

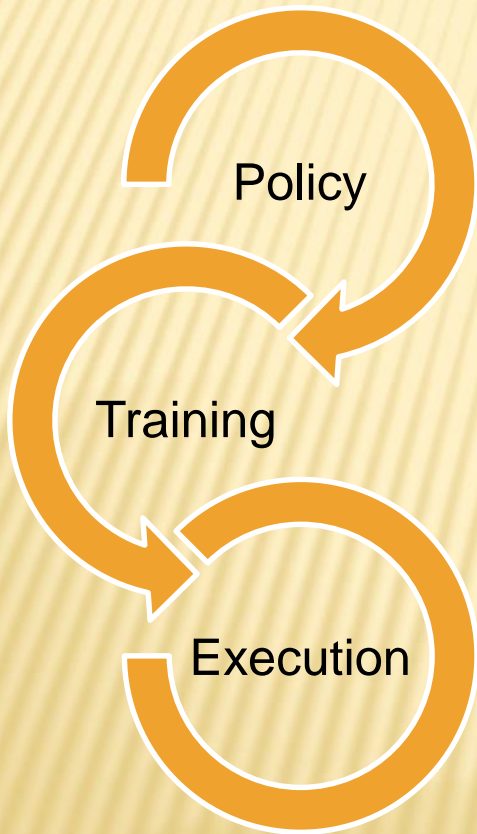


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INTEGRATION AND TRANSDISCIPLINARITY IN TEACHER EDUCATION

INTRODUCTION – CURRICULUM INTEGRATION

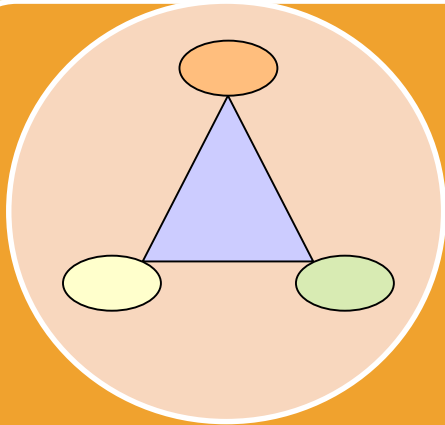


- ✗ Addresses needs of 21st Century society
- ✗ cope with curriculum overload (NCCA, 2010)
- ✗ Written into curriculum policy
- ✗ Teachers tend to rely on their past experiences and intuition
- ✗ Training needed

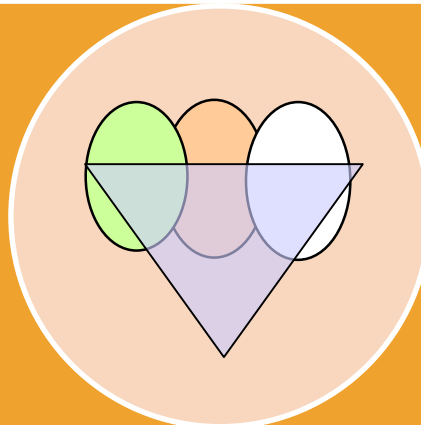
CURRICULUM INTEGRATION

- ✘ A strong theoretical foundation is essential for effective implementation of curriculum integration at all levels
- ✘ What is Curriculum Integration?

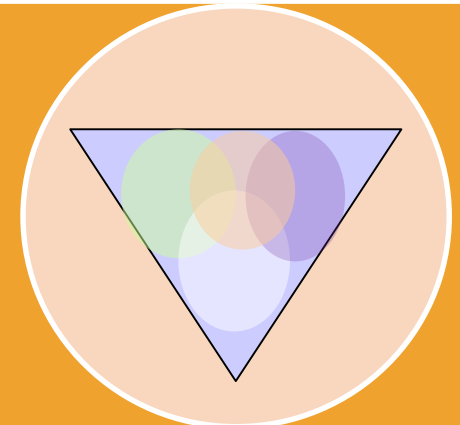
CURRICULUM INTEGRATION



Multidisciplinary



Interdisciplinary



Transdisciplinary

Bridges the divide between subjects/disciplines

Student-centred

INITIAL TEACHER EDUCATION

- ✘ Programmes incorporate curriculum integration in one form or another
- ✘ SPD third year BEd students (BEd 3) had a full semester of an Integrated Studies module along with a cross -disciplinary module covering Geography, History and Science in their third year of study (BEd3)
- ✘ It was hoped that this training would meet the need for formal training in an area that was 'problematic'.

STUDY SETUP

- ✖ BEd3 responses were compared to second year student (BEd 2) responses to determine any differences of knowledge between these two groups.
- ✖ These responses were compared to both the literature on curriculum integration and literature associated with in-service teachers' approach to curriculum integration.

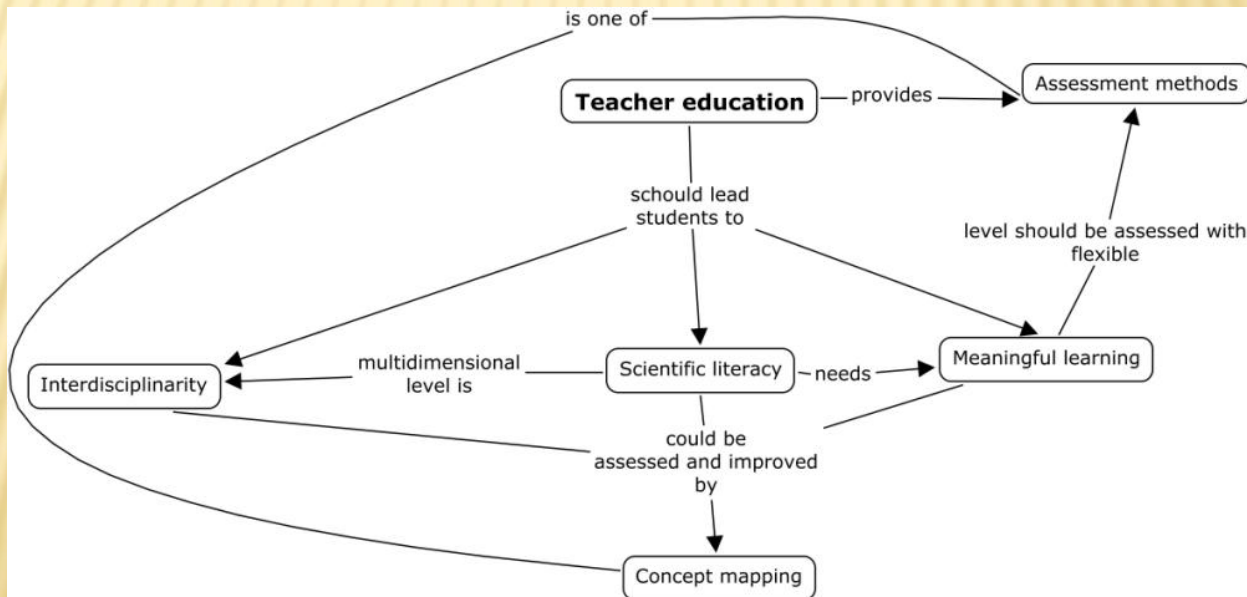
AIM OF STUDY

This study focused on student-teacher understanding of curriculum integration and was designed to address the following research questions:

- ✖ 1) whether participating in an integrated studies module gave students a better understanding of the ontology and epistemology of curriculum integration
- ✖ 2) did their understanding compare to the current literature on curriculum integration
- ✖ 3) having had some formal exposure to the ideas of curriculum integration were pre-service teachers now better equipped than their in-service counter-parts to utilize curriculum integration in an effective manner? (Inferred from lit.)

METHODS

- ✘ Concept maps were used to capture student-teachers' understanding and the focus question was *'What is curriculum integration and how/why can it be used in primary education?'*.



Reiska, P., & Soika, K. (2015)

Concept maps are an effective research instrument and assessment tool

METHODOLOGY

- ✘ Students were given a tutorial on concept map development and then given 20 minutes in-class to complete their concept map.
- ✘ 33 words taken from current literature were provided. Students were encouraged to use additional words if they so chose and were instructed to only use 10 – 15 concepts in their map.

Concept Word Bank

Curriculum Integration
Integration
Linkage
Cross-curricular
Interdisciplinary
Learning
Differentiation
Multi-disciplinary
Transdisciplinary
Constructivism
Problem-based learning

Theme
SESE
Drama
Religion
Science
Music
History
Literacy
Numeracy
ICT
Curriculum overload

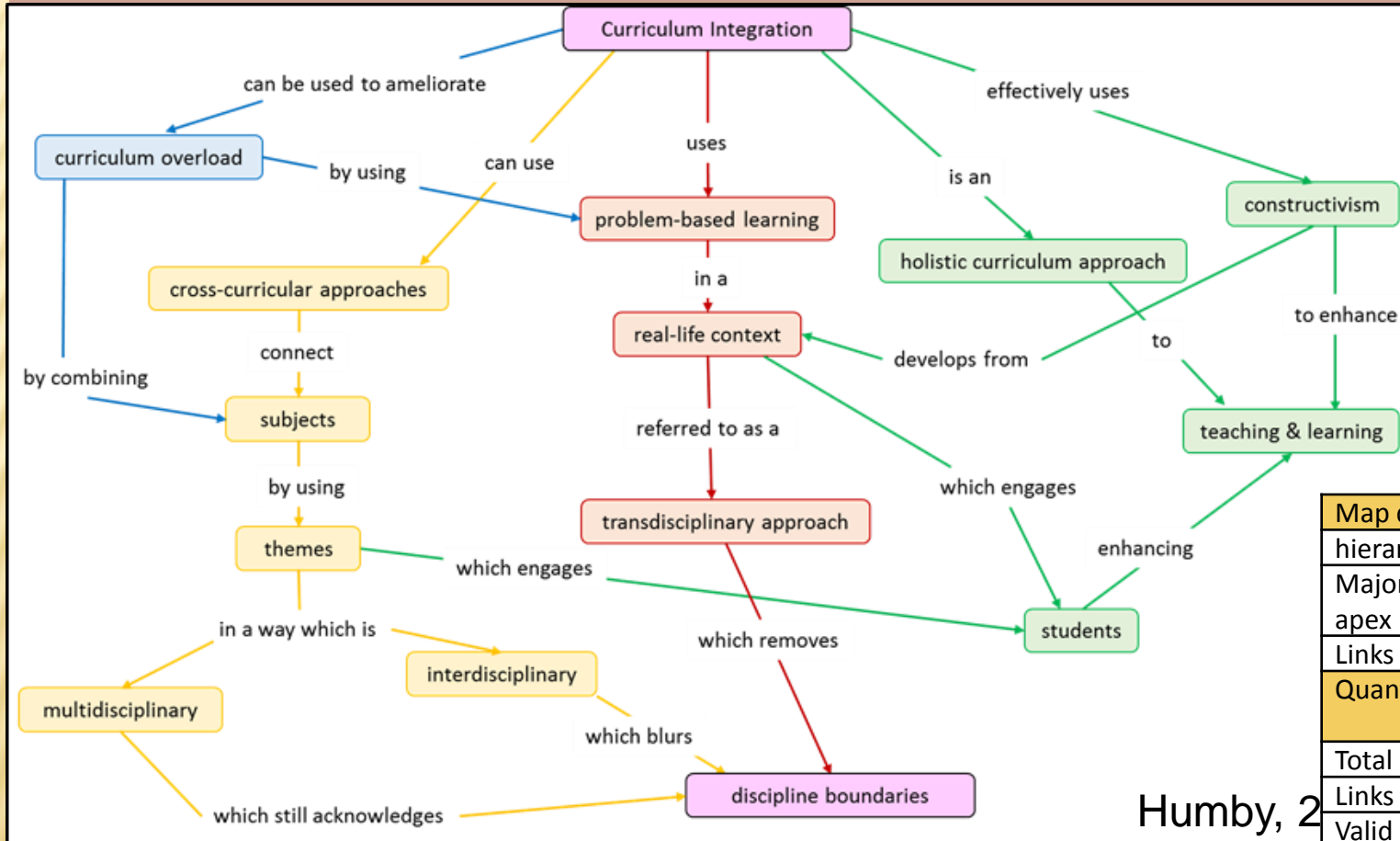
Subjects
Boundaries
Experience
Project
Thematic
Fragmented
Sequenced
Shared
Networked
Connections
Holistic

SCORING

- ✖ Concept maps were assessed both qualitatively and quantitatively and compared to a criterion map developed by the researcher based on the literature on Curriculum Integration

Map description	yes	no	Comments
hierarchical			
Major concept at apex			
Links have arrows			
Quantitative values	Counts (#)	proportions	
Total links			
Links as propositions			
Valid propositions			
Hierarchical levels			
Cross links			
Word used from list			
New words added			
Use of examples			
Sub domains			
Notes: words added:			

CRITERION MAP



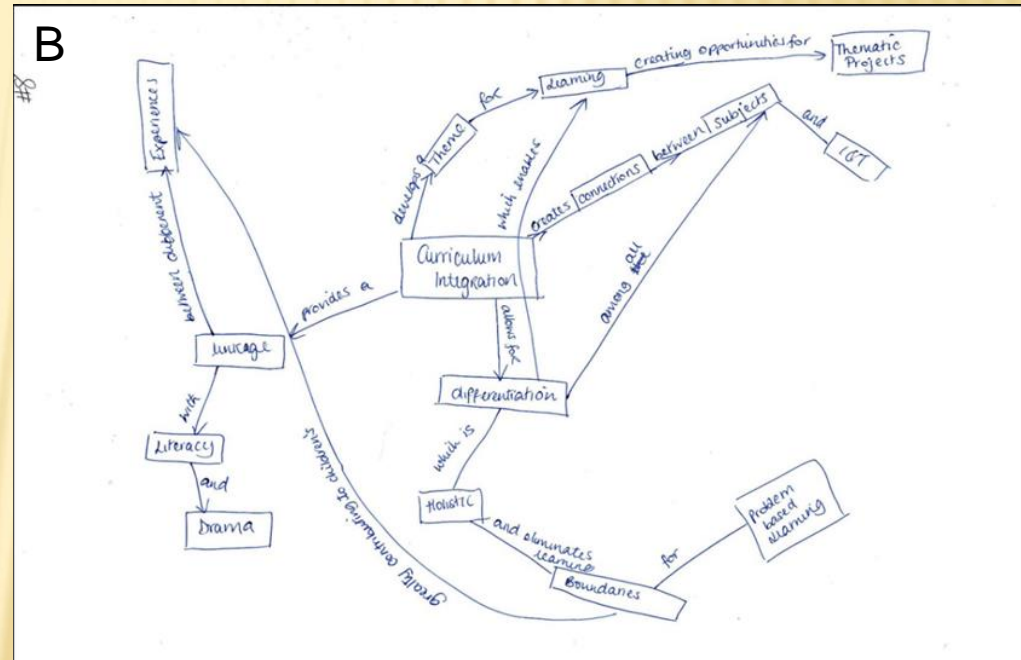
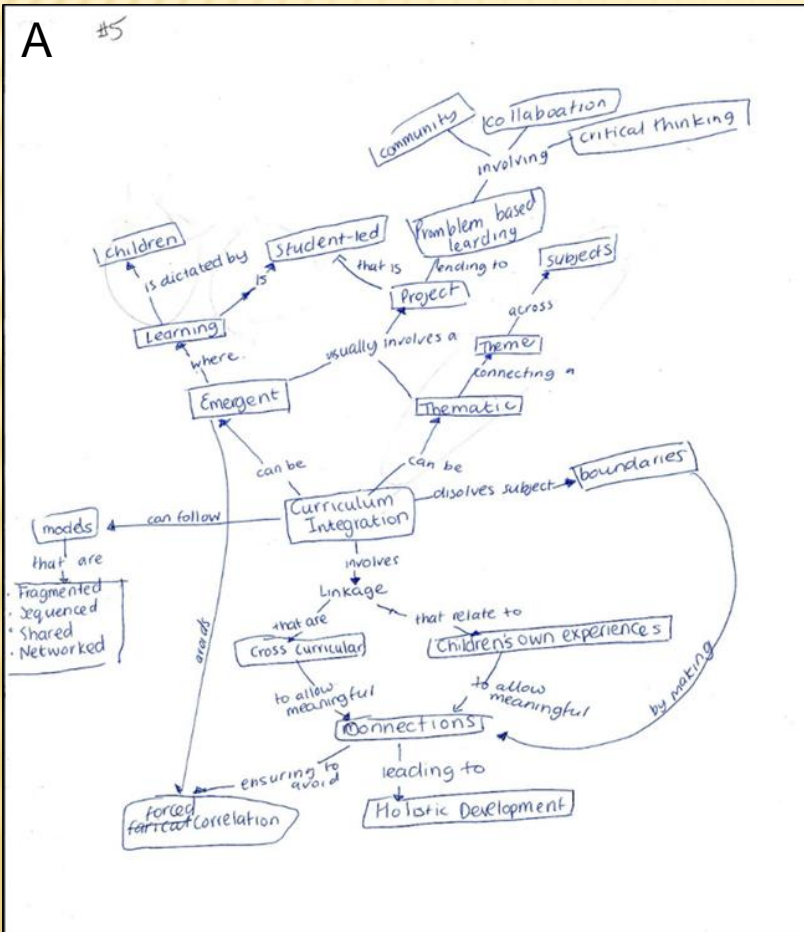
Map description	yes
hierarchical	X
Major concept at apex	X
Links have arrows	X
Quantitative values	Counts (#)
Total links	22
Links as propositions	22
Valid propositions	22
Hierarchical levels	3
Cross links	8
Word used from list	12
New words added	3
Use of examples	0

Humby, 2

Derived from general literature. four sub-domains are identified: pedagogy (green), benefits to teachers (blue), subject-based approaches (yellow) and student-centred approaches (red)

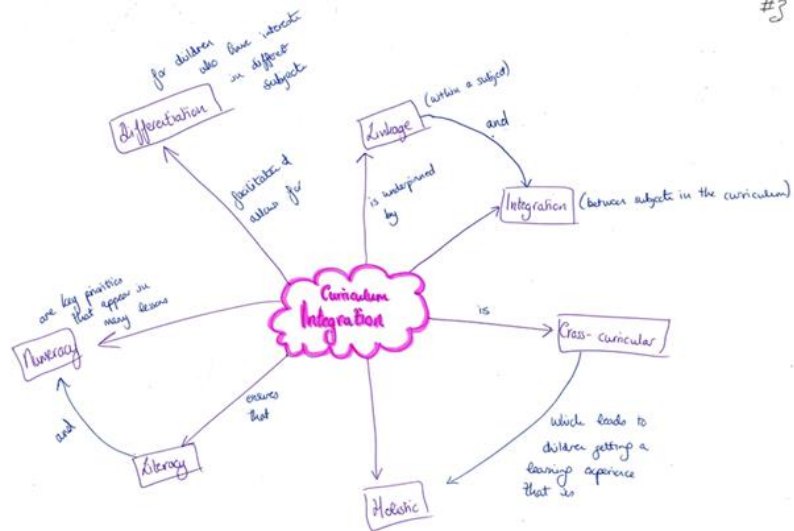
RESULTS - QUALITATIVE

- ✖ BEd 3 students showed an overall higher complexity to their maps and used more concepts.

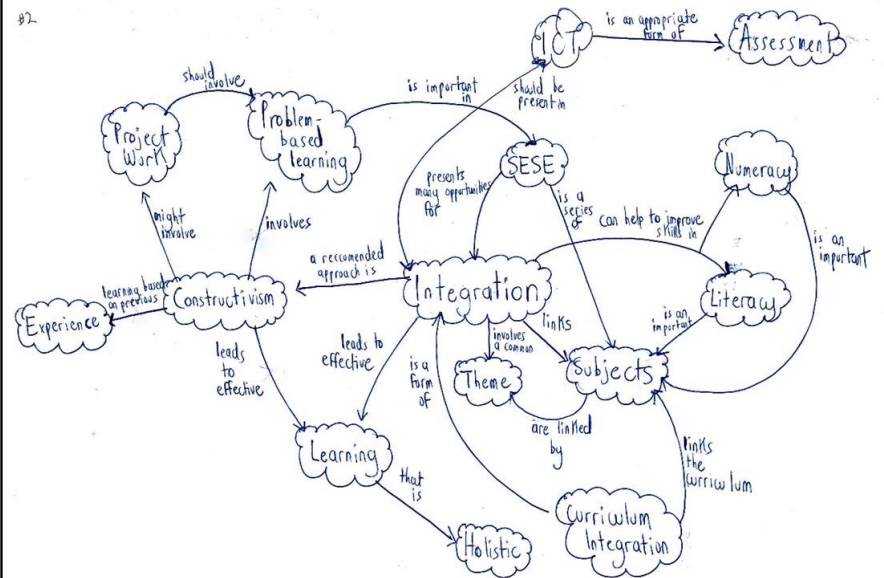


Representative concepts maps from BEd 3 (Panel A) and BEd 2 (Panel B) students showing differences in size and complexity of map.

DIFFERENCE IN COMPLEXITY

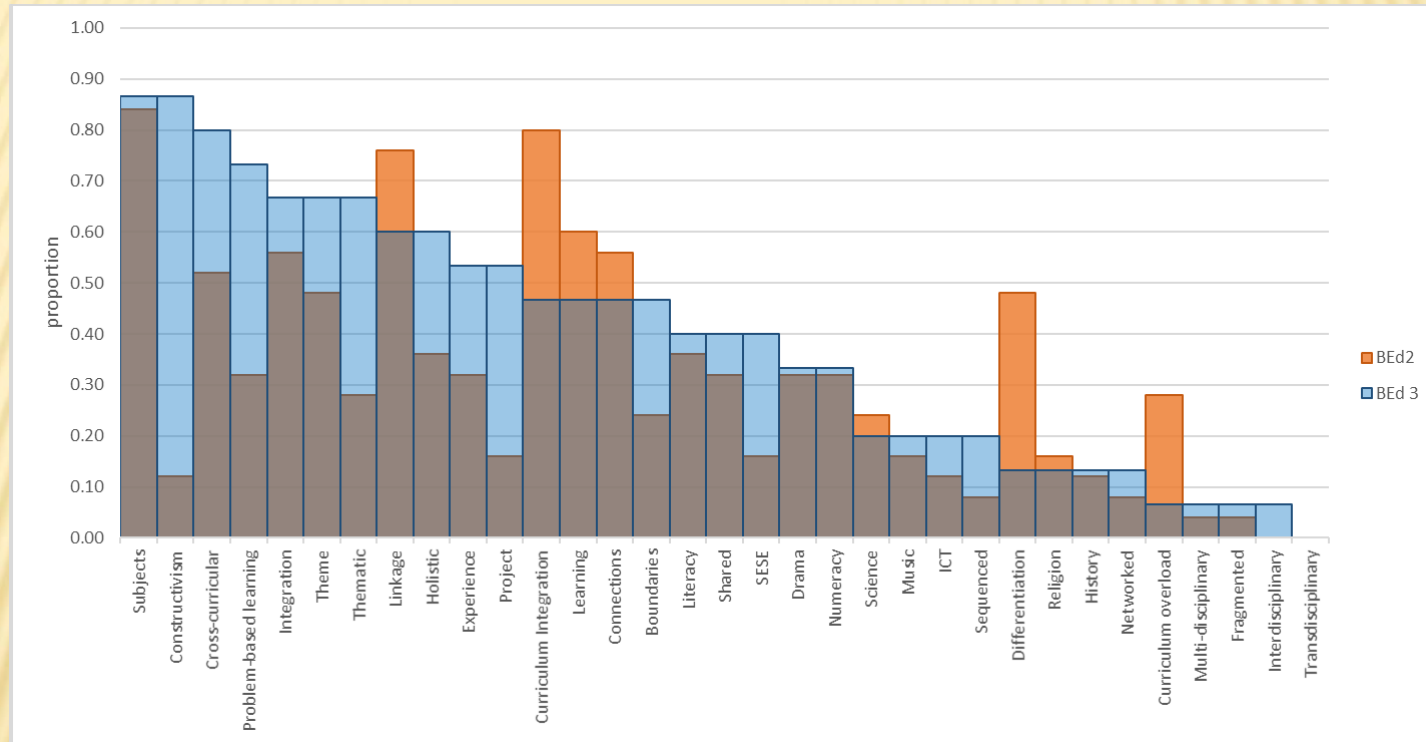


BEd 2



BEd 3

FREQUENCY OF WORD SELECTION



- ✗ Clear differences are visible. BED 2s used words in a more generic fashion.
- ✗ Frequency reflected the overall theme of the educational year

TERMINOLOGY

BEd 3	BEd 2
<i>"integration links subjects are linked by theme" 2</i>	<i>"curriculum integration creates connections between subjects and ICT" 8</i>
<i>"connecting a theme across subjects" 5</i>	<i>"integration is cross-curricular linkage of subjects like..." 1</i>
<i>"helps children to make connections between curriculum subjects" 3</i>	<i>"curriculum integration involves linkage of different subjects" 23</i>

Examples of propositions referring to the concept 'subject'

BEd 3	BEd 2
<i>"curriculum integration is not the same as linkage" 3</i>	<i>"curriculum integration involves the linkage of different subjects" 23</i>
<i>"integration can be divided into linkage and curriculum integration" 1</i>	<i>"linkage of themes" 8</i>
<i>"curriculum integration is a form of integration" 2</i>	<i>"curriculum integration involves integration of subjects" 17</i>

Examples of propositions referring to the concept 'linkage' and 'integration'

BEd 3	BEd 2
<i>"integration requires cross-curricular approach moulded and scaffolded by theme" 1</i>	<i>"integration is cross-curricular linkage of subjects" 1</i>
<i>"curriculum integration is a holistic approach to learning where the teacher and children make cross-curricular links" 3</i>	<i>"curriculum integration involves the linkage of different subjects in an approach known as cross-curricular approach." 23</i>

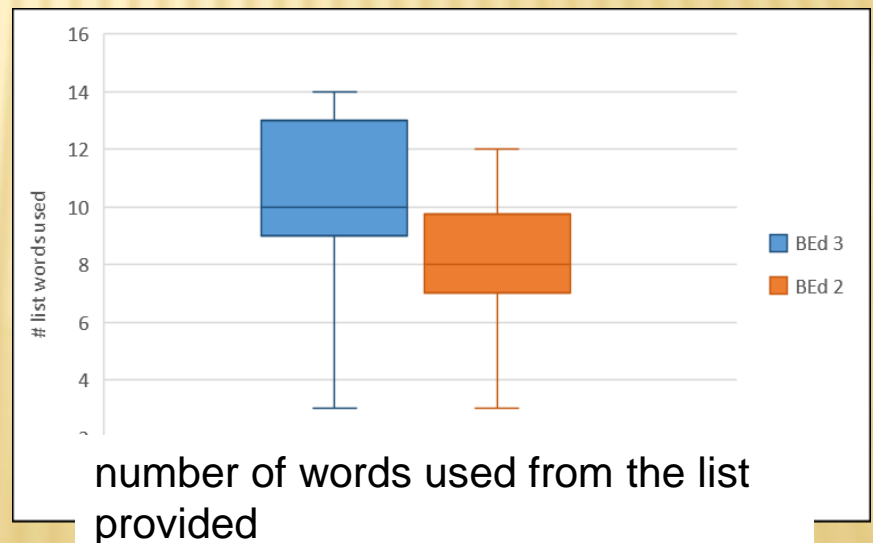
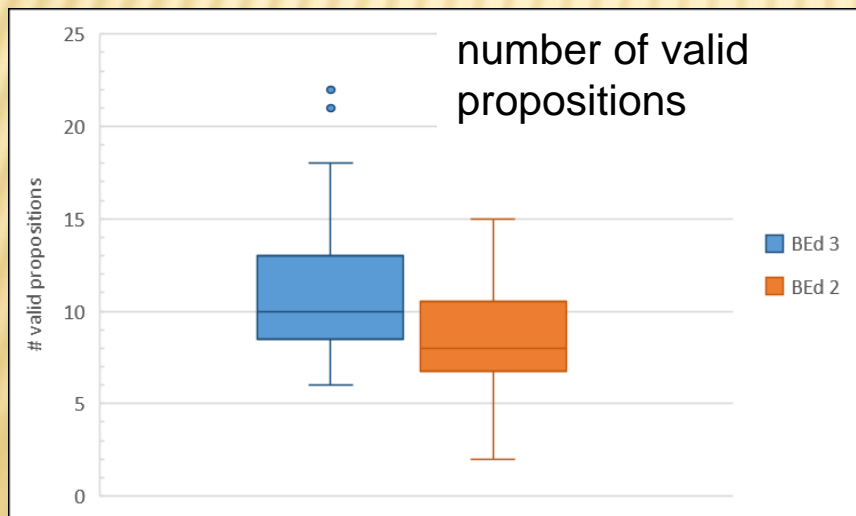
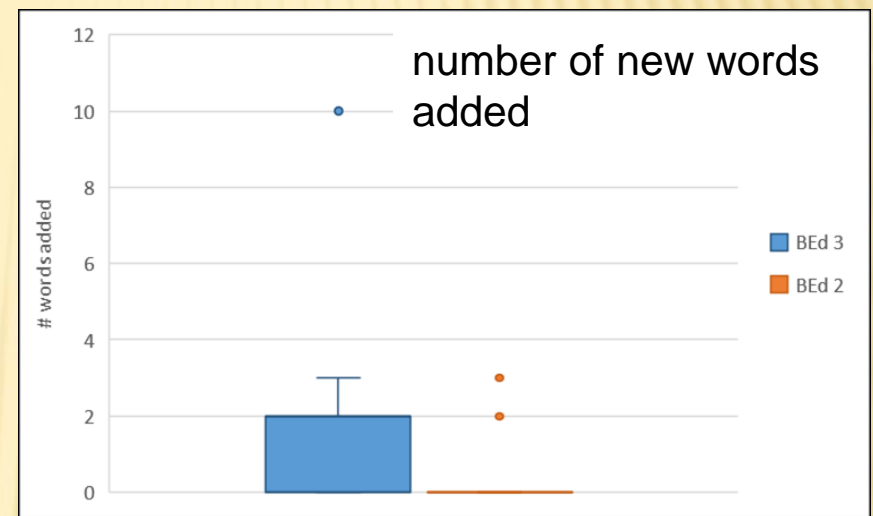
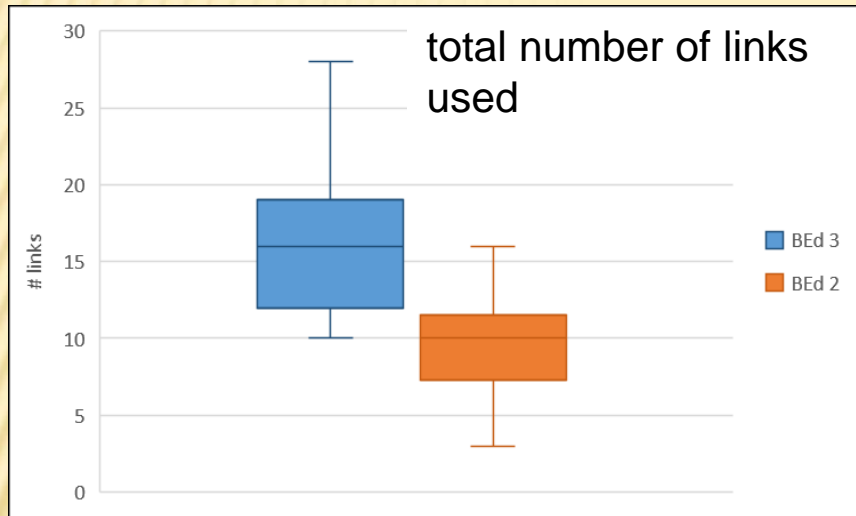
Examples of propositions referring to the concept 'cross-curricular'

RESULTS - QUANTITATIVE

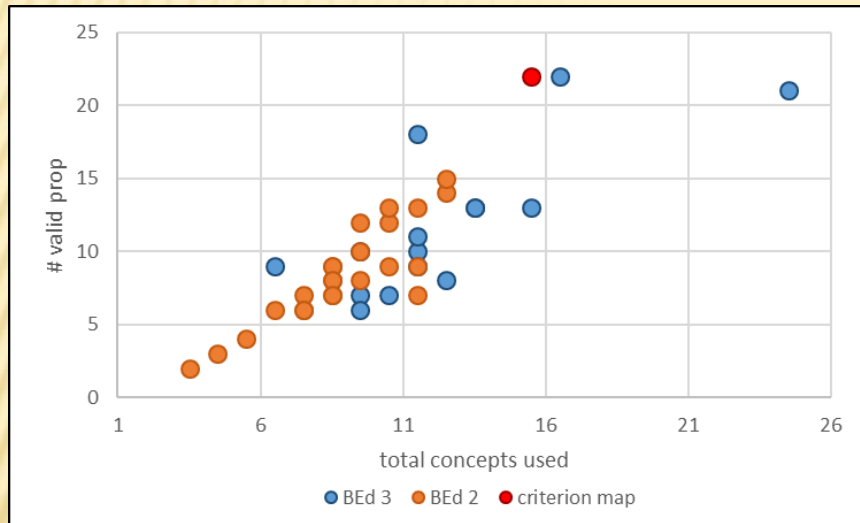
Parameter (# of...)	Difference between cohorts	p-value
links	Yes	0.000
links as propositions	Yes	0.011
valid propositions	Yes	0.042
hierarchical levels	No	-
cross-links	No	-
words used from list	Yes	0.021
new words added	Yes	0.000
examples used	No	-
subdomains	No	-

In all cases a *p*-value of 0.05 was used to determine statistical significance. N = 25 (BEd2), 15 (BEd3)

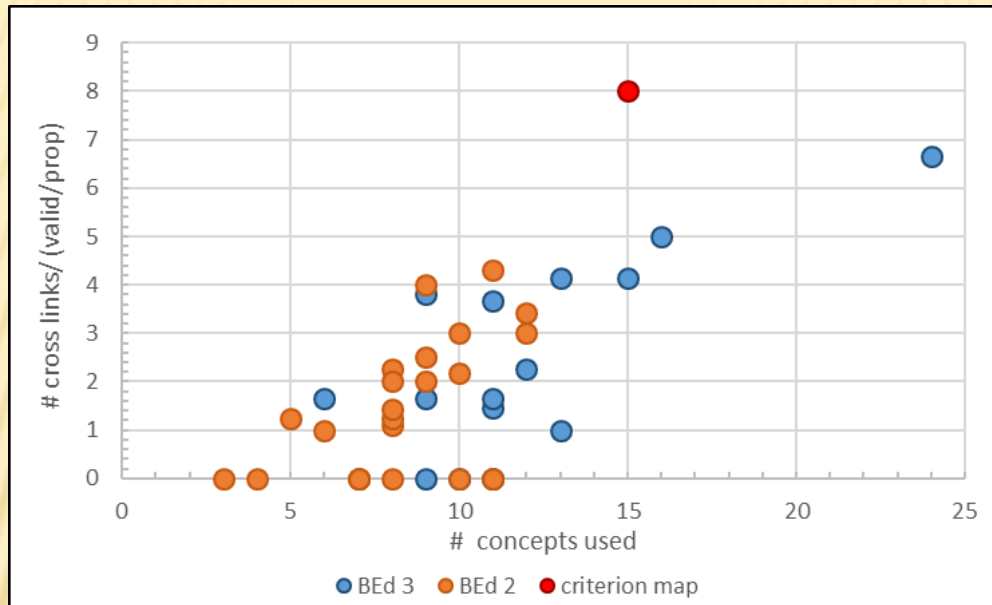
RESULTS – RAW COMPARISON BETWEEN COHORTS



CORRELATIONS



COMPREHENSION INDEX (CI)



Scatter plot showing the relationship between the comprehension index and the number of concept used in each map. Using this relationship it is clear that the general comprehension was similar for both BEd 3 and BEd 2 maps and none approached the criterion map level (in red).

SUMMARY

- ✖ Students developed their ontological but not epistemological understanding of curriculum integration.
 - + They had a stronger vocabulary, had better ideas of how it related to constructivism and understood more methodology such as themes and project-based learning.
- ✖ Students focussed on the practise of integration
- ✖ The focus was on cross-curricular methods and themes.
- ✖ The vocabulary and knowledge structure developed by students is reminiscent of the attitudes and perceptions expressed by in-service teachers.

SUMMARY CONT'D

- ✘ They did not demonstrate a more complex understanding of the underlying ideas and theoretical framework of curriculum integration.
- ✘ Terminology regarding theory was completely missing
- ✘ There was no evidence that students understood the concept of transdisciplinarity
- ✘ they did not distinguish between subject-based and student-based approaches.
- ✘ There is no evidence to support the idea that students, having taken this module, are now better equipped to execute integration in an effective way.

CONCLUSION

- ✘ Transdisciplinarity requires a paradigm shift in teaching approach.
- ✘ This can only happen through praxis.
- ✘ It is not enough to say, 'do it', there needs to be guidance and support.
- ✘ This applies to in-service teachers and pre-service teachers but also faculty.
- ✘ Faculty training and support are needed in order for them to effectively facilitate curriculum integration practise

REFERENCES & ACKNOWLEDGEMENTS



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

- ✘ National Council for Curriculum Assessment (NCCA). (2010). *Curriculum overload in primary schools: An overview of national and international experiences*. Dublin: NCCA. retrieved from http://www.ncca.ie/en/Curriculum_and_Assessment/Early_Childhood_and_Primary_Education/Primary-Education/Review_and_Research/
- ✘ Reiska, P., & Soika, K. (2015). Suggestions for teacher education from concept mapping studies. *Knowledge Management & E-Learning*, 7(1), 149–161.
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THANK YOU -

