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教育部教學實踐研究計畫成果 完整報告

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培育大學護理系學生之安寧療護態度、素養、自我效能：轉化學習經驗反思策略教學之成效評估

Be the Ultimate Caregiver: A Control Study to Evaluate Teaching Effectiveness of Transformative and Experiential Learning Strategies to Cultivate Palliative Care Attitude, Competence, and Self-efficacy in Baccalaureate Nursing Students

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計畫中文摘要

高等護理教育本應著重人文素養，成為培育末期照護實務人才之搖籃。然國內並無專以「安寧素養能力」為本之科系，雖各界呼籲護理基礎必修課目需融合生死教育元素，僅少數大學護理系提供安寧療護教育與合宜機構訓練。護生乍入職場，實有困難提供末期重症病患與家屬全人且優質之照護。因應社會逐漸老年化渴求尊嚴死，本研究中教育措施已實施六年，以培育「終極關懷者」為宗旨，依據「轉化學習與經驗反思教育理論」設計教材、課室活動、及作業評量，旨在提升護生安寧素養、態度、與自我效能。為探討此策略教學之成效，採準實驗前後測比較性設計，以某醫學院護理系 136 位學生為方便樣本，實驗組完成安寧選修課程（為期 12 周課室參與腫瘤安寧病房見習），控制對照組則為參與共同必修課但無安寧教育措施介入之同班同學。全體受試者完成「大學護生安寧療護素養能力問卷」，比較兩組前後測分數態度素養與自我效能之變化，分析修課學生之課程滿意度評值、與各教學策略之評分與質性意見等。結果顯示以安寧素養為本之大學教育選修課程，可提升照護末期病人知能，而轉化學習與經驗反思之策略教學則有改變學生生命態度與自我效能之成效，希冀提供未來大學護理教育者與安寧療護政策發展者參考。

關鍵字：

教學策略與成效，轉化與經驗反思學習，大學護理系學生，安寧療護素養能力與態度，自我效能

計畫英文摘要 English Abstract

Undergraduate nursing programs in Higher Education are anticipated as educational cradles to emphasize humanity and equip health professionals in providing holistic quality care for terminal patients and their families. However, baccalaureate curricula in Taiwan often fail to provide competency-base education of palliative care. Despite multiple calls to incorporate end-of-life care contents in nursing core courses, only a few nursing programs offer such adequate didactic lectures and/or clinical experiences in qualified hospice institutions. Palliative care competency of bachelor-prepared nurses, especially those newly graduates, may not suit the national market needs. Responding to the desire of dignified deaths in this aging society, an elective course was designed to address the imminent need to prioritize and discover effective teaching-learning strategies that transform nursing students into ultimate palliative care providers. The purpose of this control study is to evaluate teaching effectiveness from Transformative and Experiential Learning strategies, on baccalaureate nursing students' attitudinal, competence, and self-efficacy in providing palliative care. In this non-equivalent control-group study, a quasi-experimental pretest-posttest design was employed to use a convenience sample of junior students enrolled in a baccalaureate nursing program of a Northern Taiwan Medical College. A total of 136 participants participated the study in which 63 (n=63) have taken the elective course, and the remaining absent from the class experience were considered as the control group. The teaching effectiveness of the intervention in relation to palliative care attitudes, self-report competence, and self-efficacy were assessed; a few well-accepted instruments were administered to the intervention group, both at the beginning and the end of the course, along with a strategy rating tool and the conventional course evaluation required by the college. Due to the pandemic situation in early 2021, the designed follow-up after 1 month was not able to be administered to the experiential group for the maintenance effectiveness. Results have shown efficacy of the educational intervention in attitudinal and competency categories, and findings drown from this study would allow nurse educators to reset teaching-learning priorities; through creative, appealing, and effective strategies, palliative care competency could be cultivated among nursing undergraduates and benefit terminal patients and their families.

Keywords:
Teaching strategies and effectiveness, Transformative and experiential learning, Baccalaureate nursing students, Palliative care competence, Attitude toward palliative care, Self-efficacy

SIGNIFICANCE OF THIS EDUCATIONAL ISSUE

In our aging society, the fundamental human rights of patient autonomy and dignified deaths are increasingly endorsed. The recently executed advance care planning (ACP), legislated by Hospice Palliative Care Act and Patient Autonomy Law in 2019, reflects a social trend to facilitate quality death and dying. Undergraduate programs in Higher Education are anticipated, as educational cradles, to equip nurse professionals in providing quality, holistic care for terminal patients and their families. However, baccalaureate curricula in Taiwan often fail to provide competency-base end-of-life (EOL) education. Despite multiples calls to incorporate palliative care contents in 4-year bachelor of science in nursing (BSN) core courses, only a few programs offer adequate didactic and clinical experiences in qualified hospice institutions. There exists an imminent need to prioritize and discover teaching strategies that may effectively transform nursing students into ultimate palliative care providers. The PI has designed and primarily taught the educational intervention course for the past six years. The educational intervention, with a theoretical basis and comprehensive teaching resources from the National Higher Education Sprout Project, is in line with the overarching goals of school development. Quality teaching strategies and multiple learning assignments/assessments have been chosen to cultivate nursing students' attitude, competence, and self-efficacy in providing palliative care. Through transformative and experiential teaching, learners have great potentials to obtain systematic knowledge, acquire compassion and empathy, and increase situational confidence when dealing with death and dying. With positive feedback from prior students, it is time to provide evidence-base support to test teaching effectiveness; this is also the first innovative attempt to employ a unique, rigorous quasi-experimental design in baccalaureate hospice education. Results drown from this educational control study would allow nurse educators to set education and policy priorities in selecting effective teaching strategies to promote palliative care.

INTRODUCTION

While dignified death and quality of end-of-life are increasingly endorsed in an aging society, undergraduate programs in Higher Education are anticipated, as educational cradles, to equip nurse professionals in providing quality, holistic care for terminal patients and their families. Recent research suggests that through transformative and experiential teaching, learners have great potentials to obtain systematic knowledge, acquire compassion and empathy, and increase situational confidence when dealing with death and dying.

However, several pitfalls were found in current baccalaureate curricula to hinder Taiwanese nursing undergraduates receiving competency-base end-of-life education; nowadays only a few programs offer comprehensive didactic lectures and clinical experiences in qualified hospice institutions. Nurse educators need to provide evidence-based support to prioritize teaching strategies so that nursing students may utilize learned competencies and effectively transform into ultimate palliative care providers. It is also time for a rigorous study to test teaching effectiveness in baccalaureate hospice education where outcomes of nursing students' attitude, competence, and self-efficacy in providing palliative care may be properly evaluated by adequate measurements with sound psychometrics.

PURPOSE

The purpose of this control study is to evaluate effectiveness in a unique elective nursing course "Palliative Care in Nursing Practice." Teaching strategies utilized in this course are drawn from educational theories of Transformative and Experiential Learning, with major objectives to enhance baccalaureate nursing students' attitudes, competence, and self-efficacy in providing palliative care to terminal patients and their families. This study attempts to understand whether junior nursing students' palliative care competence may be efficaciously cultivated through a 12-week educational intervention, and further maintained in real clinical situations after 1 month. Specific research questions are as follows:

1. Do junior nursing students change their attitude, competence, and self-efficacy after completing an elective palliative care course?
2. Will students continue to change upon completion of the course, even after they enter into the clinical field (1 month later)?
3. Are there differences in relation to nursing students' attitude, competence and self-efficacy in providing palliative care between those who have taken the course and those who have not?
4. Among those transformative and experiential teaching strategies, which one is perceived to be most useful and acceptable in cultivating core competence, changing attitude, and improving self-efficacy?

LITERATURE REVIEW

Competency-based palliative care education

In 2012, The Health Service Executive (HSE) Palliative Care Program formally called for competency-based palliative care to begin with undergraduate and postgraduate education in Europe[1]. The rationale behind was the challenge to provide competent and holistic care for the increasing number of actively dying in our aging society. According to American Nurse Association, end-of-life (EOL) care, being one of the most important nursing competency, needs to be incorporated into the baccalaureate students' nursing education[2]; at the same time, the American Association of Colleges of Nursing (AACN) reported that all undergraduate nursing students should be exposed and attain basic competency in EOL nursing care during the academic trajectory[3]. The importance of incorporating competency-based education has beyond doubt, and nursing educators since then are encouraged to develop curricula that equip undergraduate students to promote quality of EOL.

The drive of using a competence framework is to "explicit the precise knowledge and skills that are needed in order to provide care[4]" (pp.18). The framework helps enhance the care of people with life limiting illness, fostering greater inter-professional and inter-organizational collaboration in palliative care provision. A competence framework is useful to provide educators and care providers insight to develop specific curricula in training. At an individual level, a competence framework assists learners to assess their own knowledge of palliative care and identify learning and education needs.

In the past decade, this competency-based approach, reflecting the eminent European Tuning Competences education[4], have identified core competences for palliative care through the development of key domains and indicators. Educators and policy-makers of palliative care could methodologically design, redesign, develop, implement, and evaluate students' attained knowledge, skills, and attributes. This process has been proven to be successful through validation and testing across several continents[5]. It is contemporary consensus that three types of generic competences required for care practice be emphasized and incorporated in baccalaureate nursing education: 1) instrumental competences of cognitive, methodological, technological and linguistic abilities; 2) interpersonal competences of social skills and abilities to interact and cooperate; and 3) systematic competences, the abilities and skills to show understanding, sensibility and knowledge and apply acquired instrumental and interpersonal competence. In Taiwan, care competence education may provide student learners a basis for their development of clinical knowledge and career progression in palliative care[6].

To help educators incorporate EOL content into nursing curricula, the AACN developed 15 EOL competencies in 1998[3], specific to EOL care that all undergraduate nursing students are recommended to achieve before entering professional practice; these competencies were based on holistic principles of hospice. The Scottish Partnership for Palliative Care was produced in 2007 to support managers, teams and individuals in identifying appropriate palliative care competences for use within their organization or workplace. Following the trend, several competencies in nursing

education were summarized, including Competencies in nursing: A framework for nurses working in specialist palliative care issued by Royal College of Nursing in 2002, St Christopher's Hospice Nursing Competences, and Palliative Care Educational Core Competencies Framework by West of Scotland Managed Clinical Network for Palliative Care in 2006[1].

The Scottish Partnership framework lists four levels of competency, correlating with the current UK grading system. The report details seven competency areas: 1) communication skills, 2) quality assurance, 3) clinical practice, 4) job knowledge and skill, 5) education, management and leadership, 6) research and development, and 7) grief, loss and bereavement. Also specified were the necessary knowledge, skills and behavior for each competency area and for various levels of professional nurses. Nurses' perceived self-competence in palliative care, as the cognitive construct, refers to nurses' judgment of their capabilities to provide quality care to patients and family experiencing a life-limiting illness or at end of life[7]. Student learners receive competency-based education and continue a self-assessment process that contribute to promote professional practice and competence development.

Teaching Strategies used in palliative care education

Traditionally, a variety of strategies was reported particularly effective to increase care competency in nursing students, including didactic lecturing, special presentations/seminars, group discussions, written reports, clinical experiences, simulations, role playing, journal keeping, immersion experiences (including study abroad), and educational partnerships in clinical settings[6]. However, dealing with death and dying is never easy—the literature reveals that caring for a dying patient can be an unpleasant and emotionally charged experience for student nurses. Despite the media exploitation of death and dying, young nursing students admit they receive little to no exposure on this topic prior to their school education and in their nursing education curricula.

Multiple experiential strategies have been used for introducing students to EOL content in a nonthreatening environment. For example, 'cinemeducation' with movies, video clips, and documentaries have been successful in helping students recognize complex emotions that dying patients and families experience at the EOL. Interactive role-play, communication exercises, and self-reflective journals have also been effective in helping students recognize and express their emotions, attitudes, and thoughts verbally and in written form. Visits to a funeral home, hospice, and a palliative care unit have been incorporated in EOL courses to improve knowledge, emotional awareness, empathy for others' suffering, and attitudes toward care of the dying.

Ward [8] summarized studies of nursing students who received didactic EOL education. Students in classroom settings had reportedly less discomfort and more positive attitudes toward care of the dying, compared with those who spend time to be with the dying and provide actual palliative care. Knowledge and attitudes toward care of the dying have not been studied in conjunction with scheduled experience with dying patients. Her study involved providing students with didactic EOL education and ten hours of experience required for "being with" dying patients to obtain more reliable measures of students' attitudes toward care of the dying. Measuring student attitudes before and after structured EOL education and experience provided more accurate

assessments of their attitudes toward EOL care. Knowledge from this study also supplied effective EOL educational strategies that may lead to more positive attitudes toward care of the dying and better practice of EOL care.

Experiential strategies have improved knowledge and emotional awareness about EOL care. The amount of experience students had with dying patients has not been assessed or consistently reported across studies. In a qualitative focus-group study[8], learning from 19 nursing students were assessed after completing a palliative and EOL elective course. As part of the elective, students spent ten hours as 'volunteers' with hospice patients in conjunction with didactic and experiential ELNEC content in class each week for a full semester (15 weeks). Students were not allowed to provide physical care to patients, but spent time listening and talking with their patients. Three themes emerged about how students learned: 1) from stories, 2) from being with the dying patient, and 3) from caring for the patients. The quality of students' sharing in focus groups provided insight into how and what students learned about EOL care. Students reported how attentive they were to stories told by patients and professional speakers who shared their expertise in class. Merely through ten hours as hospice volunteers rather than physical caregivers, students recognized patient needs from listening and communicating in different ways. A clear preference was made for learning through a personal encounter with a dying patient rather than listening to class content.

Taiwanese literature suggests that baccalaureate curricula in Taiwan often fail to provide competency-base education of palliative care[6]. Notwithstanding multiple calls to incorporate end-of-life care contents in nursing core courses, only a few nursing programs offer such adequate didactic lectures and/or clinical experiences in qualified hospice institutions to achieve knowledge and affective dimensions of competency. Quality teaching strategies and multiple learning assignments/assessments have been chosen to cultivate nursing students' attitude, competence, and self-efficacy in providing palliative care. Through transformative and experiential teaching, learners have great potentials to obtain systematic knowledge, acquire compassion and empathy, and increase situational confidence when dealing with death and dying. However, despite various teaching strategies were designed based on care competency and pedagogical frameworks, the concept of palliative care competency and the effectiveness of current hospice education has not been widely tested in Taiwan. It is time to provide evidence-base support to test teaching effectiveness; this is also the first innovative attempt to employ a unique, rigorous quasi-experimental design in baccalaureate hospice education. This study attempts to answer the AACN challenge to increase care competence by using various teaching strategies to raise nursing students' palliative care competence.

METHODOLOGY

Study Design

In a non-randomized educational setting, in responding to our research questions to explore teaching effectiveness, a quasi-experimental two-group pretest-posttest design was employed based on a non-equivalent **conceptual framework** developed for this control-group study (Figure 1 & 2).

Figure 1. Quasi-experimental nonequivalent control-group pretest-posttest designs
Experimental group: O1 → T (intervention)→ O2 → ~~O3~~ (abort 1-month follow-up)
Control group: O1 → O2

1) Independent Variables: The Experimental Group (EG)

A nonprobability, convenience sample is proposed to include junior students enrolled in a baccalaureate nursing program of a Northern Taiwan Medical College. All junior nursing students who have completed perquisite practicums of fundamental, adult, pediatric, psychiatric, and gynecological nursing care are encouraged to further prepare for care specialty and promote their palliative care competence. A total of 136 participants (N=136) have taken the elective palliative care course, the educational intervention (n= 63). These students who voluntarily choose to take the elective palliative care course served as The Experimental Group (EG).

2) Independent Variables: The Control Group (CG)

Their cohort junior classmates enrolled in the same program yet absent from this course served as The Control Group (CG). Subjects' age, clinical experience, and learning backgrounds are considered homogenous. In this study, 73 participants who have taken the elective palliative care course agreed to participate in this study as the educational intervention controls (n= 73) In addition, since the PI also teaches a variety of core nursing courses for both the intervention and the control group, their professional background is comparatively equivalent.

3) The Experiment/Educational Intervention

A 12-week elective course containing 30 hours didactic lectures and 6 hours oncology-hospice clinical experience was designed as the competency-based educational intervention, with objectives to enhance baccalaureate nursing students' attitudinal, competence, and self-efficacy in providing palliative care. Details of the content, materials, and assignments to evaluation students' learning are described below.

4) Dependent/Outcome variables

The teaching-learning effectiveness of multiple Transformative and Experiential Learning strategies used in this educational intervention were evaluated by three major categories: Attitudes toward Palliative Care, Palliative Care Competency, and General self-efficacy in providing palliative care. All participants completed the pre- and post-tests (O1 and O2 in Fig. 1), except only the EG completed a series of outcome assessments, including a teaching strategy rating tool, the standard course evaluation, and a 1-month follow-up (O3) after receiving the intervention. However, due to the pandemic situation in April to June, 2021, our students were not placed in the clinical practicum after completing the course. Hence, the 1-month follow-up was not achievable.

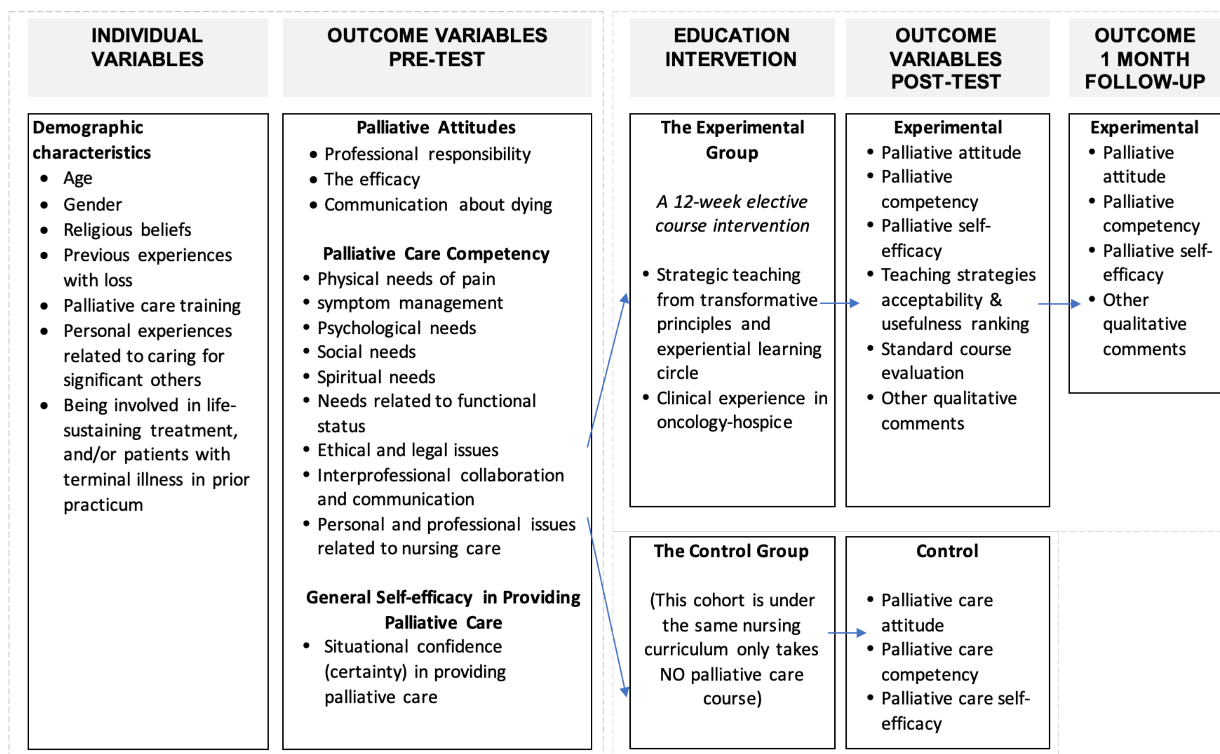

Figure 2. Conceptual Framework: A Control Study to Evaluate Teaching Effectiveness to Cultivate Palliative Care Competency Among Baccalaureate Nursing Students

Participants

All participants were recruited from a 4-year medical college in northern Taiwan. The inclusion criteria were nursing students who were full-time, in the third year of a BSN program with the provision of consent to participate in the study. An educational program was available to them as an elective course. Students who enrolled in the course were assigned to the experimental group, and other cohorts who did not take the course were assigned to the control group. Of 145 eligible subjects, 141 were willing to participate in the study; eventually, 63 students attended the palliative and end-of-life care educational course and 73 were in the control group. The experimental group participated in the educational intervention for 12 weeks. The average attendance rate was 94%, with an acceptable attrition of 3.5 % (Fig. 3).

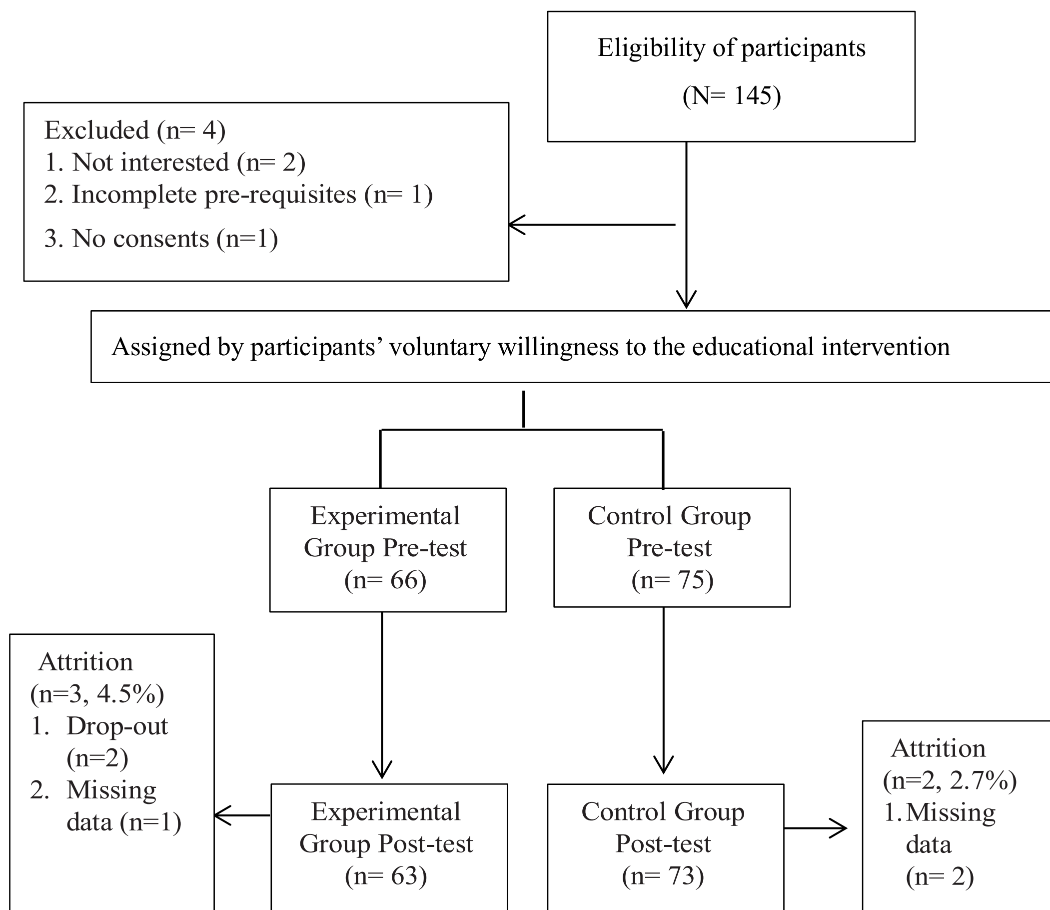

Figure 3. Flow chart of study participants

The Educational Intervention

School mission-inspired, competency-based objectives

Align with the central value of school to "Revere the Divine and Love Humanity" and "Be Remarkable while Possessing Humility," the affiliated hospice was the first palliative care institute established in Asia. Carrying on Jesus Christ's love for and desire to save the world along with the school motto "Rather burn out than rust out," this intervention course to cultivate palliative care competence has been one of the core elective courses in the undergraduate nursing curricula. Providing culturally congruent and holistic care for the terminal patients and their families well-suits the school mission to nurture and equip nursing professionals "who love others as much as themselves and who seek to help the disadvantaged."

To be more specific, this humanity-based, palliative care-concentrated course has been offered since the nursing program established, and the PI is the designer and the primary instructor for the past 6 years. Major palliative care concepts, attitudinal and legal components of hospice, anticipated grief, loss, life-sustaining treatment, and advance care planning are introduced through a 12-week course plan during every semester. In addition, quality teaching is provided in hope to transform students into "ultimate caregivers." With a theoretical basis and comprehensive teaching

resources from the National Higher Education Sprout Project, the course planning is in line with the overarching goals of school's development to: nurture elite nurse leaders who have integrity, culture, professional knowledge and the capacity who are developed holistically for lifelong learning, as well as willingness to take on social responsibilities.

A pedagogical foundation of Transformative and Experiential Learning

In order to apply core-competency teaching and achieve learning objectives of palliative care [9], the PI designs teaching-learning strategies on the pedagogical basis of Transformative and Experiential Learning theories[10 11]. This teaching approach to incorporate experiential erudition and reflective work is highly recommended in end-of-life care and death education [12 13]. Principles from these two theories serve as a blueprint of organized, predictable course planning guidelines, directing the PI to design a variety of alternative teaching strategies, compared to the traditional lecturing, seemingly appealing to young adults' learning style [11 14 15].

Blending transformative and experiential learning with facilitated discussion sessions is rationally driven by the sensitive and empathetic nature of the subject matter—providing palliative care requires delicacy. Difficult medical decision-making for terminal patients, bereavement and grief of the remaining family members, and death and dying itself are challenges to impact young student learners' value system. It was evident that from PI's previous experience with teaching this type of courses [16] that certain concepts require face-to-face interpersonal dialogues to enhance mutual understanding, honor the divinity and respect autonomy of life, appreciate the delicacy of holistic care, and develop intimacy and fellowship among peer learners.

Course content, teaching strategies, and learning Assessments

The course plan of this study is attached (course syllabus 授課計畫書 in Appendix A) with details of the course objectives, teaching strategies, and learning assessments from multiple assignments, a weekly schedule, and measurements of teaching-learning effectiveness. In keeping with the adult learning principles, teaching strategies are designed to involve students in a variety of creative class activities; formative and summative assessments include: critical reflections on self-experience, observations of and interviews with others, group discussions, and plans and direct participation in real-life patient care. All students in the intervention group were required to participate in each activity. In addition, their performance of each activity was individually assessed and scored to contribute to their final grade.

A Learning Circle: From Concrete Experience to Reflective Observation

The PI normally began Kolb's teaching-learning circle [10 17] with the use of multimedia materials, such as presenting a short clip of video, listening to a song, reading a poem, or narrating a patient's journal to allow students to engage in a concrete, human experience related to palliative care. Students then break into different small groups to discuss what they have perceived and appreciated from the materials. Opportunities are later given for each individual to share thoughts,

insights, and inspirations to the whole class. By verbalizing and comparing with other learners' insights, this strategy is to stir student learns' interest and empathy to other's experience [11].

A personal reflection guide were distributed with instructions to lead students to review and analyze a similar, self-experience related to death. Students are asked to probe back into their life for a critical incident related to death and dying[18]; moments they became aware that they began to see life and death in a new way. When students describe the event, they are asked to "locate" themselves at that time of their life, in regard to their social roles, such as a female, daughter, family member, student, and health care provider, etc. In describing the assignment, the PI normally gave a personal experience of her first corpus care as a nursing student to illustrate the meaning and impacts of a critical incident for the students.

Following instructions to integrate personal and social ideologies[19], students benefited from analyzing "the forces that were keeping them in their cocoon and those that helped the breakthrough occur (pp. 102-103)." In the past, students have identified experiences ranging from a self-traumatic near-to-death accident, a close family member's (even a pet animal's) death, to their care to a patient with life-threatening disease in prior practice experiences. Prior students responded that the realization of "Ah-ha, so this is death!" moments is quite valuable as it usually reminded them why they initially chose nursing. Considering the sensitive nature of the death subject and students' unique personal loss experience, the public sharing is encouraged but not required. This self-revealing moment was highly rated as "touching," "emotional," and "unforgettable."

A group-base strategy of transformative learning for the intervention entailed the use of movie video clips associated with controversial issues of palliative care. Students were divided into small groups to write notes about human nature, ethical reasoning and legal principles. Opportunities are provided for student learners to reflect on end-of-life topics from an outsider's perspective, yet they still are able to relate on some level [20]. In addition, students' learning in this assignment were assessed by multiple raters; the instructor graded the group paper, but each team member rated the level of contribution of self and others.

Journal entry is also created as a teaching strategy/assignment to develop students' regular habit of self-awareness in relation to personal growth [21]. Students were encouraged to free-write about their private thoughts, complex feelings, any intentions to change behaviors, or impacts on their own career planning. The last 10 minutes of each class session was reserved for journaling about their learning and growing experience. By reviewing self-experience related to end-of-life realization and personal growth, student learners achieved their experiential learning goal from Concrete Experience to Reflective Observation. According to transformative and emancipatory learning [22], such class activity to critically reflects from own perspectives and various social roles also foster personal transformation[23].

A Learning Circle: From Abstract Conceptualization to Active Experimentation

To further facilitate reflective learners to progress to Abstract Conceptualization, generalizations or established theoretical stipulations that are well-accepted in the arena of palliative care were introduced[24]. Teaching materials are drawn from a variety of sources to include,

but not limit to, palliative care textbooks, journal articles, narrated slides, web resource, patient charts, ethical issues, news, legal documents, social movements, and program initiatives. Students were to obtain most cognitive learning of palliative care in this stage. Quizzes and random-checks during class were used as formative assessments throughout the whole semester.

During Midterm, students were required to form a group and purposefully explore important palliative care issues. In the past, students have followed guidelines to jointly draw concept map in the classroom and in their extracurricular time, perform a brief concept-analysis of various topics, such as euthanasia, natural death, advance directives/living wills, withhold life-sustaining hydration and treatment, and alternative medicine for the dying, etc. Learners were also asked to refer to evidence-based journal articles, books, and current news events in order to write a comprehensive group report with some philosophical depth. This assignment was considered a form of mid-point achievement assessment to understand students' learning of knowledge, cooperation, and critical thinking. In this learning stage, students are prepared to enter the real world, starting by watching videos from Patient Autonomy Research Center (https://parc.tw/about) and reviewing a terminal patient's chart. In order to achieve holistic care for their client from a theoretical perspective, students had to apply their learned knowledge in clinical context. The assignment at this point was to formulate a nursing process and palliative care plan by reflecting and integrating prior observations.

The following strategy is designed to require students to interview and discuss advance care planning someone of their choice; they can be healthy classmates or friends or a close member from a chronically ill population. If possible, the assignment is to assist their interviewee draft a document of advance directives/living wills. In order to do so, students need to acquire interviewees' previous end-of-life experiences with health care providers and the health care system, obtain information about their life values, treatment beliefs, and opinions from significant others. The interview and subsequent written report engaged the student directly with another's death planning experience. To achieve the experiential learning goal of Active Experimentation, students demonstrated the skills to apply insight gained from previous experiential learning into new and complex situations.

Finally, the ultimate Active Experimentation occurs in real-life when students were individually placed and provide 6-hour palliative care in a school affiliated hospice and/or oncology ward. Students were designed to presented their final project of nursing care plan during the last class session; opportunities would be given for students to discuss and evaluate their comprehensive care process with peer learners. Considered a summative, achievement assessment of this course, during this final presentation, nursing students would share their thoughtful care goals, design creative interventions, and display communication skills that benefit the palliative care peer learners. A dynamic, reactive learning would allow the PI to guide students in a form of spontaneous teaching in response to recent, current, or imminent situations [25]. They were also asked to include their real-life experiences and peer reflections in their final journal entry. However, due to the pandemic situation in early 2021, our experimental group students were not placed in the

clinical practicum. The purpose to acquire new concrete experiences from actual care providing was not achievable. Therefore, we were not able to initiate the experiential learning circle.

Promising results from previous standard course evaluation

Every student was required to complete an anonymous, online course evaluation form for all courses issued by the medical college. This standard evaluation survey is comprised of 10 items in three categories: 2 items to assess the usefulness of course content and teaching materials, 5 items to rate the instructor's teaching, and 3 items of students' self-review. A free text box is offered to solicit learners' qualitative comments about the instructor and the overall course (Appendix A).

This noticeably optimistic feedbacks were received from the standard school evaluation in the past six years. Students reported no regrets of taking this course, despite their initial concerns not to take this course, including: no special interests in palliative care, a consideration of elective course burdens, a possible cultural taboo of death avoidance and corpuses care, and complexities to communicate life-sustaining treatment for imminent deaths involved for a course of this nature. However, in comparison to other fundamental nursing required courses taught by the traditional and didact approach in the same program, using multiple transformative and experiential teaching strategies have been rated higher for all criteria. Prior students generally to extremely agreed that the course content and materials and the instructor's strategic teaching were satisfactory and useful, at an average of 4.8, on a 5-point scale. Students' evaluative comments were positive as well. For example, students were appealed to the facilitated interaction in the classroom, both instructors' thoughtful communication and attention to learners, the careful selection of sensitive, timely, and appealing materials, a fair grading system in which multiple creative assignments were involved, a dynamic learning environment to connect all students learners, and a sense of emotional and spiritual support throughout the semester. From the co-instructor's point of view, satisfactory experiences with the course preparation were narrated that she perceived a strong bonding and mutual understanding with the students who took the elective course. Transformed growth occurred in both sides of instructors and fellow learners.

Measurements

The teaching effectiveness of the intervention to cultivate nursing students' palliative care related attitudes, self-report competence, and self-efficacy were assessed by the following well-accepted instruments (Table 1) administered to all students in the intervention group, both at the beginning of the course and at the end. Their pre-intervention and post-intervention scores were compared with the same scores of the control cohort. Apart from the original design, a follow-up post-test after 1 month was not administered to the experiential group to explore the teaching effectiveness maintenance.

Table 1. Constructs/components, variables, and measures

Constructs	Variables	Measures
1. **Demographics statistics & background profile**	• Age • Gender • Religious beliefs • Previous experiences with grief and loss • Palliative care training • Personal experiences related to caring for significant others • Being involved in life-sustaining treatment, and/or patients with terminal illness in prior practicum	*A self-developed questionnaire
2. **Attitudes toward Palliative Care** (Outcome variable)	• Professional responsibility • Perceived efficacy of palliative care • Professional communication	The Attitudes Toward Palliative Care (ATPC) scale [26]
3. **Palliative Care Competency** (Outcome variable)	• Physical needs of pain • symptom management • Psychological needs • Social needs • Spiritual needs • Needs related to functional status • Ethical and legal issues • Interprofessional collaboration and communication • Personal and professional issues related to nursing care • Last hour of life	The Palliative Care Nursing Self-Competence Scale (PCNSC) [27]
4. **General Self-efficacy in Providing Palliative Care** (Outcome variable)	• Situational Confidence	General Self-Efficacy Scale (GSES) [15]
5. **Teaching strategies rating**	• Acceptability of strategies • Usefulness of strategies	*A self-developed rating tool on a 10-point Likert scale
6. **College required course evaluation**	• Satisfaction with course content/materials • Satisfaction with the instructor(s) • Self-evaluation • Qualitative comments	Standard course evaluation form (for all courses)

* Quantitative measures included in the survey questionnaire were developed, based on palliative care competence framework and previous studies

Independent Variables

Demographic Questionnaire

Subjects' demographic characteristics were collected using a PI-developed demographic questionnaire, based on literature review related to the nursing students' palliative care competence. It consists of items about: age, gender, religious beliefs, previous experiences with loss, palliative care training, personal experiences related to caring for significant others, being involved in life-sustaining treatment, and/or patients with terminal illness in their practicum.

Dependent/Outcome Variables

Attitudes Toward Palliative Care

Nursing students' attitudes toward palliative care were measured by the Attitudes Toward Palliative Care (ATPC) scale [26] created for nurses; it consists of 12 items on a 5-point Likert scale. A simplified Chinese version [28] was previously reported to have acceptable construct validity (Kaiser-Meyer-Olkin = 0.717) and a satisfactory internal consistency (Cronbach Alpha =.79). Students' three attitudinal domains in palliative care include: 1) professional responsibility, 2) the efficacy, and 3) communication about dying. Ranging from 12 to 60, the higher the summed scores indicate a more positive attitude toward palliative care.

Palliative Care Nursing Competence

The Palliative Care Nursing Self-Competence Scale (PCNSC) [27]was chosen to represent strategic teaching effectiveness and identify students' learning outcome in various aspects. This comprehensive, up-to-date instrument is consisted of 50 items in10 domains: 1) physical needs of pain, 2) other symptom management, 3) psychological needs, 4) social needs, 5) spiritual needs, 6) needs related to functional status, 7) ethical and legal issues, 8) interprofessional collaboration and communication, 9) personal and professional issues related to nursing care, and 10) last hours of life. The score for each item ranges from "not capable at all (0)" to "highly capable (5);" Whereas each domain contains 5 items, a total score ranges from 0 to 250. A higher score indicates a higher sense of self-competence to provide palliative care. A sound reliability of internal consistency was reported (Cronbach Alpha .85.33) among 908 Canadian nurses.

Perceived Self-efficacy in Providing Palliative Care

Because the intervention strategies do not specifically address palliative care knowledge or skills, Students' perceived self-efficacy in providing palliative care was only measured by their self-report general self-efficacy when asked to provide palliative care to a terminal patient. The original "General Self-Efficacy Scale (GSES)" created in 1979 has been internationally translated and well-testified with sound psychometrics[15]. The short version of 10 items[29] was used in this study measure nursing students' situational confidence (certainty) in providing future palliative care. A sound internal consistency and test-retest reliability was reported (Cronbach Alpha= .87 and .83). This comprehensive, up-to-date instrument is consisted of 10 items correlating to emotion, optimism, work satisfaction, depression, stress, health complaints, burnout, and anxiety. The score for each item ranges from "not at all true (1)" to "exactly true (4)" with higher summed score indicates a higher sense of confidence and certainty to provide palliative care.

Teaching strategies acceptability and usefulness rating

Another evaluation is a self-developed tool designed only for the experimental group to rate their experience of each teaching strategies. On a 10-point Likert scale, the effectiveness of each transformative and experiential teaching-learning strategy is rated by their acceptability (level of being appealed) and usefulness in cultivating their palliative care competency. Students were also invited to provide written comments on each strategy and homework assignment.

College required course evaluation (with qualitative data)

The anonymous, online course evaluation form for all courses issued by the medical college is comprised of 10 items about usefulness of course content and teaching materials, the instructor(s), and students' self-review. A free text box is offered to solicit learners' qualitative comments about the instructor and the overall course (Appendix A).

DATA ANALYSIS

The data analysis plan responds to the following research questions discussed earlier: 1) Within the experimental group, whether the intervention has successfully cultivated nursing students' attitudes, competence, and self-efficacy in providing such care immediately after completing this elective course; 2) whether there exist attitudinal and competence differences between the experiment and the control group? 3) which transformative and experiential strategy is reportedly most acceptable and effective to achieve the learning outcome? Only students who complete questions on both the preintervention and postintervention evaluations were included in the analysis. All data were entered into SPSS *(IBM SPSS 21)* for analysis.

First, descriptive statistics for students' demographics and experiences were explored and tabulated for comparisons of the intervention and control groups using Chi-square test of homogeneity and Fischer exact test, if expected cell frequencies less than 5 are present. Second, in the intervention group, for each instrument, mean scores of pre- and post-intervention scores were analyzed to determine if their attitudinal, competence, and self-efficacy differ. Inferential statistics of independent t tests and paired t tests were used to compare the pre-, post-, and follow-up means to represent our teaching effectiveness. Third, summary statistics for the pre- and post-intervention scores were examined along with the P values from the paired t tests for both the interventional and the control group. As for the most effective and appealing teaching strategies, frequency tables would be prepared to demonstrate students' preferences, including qualitative comments from college required course evaluation.

Ethical Considerations

This study is in the process of being approved by the institutional review board at the PI's university. A simple informed consent was handed to all participants. All were informed verbally and in writing about the procedures, confidentiality, voluntary participation, and the ability to withdraw from the study at any time. Because the participants were the PI's nursing students, all surveys and results were anonymous with only a code number assigned to maintain privacy and confidentiality. Their completed data was properly stored and accessed only by the research team. Due to its anonymous (de-identification of student data) and "no more than minimal risk" nature, this study has obtained ethical approval from the Institutional Review Board (#20MMHIS262e) from the teaching hospital affiliated with the university of our target BSN program (Appendix B).

RESULTS

The following results were achieved:

1) We have completed portfolios of students' learning: self-reflective documents, such as journal entries, interview scripts, reports, and literature reviews from their individual and group assignments. Weekly products are listed in the course syllabus (please refer to course syllabus in Appendix A).
2) With the competency-based learning objectives, the students in the intervention group have gained knowledge, changed attitudes, and increased self-efficacy from the pre- to post-intervention period. A change of mean score gain of 5% was achieved, suggested by the literature, and a significant difference is anticipated between the 2 groups.
3) (NOT achieved) To examine the stability of the change in palliative care competence among the students who received the educational intervention, the intervention group will be tested again 1-month later, after they enter the clinical field nearly at the end of their program. This follow-up scores are expected to increase, or at least maintain, suggesting that with the intervention foundation, intervention group's palliative care competence might continue to grow with experience in the senior-year practicum at the end of their program.
4) Findings from the teaching strategy evaluation helped to complement and confirm the result from the survey. Students are asked on a 10-point Likert scale to specifically rate transformative and experiential teaching strategies. A ranking of the most effective and useful strategies, appealing to students, in changing attitudes and cultivating palliative care competence will be presented.
5) Instructor(s) contributed their own self-reflective learning in writing from their teaching experience.
6) As for now, two manuscripts will be prepared regarding effective teaching and strategies useful to cultivate palliative care competence, particularly how transformative and experiential learning activities may increase nursing students' attitude and self-efficacy.
7) A public sharing of the study results will be scheduled within 6 months after the study is completed.

Participants' Characteristics

All participants were all single, female-dominant nursing students (94.8%) aged 18-34 (experiment group) and 19-22 (control group) (Table 2). At the early stage of the course, "death and suffering acceptance" seem to be higher for them, whereas "will to meaning" was higher for male students. In our study, since participants' previous EOL experience related to family was not significantly gender-specific, death and suffering acceptance may be transient and can be shaped by education. After IG participants completed the course, there exists no gender difference on our intervention effect. This promising result indicates some positive effect on males' life attitude that during the palliative care course, male nursing students may gradually shape their attitudes through transformative teaching to accept the inevitable in life.

Although there is a significant group difference in age (($p<0.001$) and previous course taken related to EOL ($p<0.01$) (Table 2), age difference is only significant on subscales of "death acceptance" in life attitude and "professional communication" in attitude toward palliative care. Despite no significant influence on the intervention effect, particularly on the competency, IG's older age indicates their needs and voluntary decision to take a course of EOL orientation. We performed additional regression results to show that age difference in preintervention has no significant influence on the key outcome of palliative care self-competence (Table 3).

In general, the majority of participants in both groups had little prior experience providing EOL care for their own family (71.3%), but many have dealt with grief and loss (77.2%). Most also have not taken EOL related courses (77.2%) (Table 2). Although EG participants claimed to have more EOL training before the intervention (34.9% vs. 12.3%, $p<.01$), those who had more EOL course showed no significant difference on the outcome of palliative care competence in pre-intervention in an additional regression examination (Table 3).

Regardless of the group assignment, those participants who had taken EOL related courses showed better "will to meaning" in life attitudes, perceived better "efficacy of palliative care," and had more "professional communication" in attitudes toward palliative care ($p<.05$), respectively (Table 3). Therefore, despite the baseline data did not indicate full homogeneity between two groups, we were confident that no significant group differences in preintervention and age and experience variance did not contribute to the outcome of Palliative Care Self-Competence (Tables 2 and 3).

Table 2 Participant characteristics of the two groups

Baseline Characteristics of Junior Nursing Students in the BSN Program

Characteristic	Experimental (N=38)		Control (N= 39)		X^2/F	*P-value*
	N (%)	M±S.D	N (%)	M±S.D		
Age		24.24±6.383		20.74±0.764	4.287	0.000***
Gender					4.605	0.032**
Female	57 (90.5%)		72 (98.6%)			
Male	6 (9.5%)		1 (1.4%)			
Previous experience providing EOL care for family					2.237	0.135
Yes	22 (34.9%)		17 (23.3%)			
No	41 (65.1%)		56 (76.7%)			
Previous experience related to grief and loss					0.311	0.577
Yes	50 (79.4%)		55 (75.3%)			
No	13 (20.6%)		18 (24.7%)			
Previous course taken related to EOL					9.807	0.002**
Yes	22(34.9%)		9 (12.3%)			
No	41(65.1%)		64 (87.7)			
Religious beliefs					5.148	0.398
Presbyterians/ Catholics	2(3.2%)		5(6.8%)			
Buddhism	12(19%)		15(20.5%)			
Others	0(0%)		1(1.4%)			
No preference	10(15.9%)		8(11%)			
Atheist	3(4.8%)		9(12.3%)			
Taoism/Folklore	36(57.1%)		35(47.9%)			

*p < 0.05；**p < 0.01；***p < 0.001

Table 3. Significance of age, care, and training experience on attitudes and competency scales pre-intervention

Variables	Age	Experience of providing care for the dying	Previous course related to EOL
Life Attitudes			
Will to meaning	0.738	0.330	0.036*
Existential vacuum	0.175	0.470	0.778
Life purpose	0.992	0.180	0.976
Life control	0.499	0.820	0.629
Suffering acceptance	0.133	0.019*	0.093
Death acceptance	0.015*	0.002**	0.760
System of Beliefs			
Religious practice	0.534	0.192	0.267
Social support	0.743	0.242	0.131

Attitudes toward palliative care			
Professional responsibility	0.631	0.717	0.741
Perceived efficacy of palliative care	0.097	0.618	0.030*
Professional communication	0.004**	0.021*	0.031*
Palliative Care Self-Competence			
Pain assessment	0.107	0.057	0.241
Symptom control	0.382	0.589	0.528
Psychological needs	0.265	0.311	0.482
Social needs	0.809	0.498	0.231
Spiritual needs	0.812	0.774	0.290
Needs related to functional status	0.539	0.732	0.198
Ethical and legal issues	0.503	0.544	0.391
Inter-professional collaboration and communication	0.312	0.962	0.073
Personal and professional issues related to nursing care	0.374	0.666	0.150
Last hour of life	0.693	0.468	0.069

*p < 0.05 ; **p < 0.01 ; ***p < 0.001

Efficacy

IG participants showed a significant increase in their palliative care attitude and competency after receiving the educational intervention (Table 4). Mean scores and standard deviations on multiple attitudinal and competency subscales are presented in Table 4 that among the pre- and post-scores, “Inter-professional collaboration and communication” and “last hours of life,” indicated the two greatest between-group changes in post-intervention. In other words, IG participants were able to gain better competence when providing professional palliative care in these two domains.

Regarding the life-attitudes, IG participants’ “will to meaning” and “life control” also have significantly increased after the course (p<.05). However, it is worth noting that compared with the CG participants, the IG group already had better “suffering acceptance,” pre-intervention (p<.0001), though their acceptance also improved post-test (p<.001). Over time, the CG group also changed their attitudes--both death and suffering acceptance were improved within 1 year. Therefore, the two group became equivalent in their death acceptance post-intervention.

This study indicated that the educational intervention had statistically significant efficacy in enhancing self-efficacy (p<.05) and self-competence in all 10 domains (p<.000~.05) (Table 4). The only preintervention difference in participants’ self-competence between two groups were pain

assessment (Table 4). A slightly better pain assessment competence was reported by the IG group preintervention ($p<.05$). After the intervention, IG participants reported their self-competence in symptom control, social needs, and needs related to functional status were having less efficacy ($p<.01$). Otherwise, in the rest 7 domains, differences between pre- and post-intervention were very significant ($p<.0001$) and the intervention was quite effective.

Table 4. Pre-test and post-test subscale scores comparisons between the two groups

	Pre-intervention (Baseline) Mean ± SD				Post-intervention Mean ± SD			
Variables	**CG**	**IG**	**Total**	**P-value**	**CG**	**IG**	**Total**	**P-value**
Life Attitudes								
Will to meaning	26.69±4.98	26.09±5.83	26.41±5.37	0.495	25.98±5.36	27.66±4.12	26.61±4.91	0.033*
Existential vacuum	13.79±8.04	16.00± 7.19	14.81±5.37	0.098	13.78±8.01	15.87±8.92	14.75±8.47	0.172
Life purpose	9.02+2.90	8.58±3.55	8.82±3.21	0.635	9.71±3.30	9.92±2.91	9.98±3.11	0.609
Life control	12.24±2.20	11.98±2.10	12.12±2.15	0.331	11.49±2.60	12.33±2.28	11.88±2.48	0.026*
Suffering acceptance	12.61±3.51	15.09±3.73	13.76±3.81	0.000***	13.23±4.21	15.15±3.46	14.12±3.98	0.002**
Death acceptance	4.41±2.80	5.65±3.14	4.98±3.02	0.012*	5.13±3.40	5.25±2.77	5.19±3.11	0.689
System of Beliefs								
Religious practice	15.90±9.63	16.9±10.13	16.36±9.84	0.533	17.24±8.82	18.03±9.47	17.61±9.10	0.498
Social support	7.30±5.04	7.52±5.11	7.40±5.05	0.795	7.64±4.92	8.01±5.06	7.81±4.97	0.602
Attitudes toward palliative care								
Professional responsibility	6.58±2.27	6.64±2.75	6.61±2.49	0.626	6.49±2.38	6.68±3.04	6.58±2.69	0.892
Perceived efficacy of palliative care	3.57±2.38	2.84±2.95	3.23±2.68	0.014	3.61±2.55	2.5± 2.69	3.13±2.66	0.009**
Professional communication	5.19±1.93	6.04±2.32	5.58±2.15	0.010	5.61±1.51	7.25±1.85	6.37±1.86	0.000***
General Self-efficacy	23.93±0.45	25.50±0.50		0.675	23.05±1.57	24.81±0.67		0.021*

*p < 0.05；**p < 0.01；***p < 0.001

Table 4 (cont.) Pre-test and post-test subscale scores comparisons between the two groups

	Pre-intervention (Baseline) Mean ± SD				Post-intervention Mean ± SD			
Variables	**CG**	**IG**	**Total**	**P-value**	**CG**	**IG**	**Total**	**P-value**
Palliative Care Self-Competence								
Pain assessment	13.08±4.23	14.76±4.06	13.86±4.22	0.034*	14.28±2.82	17.14±3.62	15.61±3.50	0.000***
Symptom control	12.58±4.27	13.73±4.30	13.11±4.30	0.089	14.28±3.54	16.28±4.34	15.21±4.04	0.001**
Psychological needs	13.10±4.22	13.88±4.71	13.47±4.45	0.297	14.36±3.07	16.79±4.18	15.49±4.28	0.000***
Social needs	13.45±4.35	13.74±4.80	13.58±4.55	0.826	14.80±4.12	17.06±4.14	15.85±4.55	0.001**
Spiritual needs	13.28±4.31	13.85±4.93	13.55±4.60	0.401	14.56±3.91	17.00±4.04	15.69±4.14	0.000***
Needs related to functional status	13.97± 4.05	14.55±4.68	14.24±4.35	0.564	15.20±3.87	17.42±3.82	16.23±3.99	0.001**
Ethical and legal issues	12.79±4.18	14.11±4.53	13.40±4.38	0.079	14.8± 4.04	17.67±3.97	16.13±4.24	0.000***
Inter-professional collaboration and communication	13.86±4.35	15.53±4.94	14.63±4.69	0.074	15.05±4.28	18.07±4.00	16.45±4.41	0.000***
Personal and professional issues related to nursing care	13.54± 4.15	14.63±4.74	14.63±4.41	0.198	15.21±4.05	17.71±3.92	16.77±3.94	0.001**
Last hour of life	13.93±4.02	15.46±4.72	14.04±4.45	0.074	15.43±3.68	18.33±3.68	16.37±4.17	0.000***

*p < 0.05；**p < 0.01；***p < 0.001

Acceptability of the educational intervention

Multiple teaching strategies used in units have provided chances for BSN students to discuss and learn from each other's perspectives. In students' weekly reflection and other writings, they responded having developed caring skills of critical thinking by observing and interacting with front-line clinical palliative care providers. They also benefit from discussing difficult EOL scenarios and sharing experiences with their peer in the class. IG participants generally appreciated the learning experience. One student wrote in her reflection: ''I have learned that providing palliative care for the EOL patients is a privilege. It is delicate work but not as difficult as I originally thought. I am glad that I took this course." They further explained that experiences sharing and critical thinking through case analysis, role modeling, group discussion, and self-reflection were highly visible and impressive learning ways for junior nursing students.

Teaching strategies used in the intervention were evaluated for its usefulness (Table 5), and "roundtable with seasoned palliative care clinicians was considered the most helpful. The individual family project conducted during the pandemic quarantine period when students were forced to

stayed at home. Students reported that discussion sessions (group discussion and self-reflections) were a valuable experience for students to learn from an actual experience and then transformed into something practical. "I have learned so much, particularly I learned that concept of ACP and even provided counseling for my parents. This made me feel so good; for the first time, I feel I could do something for my loved ones' death."

Table 5 Acceptability and evaluation of the teaching strategies used in the intervention

Teaching Strategy	Mean	Completely useless	A little useful	Somewhat useful	Quite useful	Extremely useful
1. Illustration of case studies	3.87	(0) 0%	(3) 4.8%	(19) 30.2%	(24) 38.1%	(17)27.0%
2. Definition, principles, and history of palliative care	3.71	(0)0%	(5)7.9%	(21)33.3%	(24)38.1%	(13)20.6%
3. Peer support and experience sharing during class	4.10	(1)1.6%	(1)1.6%	(13)20.6%	(24)38.1%	(24)38.1%
4. Journal writing	3.76	(0)0%	(4)6.3%	(18)28.6%	(30)47.6%	(11)17.5%
5. Important life event reflection (ex. Personal grief and loss)	4.05	(0)0%	(0)0%	(18)28.6%	(24)38.1%	(21)33.3%
6. Literature reading (extracurricular assignment)	3.87	(0)0%	(2)3.2%	(17)27.0%	(31)49.2%	(5)20.6%
7. Cultural and religious care for the dying	3.75	(0)0%	(5)7.9%	(17)27.0%	(30)47.6%	(11)17.5%
8. Responses to the competency questionnaire	3.57	(0)0%	(7)11.1%	(24)38.1%	(21)33.3%	(11)17.5%
9. Introduction and practice of common EOL complementary therapies	4.05	(0)0%	(1)1.6%	(15)23.8%	(27)42.9%	(20)31.7%
10. Differences among natural death, euthanasia, and palliative care	3.97	(0)0%	(2)3.2%	(15)23.8%	(29)46.0%	(17)27.0%
11. Lectures about EOL symptom and pain	4.10	(0)0%	(1)1.6%	(16)25.4%	(22)34.9%	(24)38.1%
12. EOL related media watching (extracurricular assignment)	3.86	(0)0%	(4)6.3%	(17)27.0%	(26)41.3%	(16)25.4%
13. Project of a palliative care focus	3.81	(1)1.6%	(4)6.3%	(17)27.0%	(25)39.7%	(16)25.4%
14. Assistance of ACP for others	3.98	(0)0%	(1)1.6%	(18)28.6%	(25)39.7%	(19)30.2%
15. Quiz about Patient Autonomy Laws and other legal issues	3.94	(0)0%	(2)3.2%	(18)28.6%	(25)39.7%	(18)28.6%
16. Group discussions and brainstorming about palliative care dilemmas	3.92	(0)0%	(1)1.6%	(20)31.7%	(25)39.7%	(17)27.0%
17. Intro of home-care and hospice-shared care	4.03	(0)0%	(2)3.2%	(17)27.0%	(21)33.3%	(23)36.5%
18. Empathy and burnout of the EOL care providers	4.10	(0)0%	(1)1.6%	(17)27%	(20)31.7%	(25)39.7%
19. Roundtable with seasoned palliative care clinicians	4.14	(0)0%	(1)1.6%	(15)23.8%	(21)33.3%	(26)41.3%
20. Guidance from instructors for the final project	4.11	(0)0%	(2)3.2%	(14)22.2%	(22)34.9%	(25)39.7%

Limitations and Challenges

This study was limited in its scope, the diversity of the students, and the sample size. Several limitations and challenges of the study are acknowledged. First, as a single site study, using only one-program of two groups of students as the convenience sample, this study is limited in its generalizability. The sample size of intervention might also be small and dependent on the number of taking the course. However, we have performed a power analysis, our current sample size is larger than the suggested 45 of each group. Secondly, the implementation period of the study was short, limited by the rule of one course per semester according to the institutional policy. Originally, a follow-up survey would be employed 1 month after the intervention (completion of the course), however, students did not return to school due to the COVID-19 pandemic situation in Taiwan. They were not placed in the practicum as we expected, so this current study conducted a pre- and-post comparison only. Future studies are suggested to replicate this investigation with a longer follow-up period to confirm the effects of the intervention.

Thirdly, this study used only the attitudinal and competency categories of outcome indicators to determine the effects of the intervention. Further studies are suggested to test other categories of outcome measures, such as frequency and observation of palliative caring ability, the appropriateness of EOL communication in family conference, and adherence to the educational intervention, etc. The acceptability is also simply determined by students' writing products (weekly journal and reflective writings). Future students may consider to qualitatively and rigorously analyze texts from students' writing for their perceived competency to care for the dying.

Fourthly, students' recall about previous end-of-life care, personal experience of death and loss might not be completely accurate. Missing data was also expected to create biases, but we were able to exclude several missing cases due to sufficient samples. Although students' professional training and learning backgrounds are considered equivalent, there are subtle differences between the experimental and control group. Future research should incorporate a larger, random sample with more than two groups of nursing students. Potential students from other nursing programs receiving palliative care competency education in the curriculum shall be included. Finally, differences in organization culture in the same BSN program may have biased the research results, aside from the intervention itself. Future research is suggested to collect additional information, such as other professors' evaluation about students' palliative care competence and other healthcare professionals from students' practicum sites. Confounding factors may be controlled increase the generalizability of findings.

Implications for Educators

This study focuses on young learners who are challenge-takers and front-line care providers often facing real life context at their early 20s. Potentially effective and efficient theory-driven teaching strategies cultivated palliative care competence; baccalaureate nursing students are prepared in the classroom setting to appropriately deal with life-and-death clinical situations. Studies utilizing Kolb's experiential learning circle are needed with other nursing students at other academic levels. Future research is also useful to explore the relationship among obtained

knowledge, changed attitude, increased self-efficacy, and improved performance once undergraduate students enter the clinical field to provide actual palliative care. Factors that contribute to various interventions outcomes need to be investigated, especially nursing students' diverse background and learning ability. Our study demonstrated that as long as there was significant growth in BSN students' self-report knowledge, attitude, and self-efficacy, their palliative care competence could be achieved by the use of specific experiential teaching/learning strategies. A variety of most appealing activities can be suggested by young learners in classroom settings, from personal reflection to lively interaction, experience sharing, and discussions of difficult EOL case scenarios.

CONCLUSION

Responding to the desire of dignified deaths in this aging society, an elective course was designed to address the imminent need to prioritize and discover effective teaching-learning strategies that transform nursing students into ultimate palliative care providers. The purpose of this control study is to evaluate teaching effectiveness from Transformative and Experiential Learning strategies, on baccalaureate nursing students' attitudinal, competence, and self-efficacy in providing palliative care. In this non-equivalent control-group study, a quasi-experimental pretest-posttest design was employed to use a convenience sample of junior students enrolled in a baccalaureate nursing program of a Northern Taiwan Medical College. A total of 136 participants were recruited in this study in which 63 of them (n=63) took the elective course, and the remaining participants absent from the class experience were considered as the control group (n= 73). The teaching effectiveness of the intervention in relation to palliative care attitudes, self-report competence, and self-efficacy were assessed by well-accepted instruments both at the beginning and the end of the course, along with a strategy rating tool and the conventional course evaluation required by the college. Pre- and post-intervention scores of participants in the experimental and control groups were compared, and no follow-up post-test after 1 month was administered to the experiential group for the maintenance of effectiveness due to the pandemic situation.

Our study findings demonstrate that, compared with the usual course in which EOL care contents are not centered, teaching and implementing an educational intervention to cultivate palliative care competency can be effective, as evidenced by statistically significant differences between pre- and post-intervention. Junior BSN students' certain life attitudes, general efficacy, and overall self-competence may be improved within 1 year when asked to provide care for dying patients. Upon completion of this course, BSN students in the EG had greater improvements over their CG cohorts in attitudinal, efficacy, and competency domains. However, no significant difference was found between two groups in their system of beliefs (both domains of religious practice and social beliefs) in spiritual well-being; IG participants' professional responsibility, existential vacuum, and life purpose also have not changed after the course. Results drown from this study allowed nurse educators to reset teaching-learning priorities; through creative, appealing, and effective strategies, palliative care competency can be cultivated among nursing undergraduates and benefit terminal patients and their families.

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Appendix A. Standard Course Evaluation Form 校定教學評量問卷

課程代碼：NU426 ， 課程班級：A ， 課程名稱：安寧療護
問卷編號：91372 ， 問卷名稱：107-2期末教學評量問卷(一般課程) ， 適用課程類別：一般課程

題號	題目/選項比率與得分	平均值	權重	比率	權重	比率	權重	比率	權重	比率	權重	比率	不同意之原因
一、課程內容與教材評估													
1	課程使用之媒體或教材，對於學習成效頗有助益 (單選不同意必答，必答)	4.91	5	非常同意 (10) 90.91%	4	同意 (1) 9.09%	3	尚可 (0) 0.00%	2	不同意 (0) 0.00%	1	非常不同意 (0) 0.00%	
2	本題為有效性測試題，請同學點選「非常同意」 (測試題，必答)	N/A	-1	非常同意 (11) 100.00%	0	同意 (0) 0.00%	0	尚可 (0) 0.00%	0	不同意 (0) 0.00%	0	非常不同意 (0) 0.00%	
3	整體而言，你對這門課的滿意度 (單選不同意必答，必答)	4.91	5	非常滿意 (10) 90.91%	4	滿意 (1) 9.09%	3	尚可 (0) 0.00%	2	不滿意 (0) 0.00%	1	非常不滿意 (0) 0.00%	
	此部分平均分數為	**4.91**											

題號	題目/選項比率與得分	平均值	權重	比率	權重	比率	權重	比率	權重	比率	權重	比率	不同意之原因
二、教學評估													
4	教師對於上下課的時間掌握合宜 (單選不同意必答，必答)	4.82	5	非常同意 (9) 81.82%	4	同意 (2) 18.18%	3	尚可 (0) 0.00%	2	不同意 (0) 0.00%	1	非常不同意 (0) 0.00%	
5	教師授課表達清晰，講解清楚 (單選不同意必答，必答)	4.91	5	非常同意 (10) 90.91%	4	同意 (1) 9.09%	3	尚可 (0) 0.00%	2	不同意 (0) 0.00%	1	非常不同意 (0) 0.00%	
6	教師的授課方式安排合理 (單選不同意必答，必答)	4.82	5	非常同意 (9) 81.82%	4	同意 (2) 18.18%	3	尚可 (0) 0.00%	2	不同意 (0) 0.00%	1	非常不同意 (0) 0.00%	
7	教師對教學富有熱誠且認真經營 (單選不同意必答，必答)	4.82	5	非常同意 (9) 81.82%	4	同意 (2) 18.18%	3	尚可 (0) 0.00%	2	不同意 (0) 0.00%	1	非常不同意 (0) 0.00%	
8	教師授課時不會使用帶有性別歧視、偏見或騷擾的言語、字眼或行為 (單選不同意必答，必答)	4.91	5	非常同意 (10) 90.91%	4	同意 (1) 9.09%	3	尚可 (0) 0.00%	2	不同意 (0) 0.00%	1	非常不同意 (0) 0.00%	
9	請寫下你上這門課時對老師的整體感覺或其他建議 (問答，非必答)												
	此部分平均分數為	**4.86**											

題號	題目/選項比率與得分	平均值	權重	比率	權重	比率	權重	比率	權重	比率	權重	比率	不同意之原因
三、學生自我評估													
10	你有不想來上課的念頭 (單選，必答)	N/A	0	總是 (0) 0.00%	0	經常 (0) 0.00%	0	有時 (1) 9.09%	0	很少 (0) 0.00%	0	不曾 (10) 90.91%	
11	上課的時候你會打瞌睡 (單選，必答)	N/A	0	總是 (0) 0.00%	0	經常 (0) 0.00%	0	有時 (1) 9.09%	0	很少 (3) 27.27%	0	不曾 (7) 63.64%	
12	目前對你而言，本科目有學習上的困難 (複選，必答)	N/A	0	否 (11) 100.00%	0	是，本身對此科目原就沒有興趣 (0) 0.00%	0	是，課程太難 (0) 0.00%	0	是，進度太快 (0) 0.00%	0	是，語言隔閡 (0) 0.00%	
			0	是，不夠用功 (0) 0.00%	0	是，不適應老師教法 (0) 0.00%	0	是，不適應考試方法 (0) 0.00%	0	是，基礎不夠 (0) 0.00%	0	是，不能掌握學習方法 (0) 0.00%	
			0	是，看投影片速度太快 (0) 0.00%	0	是，不習慣大班制 (0) 0.00%	0	是，其他 (0) 0.00%	--	--	--	--	
	此部分平均分數為	N/A											

馬偕醫學院護理學系 安寧療護 授課計畫書

*開課時段	☐上學期 x 下學期 ☐寒假 ☐暑假 ☐其他 (請說明______________________________________)
*授課教師	主授課：熊誼芳 助理教授 邀請單元授課 洪佳黛 助理教授 沈芷怡安寧共照師
*開課系(所)	護理學系
*中文課程名稱	安寧療護
*英文課程名稱	Issues related to palliative care in nursing practice
*課程屬性	☐系所必修(___________系所) x 系所選修(___________系所) ☐共同科目 ☐通識課程 ☐學程(__________________學程) ☐其他_______
*學分數	__2__學分
*上課時數	**總計__30__小時(_3__小時/12 週)**
實習時數	**總計__6__小時**
*授課對象	☐專科生(________年級) ☐碩士生 ☐博士生 x 大學部學生(__3_年級)
*過去開課經驗	x **曾開授本門課程 6 年** ☐曾開授類似課程 ☐第一次開授本門課程
*預估修課人數	**30-40 人**
*授課語言	x 中文 ☐英文 ☐其他(______文)
*教育宗旨 教學目標	馬偕精神「寧願燒盡，不願銹壞」之核心價值：以「愛人如己，關懷弱勢」為宗旨，培育尊重生命的醫護專才教育，提供個案「身、心、靈完整」之全人醫療與照護。 修習「安寧療護」選修課後，學生能: 1. 體會生命之無常與脆弱，分辨安寧療護對象與一般照護之異同 2. 瞭解並簡要說出台灣安寧緩和醫療之中心哲理、重要性與歷史演進 3. 解釋給他人安樂死、自然死、末期維生醫療、預立醫療指示與病人自主權等重要安寧緩和醫療概念 4. 列舉說明接受末期病患及其家屬身體、心理、靈性、社會需求 5. 依照末期病患不同情境，討論何謂完整的安寧緩和全人療護、規劃合宜護理過程 6. 有自信演示不同安寧模式中之護理師角色，並發揮照護功能，例如應用安寧緩和醫療基本知識與技巧於個案 7. 整合及辯證安寧緩和醫療之醫療倫理與法律觀點 8. 同理哀慟病人與家屬之人性需求，具有基本心理支持與靈性陪伴之溝通能力 9. 分析末期病患家屬所需的社會保險、經濟、及社會福利並給予護理相關建議

*教學方法	本課程依據「轉化學習理論 Transformative learning (Mezirow, 1991) 與 經驗反思學習圈 Experiential Learning Circle (Kolb, 1984) 理論」發展教學單元。 教學方法含: 課室講述、多媒體閱聽之經驗反思、觀察法、簡單描繪概念圖與概念分析書寫、文獻查證與網路資料整合、個人價值分享、小組合作學習法、臨床案例討論與辯證、參與臨床實務、示範教學（教師回覆示教家庭會議與困難溝通）、與問題解決教學法（學生能實際規劃並執行末期病人之安寧療護)。
*成績考核方式	• 作業（55%）： 1. 個人經驗安寧或悲傷死亡相關之重要事件回溯 (10%) Critical Incident Reflection 2. 周反思心得集 (10%) Journal Entries 3. 安寧影劇觀後團體討論與辯證（自評與互評）(10%) Group-discussion and ethical debates 4. 腫瘤安寧病房見習與安寧護理過程規劃 (15%) Hospice clinical practice & palliative care plan 5. 訪談他人完成預立醫療自主計畫 (10%) Interviews & advance care planning • 期中報告安寧相關議題分析（含時事、參考文獻與書籍）(15%) Midterm paper • 期末報告個案照護口頭與書面報告 (20%) Oral Presentation & Final project report • 平時成績: 課堂出席與參與討論/不定期隨堂抽問或小考 (10%) Class participation & quizzes
*課程進度	(見下表)

週次	課程主題	課室活動	課後作業內容
1	安寧緩和醫療課程介紹：人生意義與安寧緩和醫療的定義與哲理; 台灣安寧緩和醫療歷史	多媒體閱聽 講述安寧緩和條例立法與病人自主權法	• 週心得反思
2	處理哀慟心靈的安寧照護: 經歷預期性悲傷、失落與失喪; 安寧療護的靈性與宗教議題	小考安寧歷史 個人經驗安寧或悲傷死亡分享	• 重要事件回溯反思 • 自我靈性剖析 • 週心得
3	不同年齡與文化族群之生死觀與其安寧療護	以兒童安寧療護為例時介紹故事與遊戲治療、原住民患者居家安寧，以及華人文化觀之末期醫療抉擇	• 週心得反思 • 相關文獻閱讀

	4	末期症狀與疼痛處置 另類輔助療法於安寧之介紹	課室講述 芳香療法與園藝療法、淋巴按摩於安寧應用	• 尋找一位家人朋友操作芳香精油淋巴按摩 • 週心得
	5	人文、倫理與法律思辨：自然死、安樂死、與安寧死	搭配時事講述觀念 描繪簡易概念圖 概念分析書寫練習	• 週心得 • 文獻閱讀與尋找網路資料
	6	期中考	電影與書籍觀賞 團體討論與過程紀錄	• 影劇觀後團體討論與辯證 • 安寧議題分析與書寫期中報告（含時事、參考文獻與書籍）
	7	預立醫療自主計畫： 了解何謂預立醫療指示、生前醫囑、法源、與現行實務	課室講述 多媒體閱聽 病人自主研究中心案例分享 https://parc.tw/about	• 課室外訪談: 1) 了解一般無醫學背景人士之安寧知識， 2) 予其預立醫療指導， 3)若有機會，協助完成生前醫囑
	8	蛻變中的安寧緩和醫療: 社區中緩和安寧資源與挑戰、居家安寧、家屬之適應與照顧 (洪佳黛老師)	課堂分享參與討論 隨堂抽問預立醫療自主計畫	• 週心得
	9	安寧療護護理人員之適應: 慈悲疲倦、慈悲滿足與照顧者之靈性健康	資深安寧督導與護理人員分享與座談會	• 週心得
	10	機構中之安寧共照團隊 (沈芷怡講員)	課室講述共照理念 播放「安寧主治醫師給護理人員的話」 「安寧共照師的一天」角色與工作內容	• 週心得 • 文獻閱讀：安寧療護之實證研究
	11	腫瘤安寧臨床實務	病房見習/實習提供個案照護	• 收集資料規劃並執行與評值護理過程
	12	期末考 課後評值	口頭報告： 安寧療護案例分析	• 安寧療護案例書面報告
		(期末全系共同時間海報或口頭分享)		

*學生學習成效	終極生命末期關懷 Ultimate Palliative Care at the end-of-life 之學習在於： 1. 提升護理系學生之安寧素養能力 (palliative care competence) 2. 優化護理系學生對末期患者與家屬之溝通與態度 (attitudes toward palliative care) 3. 增加護理系學生在臨床情境中提供安寧療護之自信度 (self-efficacy in providing palliative care) 4. 展現對課程內容、教材、教師、與課室經驗多方面之滿意度 (standard course evaluation) 5. 欣賞不同安寧教學策略並能評價其優劣 (strategic teaching rating) 6. 增加自主學習與團體合作能力 (qualitative comments in self- and group-evaluation) 7. 延續課室學習成效至工作場域 (1-month follow-up evaluation in clinical practice)
*預期個人教學成果	1. 呈現學生學習歷程（portfolio）之成果書 2. 發表教學策略與成效相關論文於教育或安寧療護期刊 3. 教師群自我教學相長之反思
*學習成效評量工具(如前後測、學生訪談、問卷調查等)	本教學研究採準實驗兩組前後測比較設計，以問卷調查法探究大三護理系學生經「轉化與經驗學習策略教學」之後，是否其安寧療護素養、態度、及臨床情境自我效能有前後差異，同時也比較未參與課程之同年級控制組學生，藉以了解此策略教學之立即或延續 (一個月後於臨床表現) 成效。 • 納入實驗對照組前後測成效評量工具如下： 1. 自編基本資料問卷，含年齡、性別、宗教、先前個人相關經驗，如：安寧教育訓練、失落、死亡、照護末期重要他人、或參與臨終醫療抉擇之經驗等。 2. 自評安寧療護素養能力 The Palliative Care Nursing Self-Competence Scale (PCNSC) (Desbiens and Fillion, 2011) 3. 安寧療護態度量表 Attitudes Toward Palliative Care (ATPC) scale (Bradley et al, 2000) 4. 一般自我效能量表短版 General Self-Efficacy Scale, (GSES) (Schwarzer & Jerusalem, 1995) • 僅有實驗組學生完成，但可作為成效評量之參考工具如下： 5. 自編教學策略接受與效度工具 A tool developed to rate teaching strategies acceptability and usefulness 6. 學校線上對此課程之教學滿意度評量（含回饋與意見）Standard Course Evaluation Form required by the College 7. 學生作業週心得 (Weekly Journal entries of self-reflection)
*其他補充說明	http://portal.mmc.edu.tw 線上教學平台，含課程大綱教材內容與歷年作業

馬偕紀念醫院

人體研究倫理審查委員會同意臨床試驗證明書

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查以「護理系學生之安寧療護態度、素養、與自我效能：轉化學習與經驗反思策略教學之成效評估」試驗案(本會編號: 20MMHIS262e)，已經本院人體研究倫理審查委員會審查通過，同意馬偕醫學院熊誼芳主持人依所提計畫內容進行臨床試驗，本會組織與執行皆遵守ICH-GCP規範，特此證明。

同意計畫之內容版本日期：

1. 核准總試驗期限：自2020年09月14日至2022年09月13日。
2. 同意函有效期限：2021年09月13日。
3. 詳細計畫書： Date 14-Sep-2020
4. 受試者同意書： Version 2 Date 20200828
5. 問卷：Version 1.0 Date 2020/07/28
6. 試驗執行地點：馬偕醫學院
7. 受試者人數：80
8. 會議審查日期：NA。

依照ICH-GCP規定，臨床試驗每屆滿一年，人體研究倫理審查委員會必須重新審查是否繼續進行。請於有效期限到期二個月前繳交期中報告以利本會進行審查。

台灣基督長老教會馬偕醫療財團法人
馬偕紀念醫院人體研究倫理審查委員會(1)

主任委員 呂宜興

2020年09月14日