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Health Education in Teacher Education: Evaluation of Learning Design with Embedded Personal Wellness Learning and Assessment Focus

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Abstract: *This paper describes the use of a personal and professional approach to pre-service teacher education that allows trainee teachers to focus on their own wellbeing as well as how they might improve the wellbeing of their future students. 'Concepts of Wellbeing' was taught to all Bachelor of Education students and included a wellness curriculum, Social and Emotional Learning, and embedded transformative assessment. Mixed methods evaluation research was used to determine student perceptions of the impact on their learning and wellbeing. The main themes that emerged were that assessment was transformative and seen as important to the student's learning; and that students' social connectedness was improved from the interactive nature of the experiential curriculum. This has additional benefits of facilitating student transition to both the academic and social aspects of university life.*

Introduction and Literature Review

Schools around the world have become major settings for the promotion of health and wellbeing. In Australia, classroom teachers are required to consider the development of children's physical, mental, social and emotional health as well as their academic development, particularly in the primary school setting (eg. Victorian Curriculum and Assessment Authority, 2009). However teachers are not provided with additional pre-service or professional learning opportunities to assist them in developing student wellbeing (St Leger, Kolbe, Lee, McCall, & Young, 2007). International researchers in the area of health promotion recognise the critical role of teachers in ensuring success in school based settings, but recommend additional teacher training (Jourdan, Samdal, Diagne, & Carvalho, 2008; Neumark-Sztainer, et al., 2006). Indeed, an international call for action entitled "Schools for health, education and development" has recommended this very investment in building the capabilities of teachers to implement health promotion in schools (Tang, et al., 2008). In the United Kingdom, teacher education in health education was identified as being highly important, and yet highly inadequate in the late 1990's (Walsh & Tilford, 1998). Recent research has demonstrated little change over the past ten years (Speller, et al., 2010). In Australia, pre-service (undergraduate) primary teacher education has had to adapt to increasing curricular demands and roles of teachers in relation to health. However some researchers criticise the pace of that change (Dyson, 2005) even in the area of Health and Physical Education [HPE] teacher preparation (MacDonald, Hunter, Carlson, & Penney, 2002). In most cases, very little health education is provided for generalist primary school teachers to prepare them for the difficult task of developing health and wellbeing in future generations (St Leger, et al., 2007).

While it is important to prepare teachers for their professional classroom responsibilities, pre-service and in-service teachers are not necessarily immune to physical

and psychosocial health issues, and may engage in unhealthy behaviours themselves. There is little research specific to the health behaviours of pre-service teachers, however university students as a whole are known to experience mental health issues (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Schweitzer & Hamilton, 2002) including levels of depression and anxiety higher than matched age controls in the general population (Leahy, et al., 2010). Students also experience high levels of body dissatisfaction (Yager & O'Dea, 2008), problem drinking (Karam, Kypri, & Salamoun, 2007) and poor sleep levels (Steptoe, Peacey, & Wardle, 2006). Once students graduate and enter the workforce, many may still be affected by mental health issues, chronic stress, and problems with time management (Kovess-Masfety, Rios-seidel, & Sevilla-Dedieu, 2007; Kyriacou, 2001). This is further evidenced by the high levels of teacher stress and burnout, especially within the first five years of employment (Goddard, O'Brien, & Goddard, 2006).

Although much research has focussed on teacher stress and burnout, very few efforts have been made to educate future teachers about how to manage the demands of the profession, as well as protecting their own health and wellbeing. Pillay and colleagues (2005) further emphasise the importance of teachers being physically and mentally well in order to nurture their students and develop their potential. The personal health attitudes and behaviours of teachers may be important in ensuring that they can have a positive impact on their students in terms of both learning and wellbeing (Resnicow, et al., 1998).

University subjects and courses are assumed to develop students' academic capabilities, but there may also be opportunities to develop their personal health and wellbeing. The 'Health Promoting Universities' movement is gaining ground in Europe and presents a framework for health promotion in university settings for students and staff (Dooris, 2001). In fact, some have described University settings as "represent[ing] the last chance for systematically educating and enabling a large segment of the adult population to embrace health and wellness" (Wharf Higgins, Lauzon, Yew, Bratseth, & McLeod, 2010) (pg 324). Universities are identified as important settings for health promotion programs that have the potential to create long lasting improvements in health and wellbeing as they are impacting on students at such a formative point in their lives (Keeling, 2002; Meyers & Mobley, 2004). The first year of higher education might therefore be a particularly appropriate time point for such health promotion activities, as students are known to modify their lifestyle and behaviours during their transition to university studies (Bewick, Koutsopoulou, Miles, Slaa, & Barkham, 2010) particularly if students have relocated from rural or regional areas (King, Garrett, Wrench, & Lewis, 2011)

One aspect of the Health Promoting Universities concept includes the development of a wellness curriculum that focuses on student's personal wellbeing. Examples of these curricula can be found in nursing (Button & Davies, 1996), chiropractic (Hawk, Rupert, Hyland, & Odhwani, 2005) and medical education courses (Lee & Graham, 2001). A general wellness elective for all undergraduate students has also been implemented and evaluated in Australia (Goss, Cuddihy, & Michaud-Tomson, 2010; Wharf Higgins, et al., 2010). Goss et al (2010) summarises the recommendations of the Wellness in Higher Education literature by stating that "…curriculum design should foster personal experiences, reflective practice and active, self-managed learning approaches in order to legitimise the adoption of Wellness as a personal lifestyle approach" (p.34). Although others have described a focus on the personal wellbeing of students in a variety of settings, the current paper is the first to describe the use of a wellness curriculum in pre-service teacher education. In addition, a combined personal and professional approach is suggested here, rather than a complete focus on the self.

This paper presents an evaluation of a first year higher education subject that uses a personal and professional approach to encourage pre-service teachers to embrace health and wellness- for themselves and for their future students. The following section provides an overview of the subject Concepts of Wellbeing, including the subject content, approach and assessment. An outline of the theoretical frameworks informing this approach to pre-service

teacher education is then given; followed by a description of the evaluation process, findings from the evaluation, discussion and conclusions.

Health Education in Teacher Education using a Personal and Professional Approach: Concepts of Wellbeing

Concepts of Wellbeing is an undergraduate university subject that was developed in response to a restructure of the Bachelor of Education course at the Bendigo campus of La Trobe University. The intention of this restructure was to establish a foundation in pre-service teacher's physical, personal and social learning (Masters, 2008). This subject is delivered in the first semester of the first year of study for all primary and secondary Bachelor of Education students (Approximate enrolment ~ 340 students each year). Included in this group is a small cohort (n = 35) who will graduate as specialist Health and Physical Education [HPE] teachers. Concepts of Wellbeing was run for the first time in 2008 in a trial capacity and details of this pilot are published elsewhere (Yager, 2009). Several major insights emerged as a result of this trial that have informed current practice.

The focus of this subject is to improve the students' own personal wellbeing, as well as their professional capacity to teach about all areas of health and wellbeing. It aims to do this by engaging them with material on a variety of health topics while modelling good practice in health education. Physical, mental, emotional, social, spiritual, environmental health formed the main structure of the subject. In addition, important health issues for first year students such as: stress and coping with the transition to university; alcohol; sexual health; body image and self esteem were also included.

There were three components to this subject: lectures, tutorials and an independent learning module for each week. As all students in this subject were a part of the common first year, they were grouped together in 'pods' so that they had tutorials for their four subjects with the same group of students. Explanations about the 'pods' concept, and the academic and social benefits of using pods for first –year transition is described elsewhere in this journal (Masters & Donnison, 2010).

An example of the outline of subject activities in 2010 is provided in Table 1.

	Lecture	Workbook Activities	Tutorial	Assessment
1	**Introduction and Overall Big Picture** Definitions of health and wellbeing; what to expect in this subject; Social and Emotional Learning.	Reading: Dimensions of health and wellbeing; Activity: Assess wellbeing and complete a table of the motivation for and barriers to health.	Getting to know you: Student Bingo; Discussion of unit outline, assessment requirements and the LMS; selection of topics for PWP.	Choose topic for Assignment
2	**Emotional Health- Stress and relaxation:** What is stress? What are the effects of stress and anxiety? Assignment information: More details about Stage 1 of the PWP.	Reading: Stress; Activity: Assess stress levels using a quiz, identify your stressors and your own strategies to reduce stress. Implement the strategies and reflect on their success.	Getting to know you: Circle talk; Time Management: Developing a semester and weekly plan; Balancing uni, work and play!	Choose mentor for Assignment
3:	**Social Health – Communication:** Effective communication and conflict resolution as a tertiary student and a teacher; Voice training for teachers: Using and saving voice.	Reading: Social and Emotional Learning; assertive communication; Activities: Brainstorm uses for assertive communication as a student and as a teacher; Practice using "I" statements.	Getting to know you: Talking to someone you haven't met yet; Sharing "I" Statements; Mentor time- read and comment on each other's draft assignment.	Bring Draft of Stage 1, Proposal, to class
4	**Mental Health- Resilience and Self Esteem:** What is self-esteem/ resilience? What is mental health?	Reading: Response-Ability. Activity for after tutorial: Consolidate strength cards and warm fuzzies into a 'Self Portrait'.	Getting to know you: Strength cards activity; "Say something nice" or warm fuzzies activity.	Stage 1: Proposal Due (10%)
5	**Emotional Health- Body Image:** What is Body image? How do the media affect our view of ourselves? Retouching and digital manipulation; The case against dieting.	Activities for after tutorial: Reflect on the lecture content and tutorial activities; Give advice to a young male or female; Complete some activities to improve personal body image.	Getting to know you: Share Self Portraits; Media literacy: Ideal male and female images in the media; Brainstorm responses for talking to students with body image problems.	Stage 1: Proposal returned with grade and feedback
6	**Physical Health- Avoiding illness:** Immune system functioning; How to stay healthy on practicum rounds as a trainee teacher; Common illnesses you	Reading – Hygiene in child care settings; Activity: Develop an action plan for avoiding illness on practicum.	Relaxation: Practical strategies for relaxation as suggested by students in Week 2- Boxing, yoga and Progressive Muscle Relaxation or a laughter workshop depending on	Stage 2: Theoretical & background information due (30%)

	should know as a teacher.		student's suggestions.	
8	**Physical Health- Sexual Health:** Staying Sexually healthy; Approaching Sex Ed in the classroom.	Reading: Sex education opinion piece; Activities: Respond to some questions about opinions on this issue; Reflect on a sexual health topic that is of interest.	Sexual Health: Using Sex Ed language in teaching, banana relays and sexual health question box- ask questions about sexual health, or teaching sex education.	
10	**Physical Health- Food and Exercise:** Balanced eating for optimum health**;** Role modelling eating as a teacher**;** Myths and misconceptions about exercise.	Reading: Dietary guidelines and physical activity guidelines for Australians; Activity: Assessing your intake using a website self-assessment.	Fast Food Challenge for Food Preparation: Fun, easy, healthy budget cooking for home or the classroom; trying new foods.	Stage 2 Returned with grades and comments
11	**Physical Health- Alcohol:** What is normal consumption? What are the harms**?** Physiology of a hangover.	Reading: Fact sheets about alcohol and how it affects the body; Activities: Calculate your BAC, Complete the detox myth busters.	Alcohol: Standard drinks activities, discussion of social norms, and strategies for safer consumption of alcohol.	Stage 3, Reflection (30%) due in class
12	**Environmental Health:** How do surroundings affect learning and health? Environmental impact and green therapy.	Reading: Environmental Health; Activities about the environmental burden of disease; brainstorming table about personal environmental change.	Using School Kitchen Gardens: Planting a seed**;** Brainstorm strategies for cross-curricular teaching using school gardens.	
13	**Final Lecture:** Spiritual Health: Bringing it all together**;** Importance of wellbeing for tertiary students and practicing teachers.	Readings: Spiritual health.	Subject evaluation and feedback**;** Wellbeing Fair- Present artefacts and give feedback to your peers; Photo reflection- journeys.	Stage 3 returned. Stage 4, Artefact (10%) Due in class

Table 1. Concepts of Wellbeing Subject Content

Note: Students were on practicum placement in week seven and were given an independent study week in week nine.

Concepts of Wellbeing serves as an introduction to health education content and pedagogy, predominantly through a focus on personal wellbeing. This approach is based on a number of interrelated theoretical frameworks in health promotion and higher education. In particular, the assessment for this subject is based on the concept of Transformative Learning.

Transformative Learning Embedded in Assessment: The Personal Wellbeing Plan [PWP]

Mezirow first introduced the concept of Transformative Learning in the late 1970's. His current work still describes this concept as a process of changing frames of reference that occurs through communication with others and critical reflection on the assumptions upon which our points of view are based (Mezirow, 1997). Transformative Learning is considered to be central to adult education (Mezirow, 1997) and Patricia Cranton has added that this initial theory has evolved into "a comprehensive and complex description of how learners construe, validate, and reformulate the meaning of their experience" (Cranton 1994, p. 22).

The major assessment for Concepts of Wellbeing is a Personal Wellbeing Plan [PWP]. This assessment required students to identify an area of their physical, mental, emotional, social, spiritual or environmental wellbeing that they wanted to improve. Students chose a range of topics, from improving the quality of their sleep to time or stress management and improving nutrition by eating breakfast or increasing fruit and vegetable consumption. The initiation of fitness programmes was the most common project chosen, though there were a range of foci within this broad category, such as meeting national physical activity guidelines (AustralianGovernent, 2010), improving flexibility or a focus on core strength.

The PWP assessment contained four stages. Stage 1, the *Proposal* required students to present an evidence-based plan for implementation of their behaviour change and to attempt to find peer-reviewed journal articles (for use in stage 2). The proposal was marked and returned to students within one week, with feedback focussing on the development of academic writing and referencing skills. It was assumed that students would initiate their behaviour change after receiving feedback on their proposal. Stage 2 of the assignment, the *Theoretical and Background Information* required the students to access peer reviewed journal articles that related to the area of wellbeing that they had chosen, and respond to a series of structured questions about how the research related to their plan. When students submitted the second stage of their assignment, they were also required to submit the previously graded version of Stage 1. This enabled the markers to comment on student's improvement from the previous assignment, and to indicate further areas that needed work. The 3rd stage of the assignment required students to respond to a series of structured reflective questions about their experiences of behaviour change (*Reflection*). Students again submitted the previous two stages of their PWP with the Reflection, and the grading criteria were such that, if they were still making errors that had been previously corrected, they would lose marks in the area of academic writing and referencing. In the last week of class, students presented stage 4, an *Artefact* or a visual depiction of their project, how it went, and advice they had for others. This had the purpose of allowing students to formally and publically demonstrate their change in attitudes and behaviours, which is congruent with the concept of Counter-Attitudinal Advocacy in the theory of cognitive dissonance (Festinger, 1957; Roehrig, Thompson, Brannick, & van den Berg, 2006).

Although the PWP assessment was not initially designed as a transformative learning experience, it became evident that some students had clearly experienced a major shift in their thoughts, feelings and actions as a result of completing the assessment when it was first implemented in 2009. As a result of these observations, alterations were made to the PWP between 2009 and 2010 in order to enhance opportunities for transformative learning by strengthening the nature of the critical reflection that was required at the end. This study therefore intends to evaluate the impact of Concepts of Wellbeing in terms of both the subject content and assessment.

Research Methods

The aim of this study was to evaluate the impact of a wellness curriculum and transformative assessment on student's personal wellbeing, and their capacity to teach about wellbeing in the future. This study took a mixed methods approach to action research. The researcher was the subject coordinator and shared the teaching load with a tutor. The subject coordinator planned the learning design, and made observations, revisions and reflections in accordance with the four stages of Action research: plan, act, observe, reflect (Carr & Kemmis, 1986). Data was sought from four sources: two separate feedback surveys, the Reflection stage of student's PWP assignments and the staff reflections and observations. Figure One provides an overview of the data collection and analysis that occurred in each of the Action research cycles (Carr & Kemmis, 1986)

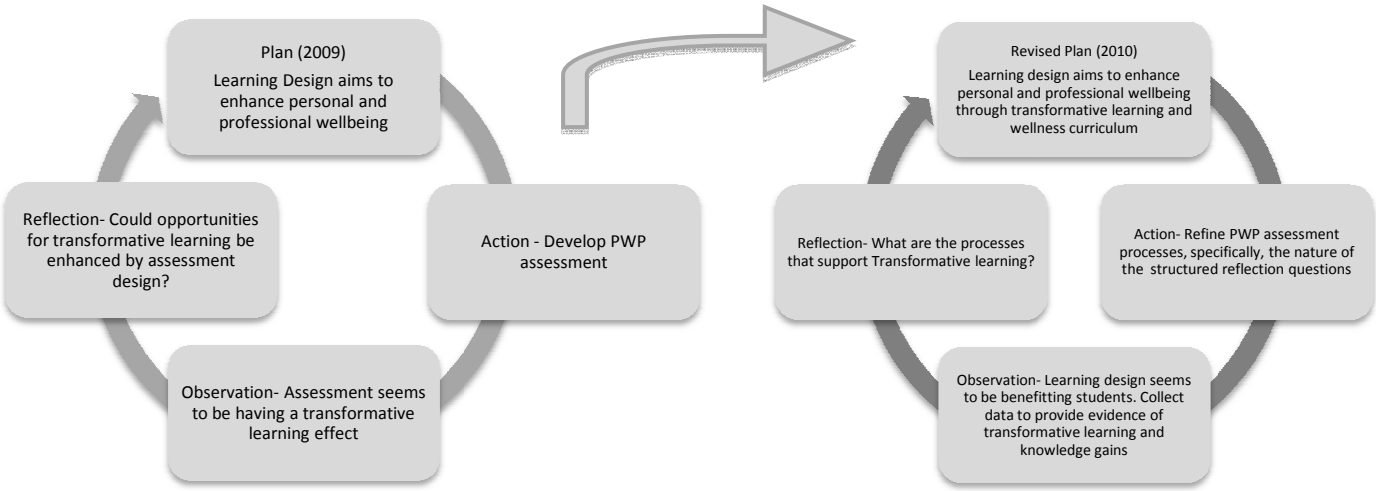

Figure 1: Action Research Cycles for Ongoing Development of the PWP

The Faculty of Education Human Ethics Committee gave approval to conduct this research. Participants were two subsequent cohorts of first year students enrolled in the Faculty of Education at a regional Victorian University in 2009 (N=287) and 2010 (N=332). Measures were conducted during class time in either lectures or tutorials and response rates were therefore dictated by attendance rates rather than refusal to participate.

Data Collection and Analysis

There were four separate sources of data for this study. The methods of data collection and analysis will now be discussed for each of these four data sources

University Student Feedback on Subject [SFS] Surveys

The University requires all staff to collect student responses about their learning experiences in each subject using standard university Student Feedback on Subject [SFS] forms. In 2009, N = 258 out of 287 students returned the survey as it was given to them in the final tutorial for the class (89.8% R.R), and in 2010, N = 146 out of 332 students returned the survey as it was distributed in the final lecture (43.9% R.R). The SFS survey asks students to respond on a likert scale from *strongly disagree (1)* to *strongly agree (5)* to items about their perceived learning and development. These surveys were submitted to the university Curriculum, Teaching and Learning Centre for data collation and descriptive statistical analysis of quantitative data. There are also three open ended questions on this survey:

- Please indicate which two or three specific aspects of this subject have contributed most to your learning;

- Please suggest two or three specific, practical changes which could improve learning in this subject; and
- Do you have any additional comments?

Comments for open-ended questions were subjected to content analysis on a case-by-case basis according to the intended aims of the evaluation.

Faculty First Year Experience Questionnaire [FYEQ]

First year students in the Faculty of Education were invited to complete the First Year Experience Questionnaire [FYEQ] during an event for first year students held in the tenth week of the second semester in 2009 and 2010, approximately six months after the completion of Concepts of Wellbeing. Participation was based on the number of students who attended the event and completed the survey [2009: N=102, 2010: N=103]. No students refused survey completion, but only about a third of first year students attended the event in each year. The First Year Experience survey instrument was developed with input from all staff involved in teaching first year students and was collated by the Course Coordinator. This survey asked a range of questions in order to ascertain student feedback regarding the structure, content, and processes used in the Bachelor of Education course during Semester 1 and Semester 2. Students responded to items on a Likert scale (*strongly disagree 1* - to *strongly agree 5*). Four specific questions were asked about Concepts of Wellbeing and are given in Table 2. Means for each item were determined using descriptive statistical analysis.

Student Reflection Assignments

As the third stage in their PWP assignment in Concepts of Wellbeing, students were required to reflect about their experiences of completing their behaviour change by responding to a series of questions. Responses to two of these questions were analysed for this research:

- Question One: "What were your initial thoughts and feelings at the very beginning? How did your thoughts and feelings change as you continued through your PWP? Were you able to maintain your behaviour change throughout the assignment and will you continue now that the official assignment is over?"
- Question Five asked them "how will knowing more about attempting behaviour change in your topic area help you as a potential teacher?"

Other questions asked about student's experiences as mentors and experiences with using the literature, as well as the advice they would give to others attempting to change their behaviour. In 2010 (but not 2009) the reflection assignments were submitted electronically by the students and the author randomly selected n =100 for analysis using the computer program Research Randomiser (Urbaniak & Plous, 2011). This was done in order to produce a manageable data set for content analysis that would still be representative of the sample. Reflection assignments were therefore not analysed in 2009. The relevant questions (One and five as given above) were copied from the randomly selected assignments and the author utilised content analysis to determine the major themes that were relevant to the research objectives of the evaluation, and then coded and quantified the proportion of students that indicated each theme. Therefore, Question one was coded on a case-by case basis according to student initial reactions to the assignment. The two main themes emerged as being either a positive or a negative experience, and therefore the responses were coded as *positive / negative*. The author also analysed Question one for evidence of transformative learning, identified as a shift in thoughts, feelings or attitudes throughout the assignment. Question five was coded on a case-by-case basis to enable content analysis according to evidence of

development of *knowledge*, *skills* and *attitudes* that would assist students as a teacher in accordance with the aims of the evaluation.

Staff Reflections and Observations

The final data source was the reflections of the staff. The author (who fulfilled the roles of subject coordinator, lecturer and tutor in Concepts of Wellbeing) and the tutor would meet at the conclusion of each week of classes in addition to communication by email to discuss the progress of the subject and the students. Observations arose from emails, meetings and comments from students in tutorials and were recorded in a reflective journal. Summative reflections at the conclusion of the subject were discussed each year with regards to potential improvement of the subject design and assessment for the following year.

Findings

Three main categories of findings emerged from the identification of themes in the analysis of the data. Data from each of the four sources was analysed separately and emergent themes were identified. These themes were then considered in the context of the evaluation in accordance with the aims of this research and organised into three broad categories. The broad categories and the data sources that support them are presented in Figure Two.

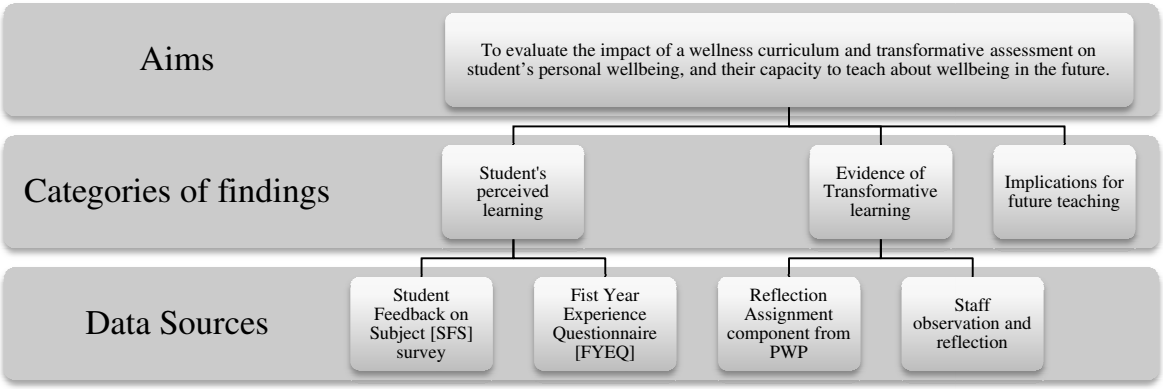

Figure Two: Structure of Data Collection and Findings

Student's Perceptions of Learning in Concepts of Wellbeing

One of the aims of this evaluation was to determine whether Concepts of Wellbeing could result in improvements in student's knowledge in relation to their personal health. Data from the Student Feedback on Subject survey and First Year Experience Questionnaires were used to inform this finding. The results from the quantitative data sources indicated that students recognised Concepts of Wellbeing as contributing to their learning. In their open ended comments, students also indicated that there were perceived benefits to their wellbeing. The results from SFS surveys and the FYEQ in 2009 and 2010 are presented in Table 2.

	Means	
	2009	**2010**
Student Feedback on Subject [SFS] Item		
Assessments are clearly connected to the learning objectives	4.3	4.3
The amount I have learned in this subject is	3.8	3.7
The value of what I have learned in this subject is	3.9	3.9
The quality of this subject is	4.0	4.0
First Year Experience Questionnaire Item		
At least one issue or topic in Concepts of Wellbeing was personally relevant to me	3.78	4.10
The workbook in Concepts of Wellbeing helped me to reflect on my own wellbeing	3.37	3.83
My personal wellbeing was enhanced by completing the Personal Wellbeing Plan in EDU1CW	3.41	3.74
I recognize the value of this subject for my professional role as a teacher	3.44	3.82

Table 2: Student Responses about Learning in EDU1CW on Questionnaires

The written comments from the university Student Feedback on Subject survey were analysed in order to further understand the student's perceptions of their learning in Concepts of Wellbeing. Analysis of the comments revealed both positive and negative perceptions of their learning in Concepts of Wellbeing. Among the positive comments, themes of responses included enjoyment of the subject, interest in the material, and valuing the opportunity to consider their personal wellbeing, as demonstrated in the following quotes:

> *"Overall, I loved this subject. I enjoyed the lectures and tutorials and it was great to have a look at myself rather than just study*."
>
> *"Excellent subject. I felt I gained a lot for both my learning educationally and my personal wellbeing."*
>
> *"The subject was actually fun. I found I paid attention and made an effort to be at every class because I enjoyed myself."*

Not all comments were positive. Two themes also arose from the responses of the small number of students who gave negative written comments on the formal university feedback questionnaires. The first theme that emerged was that some students clearly did not understand the aims of the assessment as a link between their personal wellbeing and the opportunities to use what they have learned about themselves in a professional capacity in schools.

> *" The major assignment … has no useful help to me in the future and is not even about Education and teaching, it is about me…"*
>
> *"I do not understand how this subject is overly useful to my teaching."*

The other theme to emerge from the negative comments was based around the potential relevance of the content to mature age students, defined as students aged over 21 at entry to university. 'Mature age' students make up approximately one third of the student population in the Bachelor of Education course. For example:

> *"This subject is designed for younger people who have not really experienced life away from home. For older students the interest is not high because there is other subjects to think about ahead of sexual health and alcohol etc."*

Evidence of Transformative learning in the PWP Assignment

One of the aims of this evaluation was to evaluate whether the PWP assignment contributed to transformative learning in Concepts of Wellbeing. Evidence supporting the transformative nature of the PWP assignment emerged from two of the data sources: the open-ended comments on the SFS survey, and themes from their reflection assignments. Evidence of transformative learning emerged in relation to shifts in student's knowledge, as well as changes in their attitudes and behaviours.

Shifts in Student Knowledge

The first open ended question on the SFS survey asked students to indicate "which two or three aspects of the subject have contributed most to your learning?". This was designed to collect data about relevance of weekly topic areas such as nutrition, sexual health, and stress to give an indication about which areas most students found to be important and relevant, and assessment was not expected to feature. However in response to this question, 33 out of the 124 students (26.6%) who responded to this item specifically identified the PWP assignment as being one of the most important aspects of the subject that assisted their learning. This represents quite a substantial proportion of the student cohort who identified the assessment as having the most impact on their learning. Some students elaborated on this point with responses such as:

> *"The PWP assignment made me learn a lot more than what I have ever before in every aspect of education."*
> *"The PWP assignment helped a lot with my understanding about behaviour change."*
> *"The PWP contributed most to my learning because it not only taught me but improved my health."*

Initial Attitudes towards assessment

In part one of question one in the reflection assignment, students were asked to describe their initial thoughts and feelings towards the assessment. This was designed to lead into questions about changes in their thoughts and feelings over time in order to gain evidence of transformative learning. Content analysis was used to determine whether student's initial thoughts and feelings were positive or negative. Out of the 100 random reflection assignments that were analysed, n = 46 students described positive, and n = 25 described negative thoughts and feelings at the beginning of the assignment, while n = 29 did not explicitly mention any particular thoughts and feelings. Of those describing positive thoughts and feelings, n = 36 explicitly described excitement as the dominant emotion that they felt at the beginning of the assignment. This is illustrated in the following examples:

- *"I was excited over an opportunity to focus on something positive and researching to do so."*
- *" Upon deciding my PWP topic, I instantly felt excited, yet challenged."*

In many cases, this excitement was described as arising due to being given the opportunity to focus on improving an aspect of their wellbeing that they might have been meaning to work on for some time (n = 10), as shown in the quotes:

- *"Improving my fitness is something that I had wanted to do for some time, but had lacked the motivation, so I looked forward to starting my PWP."*
- *"Initially I was excited for the change, as my study environment and lack of organisation had affected me in previous years… This was finally a chance for me to be motivated to evoke a change that I had required for a while."*

Others expressed a strong inherent sense of determination and motivation (n = 7)

- *"My initial thoughts and feelings at the beginning of my behavioural change were of the need to succeed."*
- *"At the beginning of the PWP I was very motivated to see it through to the end."*

Of those describing negative thoughts and emotions at the initiation of the PWP (n = 25), emotions ranged from nervousness and uncertainty to scepticism and doubt. In most cases, the negative feelings were described as being due to lack of confidence in ability to make the changes that they had set for themselves, as described in the following quote:

- *"I was very apprehensive as to whether I would be able to stick to it."*

Finally, some students described negative thoughts because they were skeptical about the potential benefits of their chosen plan, as illustrated in this quote:

- "*I was unsure as to whether the process of being mindful would help me manage my stress and anxiety*".

Shifts in Student's Attitudes and Behaviours

Part two of question one in the reflection assignment asked students to whether their thoughts and feelings might have changed throughout the process of their behaviour change. This question was designed to capture information and evidence of transformation. Content analysis revealed that the majority of students described changes that served as evidence of a transformative learning experience (n = 79). Two main types of experience emerged, one where students found their behaviour change more difficult (n=38), and one where they found it easier (n=34) than previously expected. Finally, there were n = 23 responses in which there was no evidence of transformation throughout the PWP process as students did not describe a major shift in their thoughts, feelings and understanding during their assignment.

A number of students described a scenario in which they initially expected the process of behaviour change to be easy, but found that changing their behaviour was more difficult than they expected. This seemed to lead most students in this category toward an appreciation for the barriers that must be overcome in order to improve wellbeing. This is illustrated in the following quotes:

- - *"Initially at the start of this process I thought that this would be easy as all I'm doing is trying healthier foods and eating breakfast. As the process continued however I started to have second doubts about continuing as at times I struggled to stay with what I initially planned."*
- *"Initial thoughts to undertaking a personal well being plan was that this will be easy and as I am a person of good health that there would be not much that I would have to change during my journey. However, as I progressed through the plan I felt that it was really difficult to have the determination and self-control to ensure a continued adherence to the strategies that I had undertaken to include in my daily routine. I am sure that in order for me to sustain the improvements I have experienced it will take a lot of will power and self control."*

Alternately, the other half of those who described a transformative learning experience presented a situation in which they initially thought that the process of improving their wellbeing would be difficult. These students were able to overcome the challenges and behaviour change became easier over time as they experienced success or increased the degree to which they valued their wellbeing as described here:

- - *"At the commencement of my behaviour change I was very sceptical of the old adage 'breakfast is the most important meal of the day'. I refused to believe that one little meal at the beginning of each day could make a huge difference in a person's overall health. I also questioned my endurance, dedication and time available, as I wasn't sure if I would make it to the end of the two weeks. Throughout the behaviour*

change I struggled to find time at the beginning of each morning to consume breakfast. I found I have a very busy schedule and need to make sacrifices to ensure I have time to prepare and consume a healthy nutritious breakfast. At the end of the first week I began to feel a difference, my energy and concentration levels began to increase and I found that my memory improved and I was snacking less in the morning. I began to feel confident that I was dedicated enough to make it to the end of the two weeks. Throughout the behaviour change I also noticed I was happier and less irritable. At the end of the two weeks I felt healthier and happier. I will continue to consume breakfast on a daily basis. I noticed almost immediate improvements in my physical health as a direct result of my behaviour change. As well as making a difference in my health, consuming breakfast is easy to do and can be cost effective."

Five students also described a situation in which they experienced transformation in both of these directions, in either order.

Perceived application of the PWP assignment to future teaching

Question five in the reflection assignment asked students to discuss how their PWP experiences may assist them as a teacher. In response to this question, four key themes were identified. The themes were classified as improvements to *knowledge* about the content area, or *skills* that they could use to encourage their students to improve their own wellbeing. In addition, two main themes in relation to changing *attitudes* included: an increased appreciation of the difficult nature of behaviour change, and the importance of personal wellbeing in enabling them to be good teachers. The frequency of responses and examples of quotes from within these themes is presented in Table 3. If a number of themes were present in each response they were coded separately, and so the frequency of the themes exceeds the number of participants. Most students only described one aspect of their skills, knowledge or behaviours that had been enhanced through their PWP (n = 41), while n = 39 students identified two. Fourteen students identified three different aspects of their professional capacity that had been enhanced, while two students identified aspects that were not dominant themes, and four students did not address the question directly in their response.

Area of improvement	Number	Quotes as examples
Knowledge about the content area of their PWP assignment	n = 55	*"Using my knowledge of sleep deprivation I will also be able to educate students on the importance of sleep and how it can affect our health"*
Skills in behaviour change that they could use to assist their own students in developing their wellbeing	n = 47	*"Now that I know more about changing physical inactivity behaviours, and the fact that I have tested it out for myself, I think I will be able to give students in need of the same change that I was the information, support and motivation they need to start their own journey."* *"Knowing this information as a teacher is very important as I will be able to promote eating healthy breakfast every day to the student"*
Attitudes- understanding the difficulty of behaviour change	n = 25	*"After implementing and undertaking this behaviour change, I have a better understanding of the motivation and determination it takes, to persevere to successfully change behaviour. This will assist me as a potential teacher, as I am able to understand how a student may think or feel, when they are attempting to change a specific behaviour of their own."* *"More importantly considering that the physical activity message is being constantly preached in schools I will be able to recognise that some students see physical activity as a chore and hopefully combine physical activity into the curriculum in a fun way removing the negative connotations and mindset related to physical activity for these students."*
Attitudes- understanding the need for personal wellbeing for success in their future teaching career	n = 31	*"As a potential teacher I can see this PWP helping with my planning and time management skills. But mostly it will help me be a more happy and approachable teacher to the students. As I believe a happy teacher equals happy students and will make time in the classroom a better expedience for all."* *"As a teacher I can also use my positive experiences of consuming breakfast to concentrate and work more effective in the workplace."*

Table 3: Student reflections on what they had gained from the PWP assignment that they think will assist them in becoming a better teacher

There is therefore evidence that the PWP assignment was effective in developing student's knowledge, beliefs and attitudes, and skills, both for developing their own wellbeing, and for teaching about health and wellbeing in schools.

Discussion

This study reports on an evaluation of Concepts of Wellbeing, a first year first semester subject in the Bachelor of Education that aims to improve the personal wellbeing of pre-service teachers and to assist in their future teaching about health. A variety of indicators suggest that this subject was recognised by the students as having benefits for their personal wellbeing, and there was evidence that transformative learning occurred during the PWP assignment. This transformative learning appears to have caused shifts in student's knowledge, and also their attitudes and behaviours towards health, and health behaviour change.

The findings of this study indicate that the personal health focus of the subject materials in a 'wellness curriculum' contributed to student's learning. Students were able to recognise this focus as being important for their personal health as students and teachers, and for their future capacity to improve wellbeing in schools. Although there were difficulties in making subject content applicable to a range of personal health contexts, evaluations of other subjects including a wellness curriculum have also found this approach to be successful (Goss, et al., 2010; Wharf Higgins, et al., 2010). There is now good evidence that this wellness approach that focuses on individual health behaviour change can be effective in improving total wellness, including nutrition, social, emotional, environmental and occupational health (Wharf Higgins, et al., 2010). The theoretical explanations of the effectiveness of this approach require further investigation and will be the subject of future research. Other authors have suggested that the success of this approach may be due to the experiential nature of the subject content or the fact that it taps in to affective as well as cognitive domains (Goss, et al., 2010; Hawk, et al., 2005; Wharf Higgins, et al., 2010). In this study, impacts on knowledge, beliefs and behaviour also seemed to emerge from the transformative learning that occurred in the Personal Wellbeing Plan assignment.

The PWP seems to contribute to student's personal wellbeing and their capacity to eventually teach about such topics by engaging them in a transformative learning experience. Without knowing it, the authors developed this assessment in accordance with the Ten Phases of Transformative Learning developed by Mezirow (1997). Further refinements to assessment design through action research cycles have emphasised the opportunities for transformative learning. In particular, the focus on the reflection assignment has been strengthened in order to facilitate the student's understanding of the shifts that have taken place in their knowledge, beliefs and behaviour. According to Mezirow's theory (1997), Reflection allows learners the opportunity to change their frame of reference, and generate a personal understanding of issues or beliefs. Reflection is largely used in pre-service teacher education to improve pedagogical knowledge and application (Rodman, 2010). It could be equally as important for pre-service teachers to examine their health and wellbeing beliefs and attitudes through structured reflective processes.

There were many limitations in the capacity of this action research project to determine potential impact of this subject on student's personal and professional lives. The data was largely obtained through naturally occurring data sources, and no direct quantitative evaluation of the changes in student's knowledge, beliefs or behaviours was obtained. A greater understanding of the impact on student's personal wellbeing could be determined through the use of a pre/post experimental intervention design. However in higher education, numerous factors confound exist, the main one being the establishment of an appropriate control group. In addition the concept of 'wellness' or 'wellbeing' is notoriously difficult to measure (Goss, et al., 2010). In addition, longitudinal research would be required in order to enable researchers to accurately determine the impact of a personal and professional undergraduate curriculum on teacher's future professional capabilities, and this research would also have its challenges. Nevertheless, the range of data sources informing this

evaluation and the depth of response allowed by the student reflection assignment as a data source are strengths of this project.

Conclusion

This paper has presented evidence for the inclusion of health education in teacher education through the use of a personal and professional approach. Evaluations of student perceptions of the improvements to their wellbeing indicate that it is possible to improve the personal wellbeing of pre-service teacher education students using a wellness curriculum. The PWP assessment also facilitated the development of wellbeing by encouraging transformative learning. Furthermore, students were able to identify the knowledge, attitudes and skills that they had developed during the PWP assessment that would be relevant to their future teaching careers. This subject design is particularly appropriate for teacher education given the necessity of understanding the value, pedagogies and complexities of health education in schools. This approach might then assist pre-service teachers in coping with the demands of university life and the stresses of the first years of employment. Maintaining teacher wellbeing is critical for enabling them to fulfil important role of developing the health and wellbeing of future generations.

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