerting role power to influence a state of events. The research intervention had a noticeable influence in developing students' general assertiveness, which as highlighted by McCabe and Timmins (2003) improves communication and personal confidence, both essential components of effective coping.

A further explanation for the findings of this study is the role that information plays in promoting an individual's autonomy (Reeve, 1998), dignity, empowerment and self-respect (Kuokkanen and Katajisto, 2003). It is argued that information gives individuals increased participation in their education (Chally, 1992), and their performance (Mavis, 2001), the consequences of this is: empowerment, control, improved self-esteem, freedom and improved coping strategies. Information is a form of self-control and political power, and it provides a foundation for taking active responsibility for oneself, enables one to regain self-esteem and offers a sense of usefulness and satisfaction, all important for students on undergraduate nursing programmes.

Limitations

This research has demonstrated some very important findings relating to the support of nursing students and the role of nurse educators. The study has shown that students, provided with structure tutorial support appear to cope more effectively with their studies and consequently have a higher self-esteem and decreased levels of stress.

However, it is important to note that these findings must be considered with care for a variety of methodological reasons. The research, if replicated should have a stronger design and a larger sample. The study omitted to use a pre-test post-test design, if utilised a pre-test post-test design which would establish a baseline and norms of the dependent variables measured, and a larger sample would be necessary to improve the validity and reliability of the research. A further difficulty was the inability of the researcher to exercise tighter control over the research conditions because of the inevitable ethical problems that would result. Therefore, it must be acknowledged that the significant differences measured in this study may have been due to confounding variables, and the extent of their influence in this research was unknown. For example it could be argued that the increased self-esteem in the experimental group was not solely due to the structured tutorials but may relate to other factors like academic achievement. Perhaps if a matched subject design was used then the potential for differences being due to extraneous variable would have been ameliorated.

Lastly, it appears from the results that the stress scale scores may be skewed. Therefore, it could be argued that because the normal distribution of the research sample was not demonstrated the use of a parametric test like the *t*-test was inappropriate and perhaps a Mann—Whitney *U*-test should have been applied.

Conclusions

Despite the limitations, the utilisation of intervention research is positive, and given the limited amount of this type of research in nurse education its design and findings provide a platform for further research of this type.

The findings have some implications for nurse education. This study suggests that nurse educators have a central role in providing students with information and structured tutorial support as part of their academic studies. Nurse educators should consider the need to be more proactive and innovative in the support provided to students and recognise the positive benefits it has on learning. Learning should not be perceived as a stressor, students must be supported to ensure that academic stress is minimised, autonomy is promoted, and self-esteem developed. Nurse education departments should examine and evaluate how students are empowered and their coping abilities maximised, thus improving their self-esteem and academic performance. Consideration should be given to the replication of this study with a stronger research design employed, a larger sample and ensuring that the effects of the structured tutorial programme are linked to student learning outcomes.

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