

Enfermería Clínica

DESARROLLO DE UN MODELO DE APRENDIZAJE PALIATIVO BASADO EN LA TEORÍA DEL APRENDIZAJE TRANSFORMACIONAL SOBRE LAS COMPETENCIAS DE LOS ESTUDIANTES EN CUIDADOS PALIATIVOS

--Manuscript Draft--

Manuscript Number:	ENFCLIN-D-22-00076
Article Type:	Original
Keywords:	transformational learning theory; palliative care competence; Nursing Students; learning model
Corresponding Author:	Ni Luh Putu Inca Universitas Airlangga Surabaya, East Java INDONESIA
First Author:	Ni Luh Putu Inca
Order of Authors:	Ni Luh Putu Inca Nursalam Nursalam
Abstract:	<p>Introduction</p> <p>Palliative care competence is one of the competencies that must be possessed by generalist nurses. For this reason, strategies for developing palliative care learning models need to be carried out to ensure nursing students have palliative care competencies. Therefore, this study was structured to develop a transformation theory-based palliative care learning model that prioritizes the active participation of students to deal with palliative care in future practice.</p> <p>Methods</p> <p>This study was a cross-sectional study involving 189 nursing students as participants. The proposed model involves six variables, namely student characteristics, educator characteristics, learning media, palliative care competencies, TLT-based palliative learning, and competency achievement. Data were collected using a questionnaire that was tested using the Structural Equation Modeling (SEM) technique.</p> <p>Results</p> <p>SEM analysis showed that the R² value of TLT-based palliative learning was 0.707 or 70.7%. These results indicate that the diversity of TLT-based palliative learning variables can be explained by the variables of students, educators, palliative competencies, and learning media by 70.7%. Each construct has a value of Q² > 0, which means the model is satisfactory. The path coefficient value of 0.627 indicates that the characteristics of educators have the most significant contribution to the TLT-based palliative learning model.</p> <p>Conclusion</p> <p>It can be concluded that the teaching-learning process based on transformational learning theory is a promising strategy to support nursing students to achieve palliative care competence.</p>

**DEVELOPMENT OF PALLIATIVE LEARNING MODEL BASED ON
TRANSFORMATIONAL LEARNING THEORY ON STUDENTS'
COMPETENCIES IN PALLIATIVE CARE**

**Ni Luh Putu Inca Buntari Agustini¹, Nursalam Nursalam^{2*}, Tintin Sukartini²,
I Dewa Ayu Rismayanti¹, Ni Wayan Suniadewi¹**

DEVELOPMENT OF PALLIATIVE LEARNING MODEL BASED ON TRANSFORMATIONAL LEARNING THEORY ON STUDENTS' COMPETENCIES IN PALLIATIVE CARE

Ni Luh Putu Inca Buntari Agustini¹, Nursalam Nursalam^{2*}, Tintin Sukartini²,
I Dewa Ayu Rismayanti¹, Ni Wayan Suniadewi¹

¹Candidate of Doctor in Nursing, Faculty of Nursing, Universitas Airlangga, Indonesia
60286

²Faculty of Nursing, Universitas Airlangga, Indonesia 60286

***Corresponding Author: Nursalam Nursalam**

Professor in Nursing

Head of Doctoral Nursing Program, Faculty of Nursing, Universitas Airlangga, Indonesia

Telp: +81.33.965.0000 E-mail: nursalam@fkip.unair.ac.id

ABSTRACT

Introduction: Palliative care competence is one of the competencies that must be possessed by generalist nurses. For this reason, strategies for developing palliative care learning models need to be carried out to ensure nursing students have palliative care competencies. Therefore, this study was structured to develop a transformation theory-based palliative care learning model that prioritizes the active participation of students to deal with palliative care in future practice. **Methods:** This study was a cross-sectional study involving 189 nursing students as participants. The proposed model involves six variables, namely student characteristics, educator characteristics, learning media, palliative care competencies, TLT-based palliative learning, and competency achievement. Data were collected using a questionnaire that was tested using the Structural Equation Modeling (SEM) technique. **Results:** SEM analysis showed that the R² value of TLT-based palliative learning was 0.707 or 70.7%. These results indicate that the diversity of TLT-based palliative learning variables can be explained by the variables of students, educators, palliative competencies, and learning media by 70.7%. Each construct has a value of Q² > 0, which means the model is satisfactory. The path coefficient value of 0.627 indicates that the characteristics of educators have the most significant contribution to the TLT-based palliative learning model. **Conclusion:** It can be concluded that the teaching-learning process based on transformational learning theory is a promising strategy to support nursing students to achieve palliative care competence.

Keywords: *transformational learning theory, palliative care competence, nursing students, learning model.*

DEVELOPMENT OF PALLIATIVE LEARNING MODEL BASED ON TRANSFORMATIONAL LEARNING THEORY ON STUDENTS' COMPETENCIES IN PALLIATIVE CARE

Ni Luh Putu Inca Buntari Agustini¹, Nursalam Nursalam^{2*}, Tintin Sukartini²,
I Dewa Ayu Rismayanti¹, Ni Wayan Suniadewi¹

¹Candidate of Doctor in Nursing, Faculty of Nursing, Universitas Airlangga, Indonesia 60286

²Faculty of Nursing, Universitas Airlangga, Indonesia 60286

***Corresponding Author: Nursalam Nursalam**

Professor in Nursing

Head of Doctoral Nursing Program, Faculty of Nursing, Universitas Airlangga, Indonesia

Telp: +81.33.965.0000 E-mail: nursalam@fkip.unair.ac.id

ABSTRACT

Introduction: Palliative care competence is one of the competencies that must be possessed by generalist nurses. For this reason, strategies for developing palliative care learning models need to be carried out to ensure nursing students have palliative care competencies. Therefore, this study was structured to develop a transformation theory-based palliative care learning model that prioritizes the active participation of students to deal with palliative care in future practice. **Methods:** This study was a cross-sectional study involving 189 nursing students as participants. The proposed model involves six variables, namely student characteristics, educator characteristics, learning media, palliative care competencies, TLT-based palliative learning, and competency achievement. Data were collected using a questionnaire that was tested using the Structural Equation Modeling (SEM) technique. **Results:** SEM analysis showed that the R² value of TLT-based palliative learning was 0.707 or 70.7%. These results indicate that the diversity of TLT-based palliative learning variables can be explained by the variables of students, educators, palliative competencies, and learning media by 70.7%. Each construct has a value of Q² > 0, which means the model is satisfactory. The path coefficient value of 0.627 indicates that the characteristics of educators have the most significant contribution to the TLT-based palliative learning model. **Conclusion:** It can be concluded that the teaching-learning process based on transformational learning theory is a promising strategy to support nursing students to achieve palliative care competence.

Keywords: *transformational learning theory, palliative care competence, nursing students, learning model.*

DEVELOPMENT OF PALLIATIVE LEARNING MODEL BASED ON TRANSFORMATIONAL LEARNING THEORY ON STUDENTS' COMPETENCIES IN PALLIATIVE CARE

ABSTRACT

Introduction: Palliative care competence is one of the competencies that must be possessed by generalist nurses. For this reason, strategies for developing palliative care learning models need to be carried out to ensure nursing students have palliative care competencies. Therefore, this study was structured to develop a transformation theory-based palliative care learning model that prioritizes the active participation of students to deal with palliative care in future practice. **Methods:** This study was a cross-sectional study involving 189 nursing students as participants. The proposed model involves six variables, namely student characteristics, educator characteristics, learning media, palliative care competencies, TLT-based palliative learning, and competency achievement. Data were collected using a questionnaire that was tested using the Structural Equation Modeling (SEM) technique. **Results:** SEM analysis showed that the R2 value of TLT-based palliative learning was 0.707 or 70.7%. These results indicate that the diversity of TLT-based palliative learning variables can be explained by the variables of students, educators, palliative competencies, and learning media by 70.7%. Each construct has a value of $Q^2 > 0$, which means the model is satisfactory. The path coefficient value of 0.627 indicates that the characteristics of educators have the most significant contribution to the TLT-based palliative learning model. **Conclusion:** It can be concluded that the teaching-learning process based on transformational learning theory is a promising strategy to support nursing students to achieve palliative care competence. **Keywords:** *transformational learning theory, palliative care competence, nursing students, learning model.*

What is known

The palliative learning model based on transformational learning theory (TLT) is a learning model that can foster a more human relationship pattern through 4 phases, namely disorientation dilemma, critical self-reflection, reflective discourse, and integrated action.

What the contribute?

The competencies that students must achieve make them more confident in being able to use the lessons when they graduate in a variety of health care settings.

INTRODUCTION

The nurse generalists must understand, interpret, and implement palliative care independently or through interprofessional collaboration (1,2). The philosophy of palliative care is to strengthen the paradigm of care, not cure, which indicates patient-centered not disease-centered. Palliative care emphasizes that everyone has a right to be healthy, free themselves from pain, fulfill their biopsychosocial and spiritual needs, and die with dignity. Palliative care has a different complexity of care compared to other

1 nursing care models (1,3–5). Integrating palliative care in the nursing curricula has been
2 initiated and developed (6,7). However, in general, nursing school graduates' competence
3 in palliative care is still a significant problem. Several studies reveal that students'
4 competencies related to palliative care and primarily cognitive are still lacking, even
5 though they have taken palliative care courses (8–10). In Indonesia, palliative care was
6 initially placed in elective courses of nursing education. Then since 2015, the palliative
7 care course has been moved as a core course. However, a study conducted among
8 Indonesian nursing students reported that 75.7% of 189 respondents had insufficient
9 knowledge about palliative care (10). Implementing palliative care courses seems
10 challenging (2,11).

11
12
13
14
15 Developing a learning model to teach palliative care to undergraduate nurse
16 students is urgent to achieve palliative care competencies. The learning model developed
17 should promote the values of humanistic and empathetic interactions between teachers
18 and students (12). The Transformational Learning Theory (TLT) introduced by Professor
19 Jack Mezirow from Columbia University encourages students to be active and self-
20 reflective (13). This approach potentially creates authenticity and transformative
21 characters, which is essential for conducting patient-centered nursing care as well as the
22 end-of-life care. Meanwhile, students' scores achieved in teaching-centered learning and
23 student-centered learning, including self-directed learning processes, are significantly
24 different (14)

25
26
27
28
29 In the TLT, educators possess a strategic role to facilitate a learner-centered
30 process. Instructions provided by the educators become a bridge for the learners'
31 engagement in the teaching-learning process. Meanwhile, the learners should keep an
32 open mind and creativity to discover new information and their experience, locate it into
33 the context, and interpret it into practice. Therefore, this study aimed to establish the
34 palliative care TLT-based model to enhance nurse graduates' palliative care
35 competencies.

36 37 38 39 40 **METHODS**

41
42 The study design is cross-sectional. It invited all undergraduate nurse students at
43 a nursing college in Bali Island, Indonesia to be the participants. They should meet the
44 inclusion criteria which were active students who had received palliative courses. The
45 number of participants involved in this study was 189 students selected using simple
46 random sampling. The health research ethics committee of the Universitas Airlangga had
47 approved the research with an ethics number: 2162-KEPK.

48
49 The proposed model involved six variables, i.e., students' characteristics,
50 educators' characteristics, learning media, palliative care competencies, palliative TLT-
51 based learning, and competencies achievement. Each of the variables contains sub-set
52 variables as follows:

- 53
54
55 1. X1: students' characteristics factors, i.e., X1.1: gender. X1.2: socio-cultural
56 background. X1.3: parents' economic background. X1.4: experience of loss, grief,
57
58
59
60
61
62
63
64
65

1 and bereavement. X1.5: self-concept. X1.6: learning motivation, X1.7: learning
2 readiness, X1.8: learning orientation, and X1.9: a learning experience.

- 3
- 4 2. X2: educators' characteristics factors, i.e., X2.1: professional ability, X2.2:
5 personal quality, and X2.3: interpersonal relationships with students.
- 6
- 7 3. X3: palliative care competencies factors, i.e.: X3.1: pain and symptom
8 management, X3.2: End of life care, X3.3: hospice care, and X3.4: loss, grief, and
9 bereavement.
- 10
- 11 4. X4: learning media factors, i.e.: X4.1: classroom management and X4.2: teaching
12 aids.
- 13
- 14 5. X5: Transformative Learning Theory (TLT)-based palliative learning, i.e.: X5.1:
15 disorienting dilemma, X5.2: critical self-reflection, X5.3: reflective discourse, and
16 X5.4: action.
- 17
- 18 6. Y1: competencies achievement, i.e.: Y1.1: the physical aspect of care, Y1.2:
19 psychological aspect of care, Y1.3: social/ cultural aspect of care, Y1.4: spiritual
20 aspect of care, and Y1.5: care of a patient at the end of life.
- 21

22 An ad hoc questionnaire was structured through a literature review. The
23 questionnaire covered six variables involved in the proposed model, i.e., students'
24 characteristics, educators' characteristics, palliative care competencies, learning media,
25 TLT-based palliative learning, and competencies achievement. A professional judgment
26 was applied to assess the questionnaire's content, and the Pearson Product Moment
27 formula calculated the questionnaire's validity using the R-value. The calculation results
28 were then matched with the two-tailed Product Moment r table with $\alpha = 0.05$. After
29 removing the certain items, the remaining items had a value of r count above 0.361, Sig.
30 2-tailed ($\alpha = 0.05$), N=30 which indicated validity. The reliability test in this study used
31 Internal Consistency Reliability. Cronbach's alpha calculation resulted in a value greater
32 than 0.7, which is considered reliable.

33
34
35
36
37
38 Data collection was started in February 2021. Participants were recruited based
39 on the inclusion criteria. Firstly, brief information regarding this study was given to the
40 potential participants. After that, participants were asked to sign an informed consent
41 form to confirm their voluntary participation. Their participation was guaranteed
42 anonymity, and all the participants had the right to withdraw before or during the research.
43 The validated questionnaire was given to the participants who then had to return them
44 straight away.

45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

1 reliability of all indicators in the model. A validity test was conducted with convergent
2 and discriminant validity tests. In the convergent validity test, an indicator is declared
3 valid with an average value of extracted variance (AVE) of > 0.5 . The rule of thumb used
4 for convergent validity is outer loading of > 0.7 , communality of > 0.5 , and AVE of $>$
5 0.5 . The discriminant validity test was assessed based on the cross-loading measurement
6 with the construct.
7

8
9 The inner model or measurement of the inside was a structural model to predict
10 causality relationships between latent variables. The structural model in PLS was
11 evaluated using three ways:
12

- 13 1. The goodness of fit test with R^2 measures the degree of variation of changes in
14 the independent variable to the dependent variable.
- 15 2. The test of predictive relevance (Q^2 predictive relevance) for the structural model
16 measures the model's observed values and estimated parameters. A Q^2 value of $>$
17 0 (zero) indicates that the model has a predictive relevance value and vice versa.
- 18 3. The bootstrapping process with the t-statistic test parameter predicts the existence
19 of causality.
20
21

22 Hypothesis testing was conducted using t-statistic. The path coefficient value
23 shows a significance in hypothesis testing if the t-statistic value is > 1.96 (two-tailed) and
24 vice versa.
25
26
27

28 **RESULTS**

29 The participants involved in this study were 189 students ($N=189$). As shown in
30 Table 1, most of the respondents were 20 years old (47.6%), and their mean age was
31 20.60 ± 0.64 (range: 20 to 23). About 88.4% had experience of caring for patients with
32 chronic diseases. Most of the respondents had an experience of caring for dying patients
33 (59.3%). Nevertheless, only 28% of respondents had an experience of caring for their
34 dying family members and only 5% close friends nearing death.
35
36
37

38 **1) Students' characteristics**

39 Table in student character shows that most respondents were women (85.2%).
40 Most parents' economic background was self-employed (39.7%). Regarding the
41 experience of loss, grief, and bereavement, most respondents had an experience
42 of sadness (92.6%), grieving (87.3%), and loss (88.4%). Only 33.9% had a good
43 self-concept, with a mean of 15.52 ± 1.81 (range: 12 to 20). About 61.4% had poor
44 learning motivation (mean: 24.86 ± 2.25 and range: 19 to 32), 58.7% had poor
45 learning readiness (mean: 25.62 ± 2.81 and range: 20 to 32), and 51.3% had poor
46 learning orientation (mean: 41.19 ± 4.87 and range: 29 to 32). Most students
47 (60.3%) also had poor learning experience (mean: 22.09 ± 2.57 and range: 15 to
48 28).
49

50 **2) Educators' characteristics**

51 The results (Table 2) describe that most respondents scored the educators'
52 characteristics in the three domains: 64.6% poor for professional abilities (mean:
53 30.93 ± 4.38 and range: 16 to 40), 64.0% poor for the personal quality (mean:
54
55
56
57
58
59
60
61
62
63
64
65

1 40.57±5.29 (range: 26 to 52), and 68.3% for the interpersonal relationship with
2 learners (mean: 33.67±4.28 and range: 22 to 44).

3) Palliative care competencies

4 Table 2 confirms that most respondents had poor palliative care competencies
5 in all indicators. As many as 74.6% had poor competencies in pain and symptom
6 management (mean: 3.03±0.69 and range: 2 to 4), 62.4% in the end of life (EOL)
7 care (mean: 2.53±0.81 and range: 1 to 4), 56.1% for hospice care (mean:
8 2.60±0.75 and range: 2 to 4), 77.2% in loss, grief, and bereavement (mean: 2.87
9 ±0.75 and range: 2 to 4).

4) Learning media

10 Table 2 shows the learning media variables, consisting of two indicators, i.e.,
11 classroom management and teaching instruments. More than half of the
12 respondents (51.3%) stated that classroom management was poor (51.3%) (mean:
13 23.12±3.07 and range: 17 to 28). About 59.3% also scored the teaching
14 instruments as poor (mean: 22.28±3.04 and range 14 to 28).

5) Palliative TLT-based learning

15 As described in Table 2, the implementation of the four TLT phases of TLT
16 in palliative learning was poor. As many as 81% of respondents had poor
17 disorienting dilemma (mean: 20.89 ±1.55 and range: 12 to 24). More than half of
18 respondents (53.4%) had poor critical self-reflection (mean: 20.06±1.97 and
19 range: 14 to 26). A total of 76.7% of respondents possessed poor reflective
20 discourse (mean: 21.92±1.62 and range: 14 to 26). The percentage of respondents
21 who had poor action was 87.3% (mean: 21.28±1.52 and range: 16 to 24).

6) Students' competencies achievement

22 As pointed in Table 2, the five aspects of holistic palliative care and the end-
23 of-life care competencies were not achieved adequately. The percentages of
24 respondents who did not achieve the competencies in the physical aspect of care
25 (Y1.1), psychological aspect of the care (Y1.2), social/cultural aspect of care
26 (Y1.3), spiritual aspect of care (Y1.4), and care of the patient at the end-of-life
27 (Y1.5) were 90.5%, 83.1%, 81%, 86.8%, and 59.8%, respectively. The average
28 score of each indicator is as follows: Y1.1: 2.66±0.65 (1-4), Y1.2: 2.90±0.65 (2-
29 4), Y1.3: 2.75±0.76 (1-4), Y1.4: 2.68±0.69 (2-4), Y1.5: 2.52±0.71 (1-4).

30 The results of the causality test on the latent variables can be seen in Figure 1. All
31 indicators had the t value of more than 1.96, except the four indicators in the students'
32 characteristics, i.e., gender (X1.1), socio-cultural background (X1.2), parents' economic
33 background (X1.3), and experiences of loss, grief, and bereavement (X1.4). These
34 indicators were then excluded from the X1 latent variable. A new model was developed
35 without X1.1, X1.2, X1.3, and X1.4 indicators, as described in Figure 2. The new model
36 shows that all indicators are valid, as evidenced by the t-value of > 1.96. This means that
37 all indicators in the new model have described the constructs or latent variables
38 adequately.

1 Structural model testing (inner model) was conducted to determine the
2 significance of the effect between exogenous and endogenous variables. This analysis
3 was conducted after all indicators and variables were declared valid and reliable. The
4 coefficient of determination (R^2) was used to determine the magnitude of the ability of
5 endogenous variables to explain the diversity of exogenous variables, or in other words,
6 to determine the magnitude of the contribution of exogenous variables to endogenous
7 variables. The results of the R^2 value of TLT-based palliative learning model (X5) was
8 0.707 and the R^2 adjusted was at 0.701. The R^2 of palliative care competencies
9 achievement (Y1) was 0.710 and the R^2 adjusted was at 0.708. The value of R^2 on the
10 latent variable shows the contribution of the independent variable in influencing the
11 dependent variable. The R^2 value which is close to 1 indicates a high contribution. The
12 R^2 value of TLT-based palliative learning (X5) was 0.707 or 70.7%. This result indicated
13 that the diversity of TLT-based palliative learning variables can be explained by the
14 variables of students, educators, palliative competencies, and learning media by 70.7%.
15 The contribution of the variables of students, educators, palliative competencies, and
16 learning media to palliative TLT-based learning was at 70.7%. In comparison, the
17 remaining 29.3% was the contribution of other variables not included in the model. The
18 R^2 value of competency achievement (Y) was 0.710 or 71%. This calculated value
19 indicates that the diversity of competency achievement variables can be explained by the
20 TLT-based palliative learning variable of 71%. In other words, the contribution of TLT-
21 based palliative learning to competency achievement is 71%. In comparison, the
22 remaining 29% is the contribution of other variables not included in the model.

23 Predictive relevance (Q^2) measures how well the observed values generated by
24 the model and parameter estimates are. A Q^2 value greater than 0 (zero) indicates that the
25 model is good enough, while a Q^2 value less than 0 (zero) indicates that the model lacks
26 predictive relevance. The Q^2 of palliative TLT-based learning (X5) was at 0.282 (SSO =
27 756.00; SSE=542.948). The Q^2 palliative care competencies variable (Y) was at 0.133
28 (SSO=945.000; SSE=819.149). The result showed that each construct had a Q^2 value of
29 > 0 . It can be said that the structural model designed to explain palliative TLT-based
30 learning on the achievement of nurse students' competencies in palliative care was proven
31 to be satisfactory.

32 Hypothesis testing was proven based on the causality test results of exogenous
33 variables on endogenous variables by eliminating the relationship between exogenous
34 variables to endogenous variables with no significant effect. The final model was obtained
35 between exogenous variables and endogenous variables. Table 3 shows that the value of
36 t-statistics is greater than that of t-table (1.96) or a p-value is less than significant alpha
37 of 5% or 0.05. Therefore, a significant effect of exogenous variables was found on
38 endogenous variables. The results of the model significance test can be explained as
39 follows:

- 40 a) There was a significant effect of students' characteristics on palliative TLT-based
41 learning. The effect of the students' characteristics was at 0.149, with a p-value of

1 0.007. The test results showed that the t-statistic value was > 1.96 (two-tailed) and
2 the p-value was < 0.05 .
3

- 4 b) There was a significant influence of the educators' characteristics on TLT-based
5 palliative learning. The influence of the educators' characteristics was at 0.627,
6 with a p-value of 0.000. The test results showed that the t-statistic value was $>$
7 1.96 (two-tailed) and the p-value was < 0.05 .
8
9 c) There was a significant effect of students' palliative care competencies on TLT-
10 based palliative learning. The effect was at 0.108, with a p-value of 0.017. The
11 test results show that the t-statistic value was > 1.96 (two-tailed) and the p-value
12 was < 0.05 .
13
14 d) There is a significant influence of learning media on TLT-based palliative
15 learning. The influence of the learning media is 0.321, with a p-value of 0.000.
16 The test results show that the t-statistic value is > 1.96 (two-tailed) and the p-value
17 is < 0.05 .
18
19 e) There was a significant effect of palliative TLT-based learning on the achievement
20 of palliative care competencies. The effect of palliative learning is 0.843, with a
21 p-value of 0.000. The test results showed that the t-statistic value was > 1.96 (two-
22 tailed) and the p-value was < 0.05 .
23
24
25

26 Based on the path coefficient value, it can be concluded that the educators'
27 characteristics variable had the most significant contribution to the palliative TLT-based
28 learning model, amounting to 0.627.
29
30

31 **DISCUSSION**

32 The results showed that almost all the palliative care teaching-learning process
33 indicators and competency achievement were inadequate. It seems that students felt less
34 confident, lacked trust, and were confused in understanding the concept of the materials
35 being taught. Students might not understand the benefits of teaching-learning process,
36 resulting in undirected self-learning. It could happen if the students are treated as objects,
37 not subjects of the teaching-learning process. Therefore, a teaching-learning process
38 should encourage active student participation in the process. Considering students'
39 backgrounds, interests, needs, experience, and capabilities, students can structure self-
40 confidence and engagement in dealing with palliative care concepts through an active
41 teaching-learning process (15–17).
42
43
44
45
46

47 Educators play an essential role in implementing a learning strategy. The role of
48 educators is not limited to be a teacher but also as a mentor, developer, and manager of
49 learning activities that can facilitate students in achieving the set competencies. In the
50 context of palliative learning, educators must guide, develop, and manage teaching-
51 learning activities so that students can achieve the set competencies (2,18,19). Nursing
52 colleges can use the characteristics of educators contributing to the active teaching-
53 learning process for the staff recruitment. The educators' characteristics will determine
54 the success of students' transformation based on the set competencies (3,19). Educators'
55 personalities will be the key factor that underlies the student-teacher professional
56
57
58
59
60
61
62
63
64
65

1 relationship, which provides an academic atmosphere for students' engagement in
2 achieving the competencies (19).

3
4 Educators who are less able to manage the class and encourage students to do
5 critical reflection and engage in reflective discussions will cause the failure of the
6 teaching-learning process. As a result, students do not actively participate and interact
7 with educators, peers, and do not use learning resources both in the classroom and in the
8 laboratory. Such a circumstance could prevent the students' self-confidence in handling
9 palliative care. The success of the learning process cannot be separated from the support
10 of learning media. Learning media helps the teaching and learning processes run in a
11 reliable and structured manner. Adequate learning media management can also motivate
12 students and teachers to interact in the classroom efficiently and effectively (20–22).

13
14 This study provides a transformation frame that puts forward more rational, more
15 concrete, and easier processes to evaluate. Based on the Mezirow's theory, several steps
16 should be followed. The first transformation process is disorienting dilemma, a condition
17 where a person is experiencing a personal crisis. This occurs because a person finds a
18 reality that turns out to be different from their beliefs. The second process is critical self-
19 reflection. After experiencing a personal crisis, a person will conduct critical reflection
20 and re-evaluation of their assumptions related to their self-concept and their ecological
21 factors. The third process is a reflective discourse. A person conducts a reflective dialogue
22 with others about a new perspective to obtain the validity and truth of the new perspective.
23 The fourth process is taking new actions based on the perspective of new meanings that
24 have been generated to understand, interpret, and perceive their context. Mainly, the
25 Mezirow's theory of transformation perspective entrusts individuals with the capacity for
26 profound change to experience transformation (3,13,23).

27 28 29 30 31 32 33 34 35 36 **CONCLUSION**

37 Based on the results of this study, it can be suggested that it is necessary to
38 improve learning methods to support the achievement of palliative care competencies.
39 The teaching-learning process based on the transformational learning theory is a
40 promising strategy to support students to attain palliative care competencies.
41
42
43
44
45
46
47

48 **REFERENCES**

- 49
50 1. Dobrina R, Tenze M, Palese A. Transforming End-of-Life Care by Implementing
51 a Patient-Centered Care Model. *J Hosp Palliat Nurs* [Internet]. 2018
52 Dec;20(6):531–41.
53 2. Franklin CM, Bernhardt JM, Lopez RP, Long-Middleton ER, Davis S.
54 Interprofessional Teamwork and Collaboration Between Community Health
55 Workers and Healthcare Teams: An Integrative Review. *Heal Serv Res Manag*
56 *Epidemiol.* 2015;2:1–9.
57 3. Damianakis T, Barrett B, Archer-Kuhn B, Samson P, Matin S, Ahern C. Teaching
58
59
60
61
62
63
64
65

- 1 for Transformation: Master of Social Work Students Identify Teaching
2 Approaches That Made a Difference. *J Transform Educ.* 2019;1–22. Available
3 from: <https://doi.org/10.1177/1541344619865948>
4
- 5 4. Henoch I, Melin-johansson C, Bergh I, Strang S, Ek K, Hammarlund K, et al.
6 Nurse Education in Practice Undergraduate nursing students' attitudes and
7 preparedness toward caring for dying persons e A longitudinal study. 2017;26:12–
8 20.
9
 - 10 5. Josephsen J, Martz K. Faculty and student perceptions: An end-of-life nursing
11 curriculum survey. *J Hosp Palliat Nurs.* 2014;16(8):474–81.
 - 12 6. Ramjan JM, Costa CM, Hickman LD, Kearns M, Phillips JL. Integrating palliative
13 care content into a new undergraduate nursing curriculum: The University of Notre
14 Dame, Australia - Sydney experience. *Collegian.* 2010;17(2).
 - 15 7. Davis A, Lippe M, Glover TL, McLeskey N, Shillam C, Mazanec P. Integrating
16 the ELNEC undergraduate curriculum into Nursing Education: Lessons learned. *J*
17 *Prof Nurs.* 2021;37(2).
 - 18 8. Achora S, Labrage LJ. An Integrative Review on Knowledge and Attitudes of
19 Nurses Toward Palliative Care: Implications for Practice. *J Hosp Palliat Nurs.*
20 2019;21(1):29–37.
 - 21 9. Farmani AH, Mirhafez SR, Kavosi A, Moghadam Pasha A, Jamali nasab A,
22 Mohammadi G, et al. Dataset on the nurses' knowledge, attitude and practice
23 towards palliative care. *Data Br [Internet].* 2019;22:319–25. Available from:
24 <https://doi.org/10.1016/j.dib.2018.11.133>
 - 25 10. Luh N, Inca P, Agustini B, Nursalam N, Rismawan M. Undergraduate Nursing
26 Students' Knowledge, Attitude and Practice Toward Palliative Care in Indonesia :
27 A Cross-sectional Online Survey. 2020;24(7):7709–17.
 - 28 11. Rietze LL, Tschanz CL, Richardson HRL. Evaluating an Initiative to Promote
29 Entry-Level Competence in Palliative and End-of-Life Care for Registered Nurses
30 in Canada. *J Hosp Palliat Nurs.* 2018 Dec;20(6):568–74.
 - 31 12. Shahid S, Ekberg S, Holloway M, Jacka C, Yates P, Garvey G, et al. Experiential
32 learning to increase palliative care competence among the Indigenous workforce:
33 an Australian experience. *BMJ Support Palliat Care.* 2019 Jun;9(2):158–63.
 - 34 13. Kleinheksel AJ. Transformative learning through virtual patient simulations:
35 Predicting critical student reflections. *Clin Simul Nurs.* 2014;10(6).
 - 36 14. Nurjannah I, Husniyah F, Harjanto T. Teacher-Centered Learning and Student-
37 Centered Learning Approaches in Nursing School: Which One Is Better? *Belitung*
38 *Nurs J.* 2017;3(2).
 - 39 15. Dimoula M, Kotronoulas G, Katsaragakis S, Christou M, Sgourou S, Patiraki E.
40 Undergraduate nursing students' knowledge about palliative care and attitudes
41 towards end-of-life care: A three-cohort, cross-sectional survey. *Nurse Educ*
42 *Today.* 2019;74(November 2018):7–14. Available from:
43 <https://doi.org/10.1016/j.nedt.2018.11.025>
 - 44 16. Jiang Q, Lu Y, Ying Y, Zhao H. Attitudes and knowledge of undergraduate nursing
45 students about palliative care: An analysis of influencing factors. *Nurse Educ*
46 *Today [Internet].* 2019;80(May):15–21. Available from:
47 <https://doi.org/10.1016/j.nedt.2019.05.040>
 - 48 17. Simbolon I, Br Perangin-angin MA. Evaluation of Self-transformational and
49 Authenticity Among Students in College of Nursing. *Klabat J Nurs.* 2020;2(1).
 - 50 18. Gustin J, Wood G, Childers J, Jacobsen J, DeLima Thomas J. Becoming a
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

- 1 Clinician Educator in Palliative Care: Finding a Path (408). *J Pain Symptom*
 2 *Manage.* 2012;43(2).
 3
 4 19. Becker R. The development of core competencies for palliative care educators. *Int*
 5 *J Palliat Nurs.* 2007;13(8).
 6
 7 20. Park S-G, 김영석. A Study on Transformative Learning of Older Adults' Media
 8 Education. *Andragogy Today Interdiscip J Adult Contin Educ.* 2015;18(1).
 9
 10 21. Sunaryo S, Nasbey H, Amelia H. Learning Media Development using
 11 Transformative Learning Strategy Android Application as a Distance Learning
 12 Support on Static Fluid. *J Penelit Pengemb Pendidik Fis.* 2021;7(1).
 13
 14 22. Lee AL, DeBest M, Koeniger-Donohue R, Strowman SR, Mitchell SE. The
 15 feasibility and acceptability of using virtual world technology for interprofessional
 16 education in palliative care: a mixed methods study. *J Interprof Care.*
 17 2020;34(4):461–71.
 18
 19 23. Mezirow J. *Transformative Learning: Theory to Practice.* New Dir Adult Contin
 20 *Educ.* 1997;1997(74).
 21
 22
 23
 24
 25
 26
 27
 28
 29
 30
 31
 32
 33
 34
 35
 36
 37
 38
 39
 40
 41
 42
 43
 44
 45
 46
 47
 48
 49
 50

51 **Table 1. Respondents' characteristics**

52 Respondents' characteristics	53 Frequency	54 Percentage
	55 N=189	
56 Age (y.o)	57 Mean (Range): 20.60±0.64 (20 to 23)	
58 20	90	47.6
59 21	87	46.0
60 22	10	5.3
61 23	2	1.1

Experience of caring for patients with chronic diseases		
Yes	167	88.4
No	22	11.6
Experience of caring for their dying family members		
Yes	53	28.0
No	136	72.0
Experience of caring for their dying friends		
Yes	5	2.6
No	184	97.4
Experience of caring for dying patients		
Yes	112	59.3
No	77	40.7

Table 2. Descriptions of the students' characteristics, educators' characteristics, palliative competencies, learning media, palliative TLT-based learning, and competency achievement

Variables and indicators	Frequency N=189	Percentage N=189
X1: students' characteristics factors		
X1.1: Gender		
Female	161	85.2
Male	28	14.8
X1.2: Socio-cultural background		
Balinese	181	95.8
Javanese	7	3.7
Others	1	0.5
X1.3: Parents' socio-economic background		
Unemployed	6	3.2
Indonesian civil officer, army, and police	33	17.5
Private employee	44	23.3
Self-employed	75	39.7
Farmer	26	13.8
Retired	5	2.6
X1.4: Experience of loss		
Yes	167	88.4
No	22	11.6
Experience of grief		
Yes	175	92.6
No	14	7.4
Experience of bereavement		
Yes	165	87.3
No	24	12.7
X1.5: Self-concept		
Good	64	33.9

Variables and indicators	Frequency N=189	Percentage N=189
X1: students' characteristics factors		
Poor	125	66.1
Mean (Range)	15.52±1.81 (12-20)	
X1.6: Learning motivation		
Good	73	38.6
Poor	116	61.4
Mean (Range)	24.86±2.25 (19-32)	
X1.7: Learning readiness		
Good	78	41.3
Poor	111	58.7
Mean (Range)	25.62±2.81 (20-32)	
X1.8: Learning orientation		
Good	92	48.7
Poor	97	51.3
Mean (Range)	41.19±4.87 (29-32)	
X1.9: Learning experience		
Good	75	39.7
Poor	114	60.3
Mean (Range)	22.09±2.57 (15-28)	
X2: educator characteristics factors		
X2.1: Professional ability		
Good	67	35.4
Poor	122	64.6
Mean (Range)	30.93±4.38 (16-40)	
X2.2: Personal quality		
Good	121	64
Poor		
Mean (Range)	40.57±5.29 (26-52)	
X2.3: Interpersonal relationships with students		
Good	60	31.7
Poor	129	68.3
Mean (Range)	33.67±4.28 (22-44)	
X3: palliative care competencies factors		
X3.1: Pain and symptom management		
Good	48	25.4
Poor	141	74.6
Mean (Range)	3,03±0,69 (2-4)	
X3.2: End of life care		
Good	71	37.6
Poor	118	62.4
Mean (Range)	2.53±0.81 (1-4)	
X3.3: Hospice care		
Good	83	43.9
Poor	106	56.1
Mean (Range)	2.60±0.75 (2-4)	

Variables and indicators	Frequency N=189	Percentage N=189
X1: students' characteristics factors		
X3.4: Loss, grief, and bereavement		
Good	43	22.8
Poor	146	77.2
Mean (Range)	2.87±0.75 (2-4)	
X4: learning media factors		
X4.1: Classroom management		
Good	92	48.7
Poor	97	51.3
Mean (Range)	23,12±3,07 (17-28)	
X4.2: Teaching devices		
Good	77	40.7
Poor	112	59.3
Mean (Range)	22.28±3.04 (14-28)	
X5: Transformative Learning Theory (TLT)-based palliative learning		
X5.1: Disorienting dilemma		
Good	36	19
Poor	153	81
Mean (Range)	20.89±1.55 (12-24)	
X5.2: Critical self-reflection		
Good	88	46.6
Poor	101	53.4
Mean (Range)	20.06±1.97 (14-26)	
X5.3: Reflective discourse		
Good	44	23.3
Poor	145	76.7
Mean (Range)	21.92±1.62 (14-26)	
X5.4: Action		
Good	24	12.7
Poor	165	87.3
Mean (Range)	21.28±1.52 (16-24)	
Y1: competencies achievement		
Y1.1: Physical aspect of care		
Good	18	9.5
Poor	171	90.5
Mean (Range)	2.66±0.65 (1-4)	
Y1.2: Psychological aspect of care		
Good	32	16.9
Poor	157	83.1
Mean (Range)	2.90±0.65 (2-4)	
Y1.3: Social/ cultural aspect of care		
Good	36	19
Poor	153	81
Mean (Range)	2.75±0.76 (1-4)	
Y1.4: Spiritual aspect of care		
Good	25	13.2

Variables and indicators	Frequency N=189	Percentage N=189
X1: students' characteristics factors		
Poor	164	86.8
Mean (Range)	2.68±0.69 (2-4)	
Y1.5: Care of patient at the end of life		
Good	76	40.2
Poor	113	59.8
Mean (Range)	2.52±0.71 (1-4)	

Table 3. Hypothesis testing of Palliative Learning Model on the competency achievement among nurse students

Hypothesis	Original Sample (O)	T Statistics (O/STDEV)	P Values	Significance
Students' characteristics (X1) to Palliative Learning (X5)	0.149	2.693	0.007	Significant
Educators' characteristics (X2) to Palliative Learning (X5)	0.627	9.868	0.000	Significant
Palliative competencies (X3) to Palliative Learning (X5)	0.108	2.392	0.017	Significant
Learning Media (X4) to Palliative Learning (X5)	0.321	4.975	0.000	Significant
Palliative Learning (X5) to Competency achievement (Y)	0.843	33.516	0.000	Significant

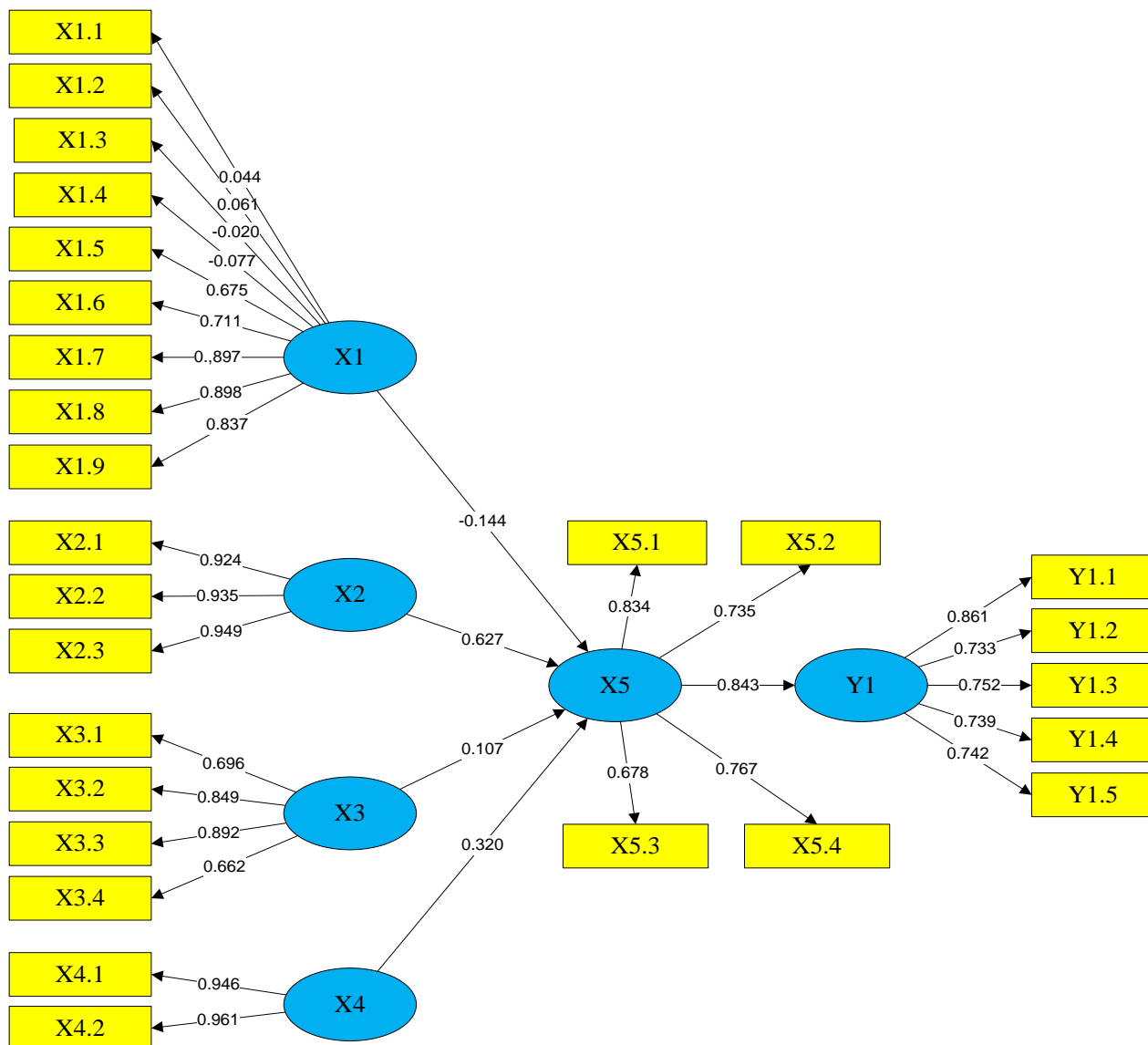


Figure 1. Constructs of PLS Algorithm (Outer Model) Palliative Learning Model Based on Transformational Learning Theory

X1: students' characteristics factors, i.e., X1.1: gender. X1.2: socio-cultural background. X1.3: parents' economic background. X1.4: experience of loss, grief, and bereavement. X1.5: self-concept. X1.6: learning motivation, X1.7: learning readiness, X1.8: learning orientation, and X1.9: a learning experience. X2: educators' characteristics factors, i.e., X2.1: professional ability, X2.2: personal quality, and X2.3: interpersonal relationships with students. X3: palliative care competencies factors, i.e., X3.1: pain and symptom management, X3.2: End of life care, X3.3: hospice care, and X3.4: loss, grief, and bereavement. X4: learning media factors, i.e., X4.1: classroom management, and X4.2: teaching aids. X5: palliative Transformative Learning Theory (TLT)-based learning, i.e., X5.1: disorienting dilemma, X5.2: critical self-reflection, X5.3: reflective discourse, and X5.4: action. Y1: competency achievement, i.e., Y1.1: the physical aspect of care, Y1.2: psychological aspect of care, Y1.3: social/ cultural aspect of care, Y1.4: spiritual aspect of care, and Y1.5: care of a patient at the End of life.

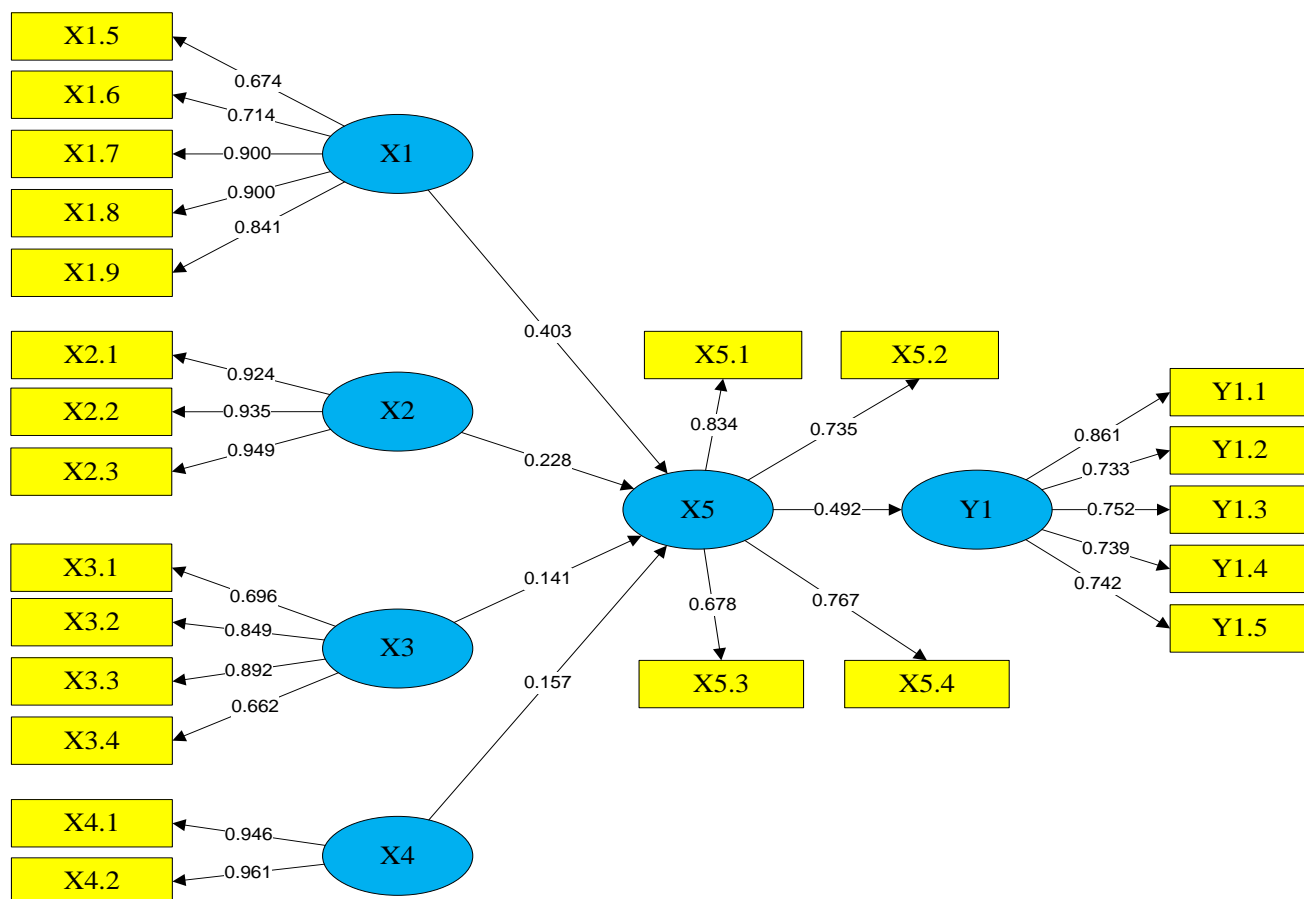


Figure 2. Constructs of Palliative Learning Model Based on Transformational Learning Theory (with the exclusion of several constructs in Figure 1).

X1: students' characteristics factors, i.e., X1.5: self-concept, X1.6: learning motivation, X1.7: learning readiness, X1.8: learning orientation, and X1.9: a learning experience.

X2: educators' characteristics factors, i.e., X2.1: professional ability, X2.2: personal quality, and X2.3: interpersonal relationships with students.

X3: palliative care competencies factors, i.e., X3.1: pain and symptom management, X3.2: End of life care, X3.3: hospice care, and X3.4: loss, grief, and bereavement.

X4: learning media factors, i.e.: X4.1: classroom management, X4.2: teaching aids.

X5: palliative Transformative Learning Theory (TLT)-based learning, i.e., X5.1: disorienting dilemma, X5.2: critical self-reflection, X5.3: reflective discourse, dan X5.4: action.

Y1: competencies achievement, i.e., Y1.1: the physical aspect of care, Y1.2: psychological aspect of care, Y1.3: social/ cultural aspect of care, Y1.4: spiritual aspect of care, and Y1.5: care of a patient at the End of life.



KOMISI ETIK PENELITIAN KESEHATAN
HEALTH RESEARCH ETHICS COMMITTEE
FAKULTAS KEPERAWATAN UNIVERSITAS AIRLANGGA
FACULTY OF NURSING UNIVERSITAS AIRLANGGA

KETERANGAN LOLOS KAJI ETIK
DESCRIPTION OF ETHICAL APPROVAL

“ETHICAL APPROVAL”

No : 2162-KEPK

Komite Etik Penelitian Kesehatan Fakultas Keperawatan Universitas Airlangga dalam upaya melindungi hak asasi dan kesejahteraan subyek penelitian kesehatan, telah mengkaji dengan teliti protokol berjudul :

The Committee of Ethical Approval in the Faculty of Nursing Universitas Airlangga, with regards of the protection of Human Rights and welfare in health research, carefully reviewed the research protocol entitled :

**“PENGEMBANGAN MODEL PEMBELAJARAN PALIATIF BERBASIS
TRANSFORMATIONAL LEARNING THEORY TERHADAP CAPAIAN
KOMPETENSI MAHASISWA KEPERAWATAN”**

Peneliti utama : Ni Luh Putu Inca Buntari Agustini, S.Kep.Ns.,MNS

Principal Investigator

Nama Institusi : Fakultas Keperawatan Universitas Airlangga

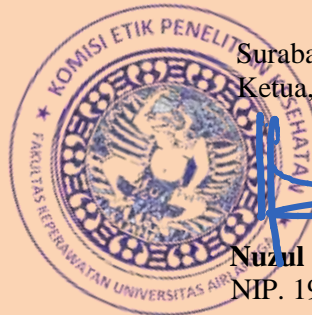
Name of the Institution

Unit/Lembaga/Tempat Penelitian : Institut Teknologi dan Kesehatan Bali

Setting of research

Dan telah menyetujui protokol tersebut di atas melalui Dipercepat.

And approved the above-mentioned protocol with Expedited.



Surabaya, 9 Februari 2021

Ketua, (CHAIRMAN)

Nuzul Qur'aniati, S.Kep.Ns.,M.Ng.,PhD

NIP. 1978 0208 2014 09 2001

***Masa berlaku 1 tahun**

1 year validity period