

**Intended and Taught GNH-Infused Curricula in Secondary Schools of Thimphu  
and Samtse Districts, Bhutan: A Mixed Methods School Effectiveness Research**

Submitted by

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This thesis is presented to the  
Faculty of the School of Education of the  
University of New England  
for the degree of  
**DOCTOR OF PHILOSOPHY**  
June, 2018

## **Dedication**

I dedicate this PhD thesis to my late mother, Abi Phunchin, and my father, Lepthang, who took the utmost pain to provide the means I required to pursue my education despite experiencing economic difficulties. Without their loving care, sacrifices and unstinting support, my dream of studying in a school of modern education to achieve the highest academic degree would not have been possible.

I also dedicate this thesis to my wife, Pema Wangmo, who had to leave her teaching position to accompany me to travel overseas to pursue my studies. To allow me to undertake my PhD candidature, she has had to work full time and care for the household to provide for our family.

## **Acknowledgements**

The pursuit of my PhD degree transpired as one of the most memorable and transformational learning experiences in my life. This unprecedented learning experience would not have been possible without the timely support, valuable involvement and contributions from many individuals and agencies. The University of New England (UNE), Ministry of Education, Royal Civil Service Commission, supervisors, examiners, proofreaders, research participants and family members deserve my unwavering acknowledgement and profound gratitude for their support and guidance.

I remain indebted to the University of New England, Armidale, NSW, Australia for awarding me a Deputy Vice Chancellor's Research Scholarship and to the Royal Civil Service Commission, Bhutan, for granting study leave with pay to pursue my PhD at UNE. Without this scholarship and leave approval, my passion for learning and dream of completing a PhD would not have come to fruition.

Special gratitude must go to my Principal Supervisor, Dr John Haynes, UNE, for his unfailing guidance, patience and dedication during the entire research period, and to my Co-supervisors, Dr Kristen Cohen and Mrs Kathy Jenkins, UNE, for their extremely useful, constructive and timely feedback and support. Each session with supervisors was momentous and provided new learning.

I sincerely acknowledge the Director General, Department of School Education, Ministry of Education, Bhutan, for granting consent to collect data from the sampled schools of Thimphu and Samtse districts, Bhutan. My thanks are also extended to the district education officers and the school principals from these two districts for their

continual support. The completion of this PhD degree would have been hindered without the support from all of these educational stakeholders.

Genuine thanks must also go to the teachers who took part in the study and provided valuable survey and interview data. Their involvement in the study underpinned the present research undertaking.

I wish to thank Associate Professor Judy Miller and Ms Sue Jessop for their proofreading, reviewing and feedback. I am also very appreciative of Dr Ken Vines' expertise in the Rasch Measurement Model and his guidance with the Rasch analysis of the survey data. I would also like to acknowledge the external examiners for their feedback and suggestions in response to this study.

I am obliged by the support provided to me by my youngest brother, Mr Sangay Penjore and other relatives, in the matter of logistics, food, transportation, and coordination during the data collection phase at the research sites. I felt homely during my stay with them.

I would also like to send a special "Thank You" to my brother, Mr Tenzin Dorji, for foster caring and looking after my children for one year during my initial period of study. He has been a wonderful carer to my children during my absence from them. I remain humbled by his act of selflessness in supporting my children.

Exceptional appreciation must go to my wife, Pema, two sons, Sonam Rigxin and Tenzin Lekden, and my only daughter, Jetsun Pelzom, for their unconditional love, understanding and positive support during my candidature. I remain responsible for the sacrifices they have made during the three and half years of my candidature. Without them, the completion of my PhD would have been impeded.

## Certificate

I certify that the substance of this thesis has not already been submitted for any degree and is not currently submitted for any other degree.

I certify that any help received in preparing this thesis and all sources used have been acknowledged in this thesis.



.....  
Pema Thinley

## Table of Contents

Dedication .....	i
Acknowledgements .....	ii
Certificate .....	iv
Table of Contents .....	v
List of Tables .....	ix
List of Figures .....	x
List of Appendices .....	xi
Definitions of Key Words .....	xii
Common Abbreviations. ....	xvii
Abstract.....	xx
Preamble.....	1
An Overview of the Structure of the Dissertation .....	2
Chapter One .....	5
Introduction .....	5
Introduction.....	5
Bhutan .....	5
Statement of the Problem .....	11
Significance of the Study.....	17
Chapter Conclusion.....	19
Chapter Two.....	21
Historical Perspectives of the Bhutanese Education System.....	21
Introduction.....	21
Understanding the Bhutanese Education System: Past and Present.....	21
Traditional/Monastic Education System .....	22
Non-Formal Education System.....	23
Formal/Modern Education System .....	24
Conclusion.....	25
The Modern/Formal Education System in Bhutan: Milestones.....	26
Curriculum Adoption and Pedagogy.....	28
Educational Transformation .....	31
Transition Periods of Modern Education System.....	34
Conclusion.....	40
Educating for Gross National Happiness (EGNH).....	41
Values Integrated Teaching and Learning (VITAL) .....	47
Intended GNH-Infused Curriculum in Bhutanese Schools.....	49
GNH VITAL in Bhutanese Schools: A Lesson Plan Model (LPM) .....	51
Conclusion.....	54
Chapter Conclusion .....	55
Chapter Three .....	57
Theoretical Background and Conceptual Framework .....	57

<b>Introduction</b> .....	<b>57</b>
<b>Theoretical Background of the Study</b> .....	<b>58</b>
<b>Teaching Parameter</b> .....	<b>61</b>
Teacher Input Characteristics .....	61
Curriculum Input Characteristics.....	68
Curriculum Definitions.....	73
Resource Input Characteristics .....	77
Conclusion.....	80
<b>Learning Parameter</b> .....	<b>82</b>
Learner Input Characteristics.....	82
Conclusion.....	85
<b>Support Parameter</b> .....	<b>86</b>
Internal Support Input Characteristics .....	86
External Support Input Characteristics.....	89
Conclusion.....	91
<b>Conceptual Framework of the Study</b> .....	<b>92</b>
Main Research Questions: .....	95
Conclusion.....	96
<b>Chapter Conclusion</b> .....	<b>97</b>
<b>Chapter Four</b> .....	<b>100</b>
<b>Research Methodology</b> .....	<b>100</b>
<b>Introduction</b> .....	<b>100</b>
<b>Philosophical Assumptions and Research Worldviews</b> .....	<b>100</b>
<b>Research Method and Design</b> .....	<b>105</b>
<b>Data Collection Tools</b> .....	<b>107</b>
Survey .....	107
Survey Instruments .....	110
Interview.....	114
Conclusion.....	117
<b>Sampling Processes</b> .....	<b>118</b>
Survey Sampling Process .....	119
Interview Sampling Process.....	120
<b>Data Analysis</b> .....	<b>122</b>
<b>Ethical Issues</b> .....	<b>123</b>
Pre-data Collection.....	124
During Data Collection.....	125
Post-Data Collection .....	126
Conclusion.....	127
<b>Chapter Conclusion</b> .....	<b>127</b>
<b>Chapter Five</b> .....	<b>129</b>
<b>A Rasch Analysis of Survey Instruments</b> .....	<b>129</b>
<b>Introduction</b> .....	<b>129</b>
<b>Data Screening and Preliminary Analysis</b> .....	<b>129</b>
Demographic Information .....	130
Data Cleaning and Achieving Unidimensionality .....	131
Conclusion.....	135
<b>Rationale for using the Rasch Model</b> .....	<b>136</b>
Measurement of Latent Traits .....	139
Importance of Reliability and Construct Validity Tests .....	140

Conclusion.....	141
<b>Validation of Survey Instruments.....</b>	<b>142</b>
The Macro Level: The Scale .....	142
The Meso Level: Items and Person.....	145
The Micro Level: Threshold/Category .....	149
Conclusion.....	155
<b>Chapter Conclusion.....</b>	<b>155</b>
<b>Chapter Six .....</b>	<b>157</b>
<b>Survey Data Analysis .....</b>	<b>157</b>
<b>Introduction.....</b>	<b>157</b>
<b>Research sub-question 1: Levels of implementation of GNHVITAL, SR, ISS, ESS and TAGC scales in the secondary schools of Thimphu and Samtse districts, Bhutan .....</b>	<b>158</b>
Item Score Analysis .....	159
Item Difficulty Analysis .....	160
Person Score Analysis.....	173
Descriptive Statistics.....	175
Conclusion.....	177
<b>Research sub-question 2: Level of implementation of GNHVITAL, SR, ISS, ESS and TAGC scales across the teacher characteristics.....</b>	<b>177</b>
MANOVA Test .....	178
Conclusion.....	187
<b>Research sub-question 3. Level of implementation of GNHVITAL, SR, ISS, ESS and TAGC scales across the school characteristics.....</b>	<b>188</b>
Conclusion.....	195
<b>Research sub-question 4: Relationship between the GNHVITAL, SR, ISS, ESS and TAGC scales in implementing the GNH-infused curriculum in secondary schools.....</b>	<b>195</b>
Pearson Product-moment Correlation Coefficient Test Analysis.....	196
Conclusion.....	198
<b>Research sub-question 5: Determining the predictability level of SR, ESS, ISS and TAGC and demographic variables for the effective implementation of GNH-infused curriculum (GNHIC as determined by the GNHVITAL scale) .....</b>	<b>198</b>
Standard Multiple Regression Analysis .....	200
Prediction of Demographic Variables on GNHVITAL.....	203
Conclusion.....	205
<b>Chapter Conclusion.....</b>	<b>205</b>
<b>Chapter Seven .....</b>	<b>208</b>
<b>Analysis of Qualitative Data .....</b>	<b>208</b>
<b>Introduction.....</b>	<b>208</b>
<b>Premise of the Qualitative Phase of Research .....</b>	<b>208</b>
Leximancer Analysis .....	209
Conclusion.....	211
<b>Gross National Happiness Values Integrated Teaching and Learning: Interview Text Analysis.....</b>	<b>211</b>
Cross-referenced Concepts.....	213
Conclusion.....	217
<b>School Resources (SR) Interview Text Analysis .....</b>	<b>218</b>
Cross-referenced Concepts.....	220
Conclusion.....	223

<b>Internal Support Services (ISS) and External Support Services (ESS) Interview Texts</b>	
<b>Analyses.....</b>	<b>223</b>
Cross-referenced Concepts.....	225
Conclusion.....	231
<b>Teachers' Attitudes towards the GNHIC (TAGC) Interview Texts Analysis.....</b>	<b>232</b>
Cross-referenced Concepts.....	234
Conclusion.....	243
<b>Chapter Conclusion .....</b>	<b>244</b>
<b>Chapter Eight.....</b>	<b>246</b>
<b>Discussions of Results and Implications .....</b>	<b>246</b>
<b>Introduction.....</b>	<b>246</b>
<b>Discussion of Results.....</b>	<b>246</b>
Application of GNHVITAL Approaches.....	247
School Resources.....	251
Internal Support System in Schools.....	253
External Support System in Schools .....	255
Teachers' Attitudes Towards the GNH-Infused Curriculum .....	257
GNH-Infused Curriculum Implementation across Teacher Characteristics .....	262
GNH-Infused Curriculum Implementation across School Characteristics .....	264
Correlations between Gross National Happiness Values Integrated Teaching and Learning (GNHVITAL), School Resources (SR), Internal Support System (ISS), External Support System (ESS) and Teachers' Attitudes towards GNH-Infused Curriculum (TAGC) Scales	265
Regression Test Results of School Resource (SR), Internal Support System (ISS), External Support System(ESS), Teachers' Attitudes towards GNH-Infused Curriculum (TAGC) and Demographic Variables.....	266
<b>A Revised Conceptual Framework of the Study .....</b>	<b>267</b>
<b>Contribution to Theory .....</b>	<b>271</b>
<b>Implications of Study .....</b>	<b>273</b>
Practical Implications.....	274
Policy Implications.....	278
Methodological Implications .....	280
<b>Limitations of the Study.....</b>	<b>282</b>
<b>Directions for Future Research.....</b>	<b>283</b>
<b>Chapter Conclusion and Reflection on the Results.....</b>	<b>285</b>
<b>References.....</b>	<b>288</b>

## List of Tables

Table 2.1. Differences between monastic/traditional, formal/modern and non-formal education systems in Bhutan .....	25
Table 4.1. A blueprint outlining the theoretical framework of the study.....	104
Table 4.2. Details of samples for survey data collection .....	120
Table 4.3. Details of samples for interview data collection.....	120
Table 4.4. Frequency of survey participants from each category of school .....	121
Table 5.1. The demographic features of survey respondents .....	131
Table 5.2. Details of deleted and selected items of various scales .....	134
Table 5.3. The parametric scores of five survey dimensions .....	144
Table 5.4. Person and item infit mean squares for the five survey scales .....	146
Table 5.5. Summary of category structure for GNHVITAL scale.....	150
Table 5.6. Summary of category structure for SR scale .....	150
Table 5.7. Summary of category structure for ISS scale .....	150
Table 5.8. Summary of category structure for ESS scale .....	150
Table 5.9. Summary of category structure for TAGC scale.....	151
Table 6.1. The mean measure score of GNHVITAL survey items .....	163
Table 6.2. The mean measure score of SR survey items .....	165
Table 6.3. The mean measure score of ISS survey items.....	167
Table 6.4. The mean measure score of ESS survey items .....	169
Table 6.5. The mean measure score of TAGC survey items.....	172
Table 6.6. Descriptive statistics of five survey scales .....	175
Table 6.7. Between-subject factors showing the value label and the sample figures..	178
Table 6.9. Multivariate tests .....	180
Table 6.11. Tests of between-subjects effects for gender, age and qualification.....	185
Table 6.17. Correlations table for regression analysis.....	199
Table 6.18. Model summary for regression analysis .....	200
Table 6.19. Coefficients table showing the regression outputs of SR, ESS, ISS and TAGC scales (predictors).....	201
Table 6.20. Agreed and disagreed survey items in difficulty hierarchical order .....	206

## List of Figures

<i>Figure 2.1</i> Bhutan education milestones.....	27
<i>Figure 2.2.</i> The four pillars and nine domains of GNH.....	46
<i>Figure 2.3.</i> The 9 domains and 33 indicators of GNH. ....	47
<i>Figure 3.1.</i> A diagrammatic presentation of the effective teaching learning support model.....	60
<i>Figure 3.2.</i> The conceptual framework of the interrelationship between the intended, taught and learned GNH-Infused Curriculum. ....	93
<i>Figure 4.1.</i> A flowchart of the basic procedures in implementing a convergent design. ....	106
<i>Figure 5.1.</i> Item fit map for GNHVITAL scale showing strong results for internal validity.....	146
<i>Figure 5.2.</i> Item fit map for SR scale showing strong results for internal validity.....	147
<i>Figure 5.3.</i> Item fit map for ISS scale showing strong results for internal validity....	147
<i>Figure 5.4.</i> Item fit map for ESS scale showing strong results for internal validity...	147
<i>Figure 5.5.</i> Item fit map for TAGC scale showing strong results for internal validity. ....	148
<i>Figure 5.6.</i> Category characteristic curves (category probabilities) for the GNHVITAL scale.....	154
<i>Figure 6.1.</i> Understanding the item scores. ....	160
<i>Figure 6.2.</i> GNHVITAL item difficulty hierarchy graph. ....	161
<i>Figure 6.3.</i> The SR item difficulty hierarchy graph. ....	164
<i>Figure 6.4.</i> ISS item difficulty hierarchy graph. ....	166
<i>Figure 6.5.</i> ESS item difficulty hierarchy graph. ....	168
<i>Figure 6.6.</i> TAGC item difficulty hierarchy graph. ....	170
<i>Figure 6.7.</i> Understanding the person score.....	174
<i>Figure 6.8.</i> Estimated marginal means of GNHVITAL (Mean scores of interactions between qualification and age on GNHVITAL scale).....	186
<i>Figure 6.9.</i> Mean score showing the significant difference between the remote and urban locations on the TAGC scale. ....	192
<i>Figure 6.10.</i> Normal probability plot (P-P plot of regression).....	203
<i>Figure 7.1.</i> GNHVITAL concept map.....	212
<i>Figure 7.2.</i> GNHVITAL ranked concept graph. ....	213
<i>Figure 7.3.</i> School resources (SR) concept map. ....	219
<i>Figure 7.4.</i> SR ranked concept graph. ....	220
<i>Figure 7.5.</i> ISS and ESS concept map.....	224
<i>Figure 7.6.</i> ISS and ESS ranked concept graph. ....	225
<i>Figure 7.7.</i> The concept map of TAGC.....	233
<i>Figure 7.8.</i> TAGC ranked concept graph.....	234
<i>Figure 8.1.</i> The revised conceptual framework for the effectiveness of GNHIC practices in schools. ....	270

## List of Appendices

Appendices.....	302
Appendix A: Item Fit Map for SR Scale.....	302
Appendix B: Item Map for ISS Scale .....	302
Appendix C: Item Map for ESS Scale .....	303
Appendix D: Item Map for TAGC.....	303
Appendix E: GNHVITAL Ranked Concept Graph.....	304
Appendix F: SR Ranked Concept Graph .....	304
Appendix G: ISS and ESS Ranked Concept Graph.....	305
Appendix H: TAGC Ranked Concept Graph.....	305
Appendix I: Director’s Letter of Approval for Data Collection from Schools .....	306
Appendix J: Participants Consent Form.....	307
Appendix K: Telephone/In-person Interview Scripts .....	308
Appendix L: Letter of Approval from the UNE HDR Ethics Officer .....	312
Appendix M: Online Survey Consent Form and Questionnaires .....	313
Appendix N: Information Sheet for Participants .....	323
Appendix O: A Sample of Interview Transcripts.....	325

## Definitions of Key Words

Some important terminologies used in this research dissertation are GNH values, educating for GNH (EGNH), GNH-Infused Curriculum (GNHIC), GNH values integrated teaching and learning (GNHVITAL), intended curriculum, taught curriculum, learned curriculum, innovations, educational effectiveness, school effectiveness research (SER), educational inputs, educational processes, educational outputs, educational outcomes, ETLs model, GNHVITAL model, scale, GNH graduates and significant others.

**GNH values:** The values befitting the four pillars, nine domains and 33 indicators of GNH. It may also include both national (Bhutanese social etiquettes) and international values pertaining to humanity, morality, ethics, peace education, academics, life skills, spirituality, aesthetics and psychology.

**Educating for GNH (EGNH):** Refers to teaching the GNH values consciously to Bhutanese students by integrating them into the school curricular and co-curricular activities under different dimensions (via games and sports, cultural activities, curriculum, mediation, media literacy, school greening programme, morning assembly and so on).

**GNH-Infused Curriculum (GNHIC):** The term used in this research to refer to integrating the GNH values consciously into the existing school curriculum through daily classroom instructions. This term is also synonymously used with GNHVITAL.

**GNH values integrated teaching and learning (GNHVITAL):** Synonymously used with GNH-Infused Curriculum (GNHIC) and is where teachers integrate the GNH values into their daily teaching and learning lessons in the class. The GNHIC is delivered through GNHVITAL approaches.

**Intended curriculum:** Refers to curriculum officially prescribed in the syllabuses, prospectuses and so forth (Kelly, 2009; UNICEF, 2000). For example, the intended GNHIC is to bestow the Bhutanese students with all the GNH values and principles through curricular activities.

**Taught curriculum:** Refers to the real experiences the pupils receive in a classroom or a school when the “designed” or “intended” curriculum is put into practice by the teachers (Kelly, 2009; UNICEF, 2000).

**Learned curriculum:** Refers to what the students actually learn from the intended, taught and hidden curricula (UNICEF, 2000)

**Innovations:** Any new educational programme put into effect in a school system either to bring about changes in the system/strategies or to influence another school activity. For example, starting professional development training to facilitate the quality implementation of the GNH-Infused Curriculum.

**Educational efficiency:** Terms such as quality and effectiveness are synonymously used with efficiency to describe the kind of educational output the school receives. In a technical sense, efficiency exists where given level of inputs maximise the desired mix of outputs (effectiveness) or minimise the inputs to achieve a desired mix of outputs (Windham, 1990).

**School effectiveness research (SER):** Research undertaken by educational researchers pertaining to the effectiveness of educational innovations in schools, for example, research about implementation of the GNH-Infused Curriculum using GNHVITAL approaches in secondary schools of Thimphu and Samtse districts, Bhutan.

**Educational inputs:** Educational inputs include teacher characteristics (teacher’s attitude, qualification, professional development programmes, motivation,

hard work, experience, etc.), resource characteristics (material and human resources) and school characteristics (leadership, curriculum, conducive environment, professional support services from the concerned agencies and parental support) that would enable the schools to achieve an innovation or a programme.

**Educational processes:** Putting teacher, resource and school characteristics into action. For instance, providing teachers with some professional support services about how to effectively implement GNHIC in schools or supplying an education monitoring officer to visit the school for monitoring and support services to ascertain the effectiveness of any educational innovations in schools.

**Educational outputs:** Educational effectiveness can be indicated by what the school produces based on the review of four categories of output measurement: attainment effects, achievement effects, attitudinal/behavioural effects and equity effects (Windham, 1990).

**Educational outcomes:** The interaction of educational outputs with a great variety of external influences. These external influences may include the determinants for admission to higher levels of education and training, the supply and demand conditions in the labour market or the multitude of planned and accidental influences that shape an individual's attitudes and behaviours (Windham, 1990, p. 77).

**ETLS model:** Effectiveness of the teaching learning support model designed and adopted for this study based on the UNICEF's (2000) curriculum process (intended, taught and learned), Windham's (1990) educational effectiveness production model (input, process, output and outcome) and Scheerens (2000), Creemers and Kyriakides (2006), Reynolds et al.'s (2014) and Tshering's (2014) school effectiveness research structures (context level, school level, classroom level and student level).

**GNHVITAL model:** Used for GNH values integrated teaching and learning in schools through curriculum implementation.

**Scale:** A term synonymously used with terms such as survey domain and dimension. It is also used to understand the measurement point or scale.

**Mixed methods research:** A hybrid type of research methodology being used by the social scientists to study a problem. Both quantitative and qualitative methods are used to understand the world either in a study or through a series of studies.

**GNH graduates:** After learning the GNH values in school or through the GNH-Infused Curriculum, the graduates are expected to instil GNH attributes in self, family, community and the workplace. First, under **self-context**, the GNH graduate will be resourceful/ creative, confident, reflective, upright and compassionate or sensitive. Second, under **family context**, the GNH graduate will recognise that the family is the best and most fundamental school and that the family is a learning situation without condescension, love—pure or unconditional love (kindness and respect), show responsibility within the family that would be intergenerational and have a quality of mutuality, show respect and appreciation for the indigenous value system and gratitude for it, offer their intelligence in helping to make informed decisions and have a high sense of gratitude—reciprocate what the family has given you with profound gratitude. Third, under **community context**, a GNH graduate will participate in community activities and services willingly, participate in cultural events and commit to revitalise local culture and local wisdom, stay involved in the community even if they leave, show mutual respect for each other and take care of each other, take care of community property and its environment, promote equality and justice in the community, and nurture and care for the community. Fourth, under **civic/ citizenship context**, a GNH graduate will be well-informed, aware and actively engaged in democratic activities, be

resourceful and creative in solving problems, be honest and resistant to corruption with a strong sense of justice, practise the right livelihood based on ecological consciousness with a strong value for the dignity of labour and be not only citizens of Bhutan but also citizens of the Earth—the values of GNH go beyond the borders of Bhutan. Finally, under **workplace context**, a GNH graduate will choose the right livelihood and ethical work practices; practice the right attitude—showing up, doing your part, taking responsibility, acting cooperatively, not competitively and being a team player; practise the right conduct in relation to others—resolving conflict nonviolently, showing respect, kindness and compassion; be an inspirational role model, a change agent, a leader—pro-active, problem-solving and promoting equality between genders and managers to create a democratic workplace; have joy in work through humour, creativity, spontaneity and imagination; be competent and productive with pride in work, diligent, have integrity, conscience, good time management and ongoing learning and training; and be mindful of the full costs of production, minimise harm to earth, air, water, animals and people and create a nature-based workplace (DCRD, 2011; Hayward, Pannozzo, & Colman, 2009a).

**Significant others:** Refers to human resources such as district education officers, education monitors, curriculum developers, teacher trainers, school leaders, exam controllers and other leaders in the Ministry of Education who are directly or indirectly affiliated with the implementation of the GNH-Infused Curriculum in Bhutanese schools.

**Shedras:** The monastic colleges.

**Dratshang:** The monastic schools.

**Gomdeys:** The meditative centres.

## Common Abbreviations

AES	Annual Education Statistics
ANOVA	Analysis of Variance
BBE	Bhutan Board Examination (now known as BCSEA)
BCSEA	Bhutan Council for School Examination and Assessment
BCF	Bhutan Canada Foundation
BLC	Basic Literacy Course
CBIP	Cluster Based In-Service Programme
COE	College of Education
CAPSD	Curriculum and Professional Support Division (now known as REC)
DCRD	Department of Curriculum and Research Development (now known as Royal Education Council, REC)
DOE	Department of Education (became the MOE in 2003)
DSE	Department of School Education
DEO	District Education Office/Officer
EGNH	Educating for Gross National Happiness
EER	Educational Effectiveness Research
EMO	Education Monitoring Office/Officer
EMSSD	Education Monitoring Support Service Division (now Education Monitoring Division)
EMD	Education Monitoring Division
ESS	External Support System
ESRC	Education Sector Review Commission
ETLSM	Effectiveness of Teaching Learning Support Model

GNH	Gross National Happiness
GNHC	Gross National Happiness Commission
GNHIC	Gross National Happiness-Infused Curriculum
GNHVITAL	Gross National Happiness Values Integrated Teaching and Learning
HSS	Higher Secondary School
ISS	Internal Support System
IMS	Infit Mean Square
IPR	Interpersonal Relationship
IRT	Item Response Theory
IDA	Item Difficulty Analysis
KLSS	Kurichu Lower Secondary School
LSS	Lower Secondary School
MANOVA	Multivariate Analysis of Variance
MoE	Ministry of Education
MoAF	Ministry of Agriculture and Forest
MoHE	Ministry of Health and Education (now there are two separate ministries)
MSS	Middle Secondary School
NBIP	National Based In-Service Programmes
NFE	Non-Formal Education
NC	National Council
NSB	National Statistics Bureau
PLC	Post-Literacy Course
PM	Prime Minister
RGOB	Royal Government of Bhutan

SBIP	School Based In-Service Programme
SR	School Resources
SER	School Effectiveness Research
SPSS	Statistical Package for the Social Sciences
REC	Royal Education Council
TAGC	Teachers' Attitudes towards GNH-Infused Curriculum
TEO	Thromdey (Town/City) Education Office/Officer
TPSD	Teacher Professional Support Division
TOT	Training of Trainer
UNICEF	United Nations International Children's Emergency Fund
UNESCO	United Nations Educational, Scientific and Cultural Organisation
QUAN	Quantitative [research]
QUAL	Qualitative [research]

## **Abstract**

This study investigated the case of the intended and taught Gross National Happiness-Infused Curriculum (GNHIC) in secondary schools of Thimphu and Samtse districts of Bhutan. A mixed methods approach was adopted to investigate if the existing GNH curriculum has met the requirements for achieving the stated GNH values and principles.

The conceptual framework of the study was based on the school effectiveness characteristics proposed by UNICEF (2000), UNESCO (2005), Scheerens (2000), Creemers and Kyriakides (2006), Reynolds et al. (2014), Tshering (2014) and Windham (1990). The outcome of executing the Educating for Gross National Happiness (EGNH) plans via a GNH-Infused Curriculum (GNHIC) in the sample secondary schools may be contingent on the level of input characteristics introduced by the school policy planners.

A 6-point Likert-scale questionnaire (which was subsequently modified) was used to gather quantitative data from 22 government secondary schools comprising 202 teachers, and the data were analysed using the Rasch modelled statistical software, Winsteps Version 3.92.1. Both item and case estimates from Rasch were employed to ascertain the level of effective implementation of the teaching of GNHIC in the sample schools, which was founded on the independent variable (IV) and dependent variable (DV) of GNHIC. ANOVA and MANOVA tests on both teacher and school characteristics (age, gender, qualification, number of years of teaching, district, location, school category and day/boarding school) were undertaken based on the case input data generated from Winsteps. Correlation and regression tests ascertained the relationship between the survey scales and their predictability for identifying the effective implementation of GNHIC, which is determined by the GNHVITAL scale.

From the original sample of teachers ( $N=202$ ), 12 volunteered for inclusion in semi-structured interviews. Transcribed interview data were analysed using Leximancer's text-mining software Version 2.25. The analyses were conducted under four separate themes: approaches, school resources, interpersonal supports and attitudes of teachers. For each theme, the top ten ranked concepts generated by Leximancer were reported.

A synthesis of findings from both the QUAN and QUAL phases of analysis revealed that the overall implementation of the GNH-Infused Curriculum in the sample schools is meeting expected standards, based on the criteria from the Department of Curriculum and Research Development (2011), now known as the Royal Education Council. However, in some cases, gaps between the intended and taught curricula were noted. In the analysis of QUAN, the two main independent variables that explained and predicted the effective implementation of GNHIC via GNHVITAL approaches were school resources (SR) and internal support system (ISS). This finding was supported by the QUAL data analysis, which identified gaps in implementing the GNHIC created by factors including lack of appropriate professional support from the school principals, absence of school policy on the GNHIC and inadequate school resources.

Recommendations for future implications of GNHIC and a way forward to strengthen the effective implementation of GNHIC, such as GNHVITAL approaches, are provided to strengthen the current practices of EGNH via GNHIC in the schools. This study adds to the existing claim that input characteristics such as appropriate teacher development programmes, relevant curricula, relevant resources and vigorous professional support from both internal and external school leaders are imperative for the effective implementation of any educational innovations in schools.

## Preamble

*Education is empowering – it's a social equalizer and it facilitates self-discovery which leads to realizing one's full potential. Good education gives you confidence, good judgement, virtuous disposition, and the tools to achieve successfully. A good school gives a child a fair shot at success and ensures that a person's achievement in life will not be predetermined by his or her race, parentage and social connections.*

*(His Majesty the King of Bhutan, 2014a, p. 5)*

His Majesty the King of Bhutan has highlighted the impact of quality based on effective schools and education. To achieve these qualities in education and schools, undertaking school effectiveness research (SER) is important. Scheerens (2000), Creemers and Kyriakides (2006), Reynolds et al. (2014) and Tshering (2014) claimed that the SER models involve input, process, output and outcomes. Within each element, there exists the structures at context, school, classroom and student levels. In the context of this study, SER has been utilised to investigate whether Bhutanese schools facilitate the required input characteristics needed for the effective implementation of Educating for Gross National Happiness (EGNH) via a Gross National Happiness-Infused Curriculum (GNHIC). This research ascertains the case of the intended and taught GNHIC in secondary schools of Thimphu and Samtse districts, Bhutan, by employing a mixed methods school effectiveness research approach. The success of implementing EGNH via GNHIC in Bhutanese schools depends on the level of input characteristics initiated by the school policy planners.

The input characteristics, which include teacher attributes, facilities, equipment, educational materials and administrative capacity, are paramount for the implementation of innovation (Windham, 1990). According to (UNESCO, 2005), teaching and learning in the classroom is also supported by a broader enabling environment consisting of effective teachers, strong schools and a coherent national support infrastructure. Furthermore, UNICEF (2000, p. 4) propounded five qualities for

attaining any educational goal or achieving a quality result: “healthy learners; conducive environments; relevant curricula; child-friendly pedagogy; and useful outcomes”.

This study looked at five input characteristics, namely, a GNH values integrated teaching and learning (GNHVITAL) approach, school resources (SR), internal support system (ISS), external support system (ESS) and teachers’ attitudes towards the GNH-Infused Curriculum (TAGC), to determine the case of the GNHIC in the sampled schools. All these characteristics ensuing from the school effectiveness research models contribute to building a quality education or determining the achievement of any educational innovation in schools (Creemers & Kyriakides, 2006, 2010; Kyriakides, 2005; Kyriakides & Creemers, 2008; Reynolds, 2006; Reynolds et al., 2014; Scheerens, 2000; Tshering, 2014; UNESCO, 2005; UNICEF, 2000; Windham, 1990).

An overview of the structure for this dissertation and the definitions of key terms used in all eight chapters are provided in the following sub-topics. These sub-headings are followed by the common abbreviations and Bhutanese terms used in the chapters.

### **An Overview of the Structure of the Dissertation**

- ❖ Chapter 1 provides an introduction to the study with a brief highlight of the geographical and political history of Bhutan, the context of the study, comprising an introduction to the philosophy of Gross National Happiness (GNH), the statement of the problem, the significance of the study and the research questions.
- ❖ Chapter 2 explores the Bhutanese curriculum system since its inception in 1914 to the present stage. The chapter begins with a brief description of three types of education system in Bhutan: the traditional education system, the non-formal

education system, and the formal education system. This chapter concludes with a discussion of the milestones of the modern education system, which ultimately underpins the focus of the current research topic.

- ❖ Chapter 3 comprises two sections, namely, the theoretical background and conceptual framework. Section one provides a discussion about the theoretical background surrounding the educational theories, educating for GNH (EGNH), GNH values integrated teaching and learning (GNHVITAL) in classrooms and the effectiveness of teaching, learning and support (ETLS) model developed based on UNICEF's (2000) five determinants of quality education and the school effectiveness research model of Windham (1990), Scheerens (2000), Creemers and Kyriakides (2006), Reynolds et al. (2014) and Tshering (2014). Section two presents the conceptual framework of the study that underpins the ETLS model.
- ❖ Chapter 4 underscores the discussion about the theoretical framework comprising the research worldviews that align with research designs and methodology befitting the conceptual framework of the study. The chapter highlights the methodological confluence of the study through diagrammatic presentations.
- ❖ Chapter 5 presents a Rasch analysis investigating the continuous variables contained in the cross-sectional survey data. Data screening was undertaken using SPSS Version 24 (IBM, 2017). The Rasch Analysis Model was used to validate the survey instruments.
- ❖ Chapter 6 presents the quantitative data analysis using the relevant statistical test. The chapter addresses (from the positivistic worldview) the overarching research question: To what extent is the GNH-infused Curriculum being

effectively taught in the secondary schools of Thimphu and Samtse districts, Bhutan? This main question has been answered in the form of item difficulty analysis and person ability/agreeability analysis using the Rasch-analysed item and case scores.

- ❖ Chapter 7 focuses on the research question: What are the experiences of teachers who are infusing Gross National Happiness values into the existing curriculum for secondary schools in Thimphu and Samtse districts, Bhutan? The chapter introduces the analysis of qualitative data. The data were collected from the participants using a semi-structured interview. The analyses were initiated after segregating the interview texts into different groups based on the four research sub-questions. The analyses are presented under different sub-headings: Leximancer Analysis, GNHVITAL Interview Text Analysis, School Resources (SR) Interview Texts Analysis, Internal and External Support Systems (ISS and ESS), and Teachers' Attitudes towards the GNHIC (TAGC).
- ❖ Chapter 8 concludes the study by presenting the discussion of results from the quantitative and qualitative phases of research. A revised conceptual framework of the study is also provided. This conceptual framework is succeeded by the theoretical underpinnings, implications, and limitations of the study. The chapter ends with the directions for future research, chapter conclusion, and reflection of the research findings.

# **Chapter One**

## **Introduction**

### **Introduction**

The aim of this research is to investigate a case of the intended and taught GNH-Infused Curriculum in 22 secondary schools of Thimphu and Samtse districts, Bhutan. The approach adopted to answer this question involves a mixed methods school effectiveness research (SER) process.

This chapter provides the background of the study with a brief introduction to Bhutan, and an introduction to the philosophy of Gross National Happiness (GNH). The purpose and importance of the study are also noted.

There are four sub-topics in this chapter. The first sub-topic is the political, geographical and cultural perspectives of Bhutan. The second sub-topic describes the context of the study surrounding the philosophy of Gross National Happiness (GNH). The third sub-topic examines the statement of the problem concerning the implementation of Educating for Gross National Happiness (EGNH). The final sub-topic presents the objectives and the significance of the study.

### **Bhutan**

The Kingdom of Bhutan is a largely mountainous country, located between China (Tibet) in the north and India in the south. Bhutan has a population of 745,153 (NSB, 2014). The landmass rises from 200 m above sea level in the south and towers over 7500 m in the higher Himalayas in the north (REC, 2012). In addition, the Kingdom's land corresponds "between 88° 45' to 92° 10' East longitude and 26° 45' to 28° 10' North latitude, with an area of 38,394 sq. km" (Phuntsho, 2013, p. 15). Bhutan has 80.89% forest cover, comprising 70.46% trees and another 10.43% shrubs (MOAF

Minister, 2014; MoAF, 2011; NSSC, 2011). According to Bhutan's Constitution (2008), 60% of the country is to remain under forest cover for all time and, consequently, Bhutan is not only carbon neutral but also carbon negative on the world scale (Tobgay, 2016).

For administrative purposes, the country has been divided into 20 *Dzongkhags* (districts), which are further divided into 205 *Gewogs* (blocks). This arrangement is designed to facilitate efficient administration and equitable socioeconomic development of the country.

Bhutan is largely a Buddhist multi-cultural sovereign nation, comprising 11 ethnic groups of varying sizes who speak 11 to 19 languages, each with their own dialect (Driem, 1994; Geschäftsführer, 2014). However, the official national language of the country is termed Dzongkha. Nowadays, English is increasingly used as the language of communication and medium of instruction in schools and colleges (Dorji, 2003; REC, 2012).

Stone tools and weapons, artefacts and remains of colossal stone house structures and other religious relics, such as statues of great religious masters, reflect the history of Bhutanese civilisation going back as early as 2000 BC (Bandyopadhyay, 2009). In 747 AD, a spiritual master named Padma Sambhava arrived in Bhutan from the Swat Valley in Pakistan. He had a major influence on “the social and cultural life” of the people in Bhutan through his teachings about Buddhism and theocracy (Denman & Namgyel, 2008).

Since the beginning of its civilisation, Bhutan has never existed under colonial rule and was unified as an independent nation by Zhabdrug Ngawang Namgyel (1594-652) - a theocratic ruler who headed both the religious and state affairs of the country (Geschäftsführer, 2014; Gyamtso & Dukpa, 1998). However, because of the increasing

political turmoil and rising conflicts that evolved between the regional governors and their supporters, on December 17, 1907, Ugyen Wangchuck, the son of Jigme Namgyel (the Governor of Trongsa) was elected as the first hereditary ruler of Bhutan by the heads of the monastic communities, district and regional governors and the majority of Bhutanese constituents (Dorji, 2003; Geschäftsführer, 2014). According to the philosophy of Gross National Happiness (GNHC, 2013, p. 37), “The King is the symbol of unity of the Kingdom and the people of Bhutan, whose vision and guidance on national priorities serve as beacons for the future direction of our nation”.

In 2008, despite the dissent of the people, the Fourth King converted the absolute monarchy to a democratic constitutional monarchy and transferred his leadership to his son, King Jigme Khesar Namgyel Wangchuk. The first elected prime minister of Bhutan under the new democratic governing system was His Excellency Jigme Yoeser Thinley from the political party Druk Phuensum Tshogpa.

Of particular relevance to this thesis, it should be noted that it was under this prime minister’s term in office that the concept of Educating for Gross National Happiness (EGNH) was conceived. The idea of EGNH was envisaged based on the calling the PM felt as the head of the government to uphold the vision of the King and the Constitution of the Kingdom of Bhutan, which mandates that developmental plans and activities to be framed based on the ideology and principles of GNH. This transition to EGNH took place for all Bhutanese schools in the academic year of 2010. More discussion on GNH is provided in the following section.

## **The Evolution of Gross National Happiness**

The concept of Gross National Happiness (GNH) materialised in 1972 when the Fourth King made a pronouncement that for Bhutan, “Gross National Happiness is more important than Gross National Product” (Department of Curriculum and Research Development, 2011, p. xix; Gross National Happiness Commission, 2013, para.2). Since the inception of the Fourth King’s vision of GNH, the planning processes and designing of developmental activities in Bhutan are all guided by the values and principles of GNH. According to the GNHC (2013), GNH seeks to accomplish a sense of balance between material welfare and the spiritual, cultural and emotional wellbeing of Bhutanese society. In other words, GNH is considered to be the bridge between material development and the basic values of equality, kindness and humanity (His Majesty the King of Bhutan, 2009). According to Hayward, Pannozzo, and Colman (2009a, p. xxiii), the very meaning of GNH values and principles can be understood as:

- A deep and genuine understanding of and care and respect for nature, for others, and for Bhutan’s profound and ancient culture;
- The critical capacity to understand and see reality clearly and to see through deception; and
- The ability to manifest these qualities in action and behaviour in order to benefit Bhutan and the world, to develop the economy in a sustainable and socially responsible way, and to be “good citizens” who can act effectively to improve wellbeing.

The Constitution of the Kingdom of Bhutan (RGOB, 2008, p. 18), notably, Article 9.2 posits, “The State shall strive to promote those conditions that will enable the pursuit of Gross National Happiness”. This article calls for the state to take the responsibility to ensure that the end result of all developmental activities in Bhutan

should be the attainment of GNH. Unlike many western countries, which use the Gross Domestic Product (GDP) index to measure their developmental plans, Bhutan uses the GNH index, a holistic instrument, to measure its planned activities. Any plans and policies must undergo a range of GNH tests comprising different GNH variables that represent the nine domains and four pillars (Gross National Happiness Commission, 2013). These concepts are explained in more detail in Chapter Two.

Notwithstanding, with the move towards modernisation in the 1960s, including the launch of the first television and internet in 1999 (BBC, 2004; Wangyel, 2001) and rapid expansion of digital development in the country, according to His Majesty the King of Bhutan (2008, para. 5), Bhutanese values seemed to have dissipated clandestinely. This claim was based on evidence of increasing social problems such as drug addiction, gang fights and family break ups (His Majesty the King, 2008). At his coronation address to the people, the King put forward that the people of Bhutan treasure human qualities of kindness, honesty, charity, unity, integrity, respect for one's traditions and culture and love for the country, which have been upheld and placed above the self for the common good by the forefathers, and that these essential values that characterise the Bhutanese nation may be lost in the rapidly changing world. He said it is paramount to recognise the Bhutanese character irrespective of past or future evolutions.

The retention of Bhutan's traditional values in this changing world may depend on the type of values development transpiring in its youth or ensuing from the youth as a result of teaching the GNH values. To this end, whenever he visited schools or delivered speeches to educationists, the Fourth King always emphasised that Bhutan's future lies solely in the hands of today's youth (His Majesty the King, 2009).

Consequently, the King commanded the Ministry of Education to introduce the subject

of values education as a formal subject in all schools commencing in the 1999 academic year (MoHE, 1999). It was mandated by the Director of the Department of Education that a teaching period of 40 minutes per week for every grade level be allotted to teaching values in the schools (CAPSD, 1999; MoHE, 1999; Wangyel, 2001). The clear message to the teachers was that Bhutan does not need “misinformed and misguided” young people, but those who can shape and keep Bhutan the way the monarchs and forefathers always desired (CAPSD, 1999). The kings have always aspired for the citizens to be proud Bhutanese “in body, mind and speech” (CAPSD, 1999, p. 1).

To further consolidate teaching values education in the schools, the first curriculum guidelines pertaining to values education that were initiated in 1999 were strengthened by revising the initial 1999 text and publishing a new values education textbook in 2001, *Teaching Learning to Be*.

By the same token, in 2006, the then prime minister, Sangye Ngedup, stressed the importance of values education for the future nation builders. Ngedup ( 2007, p. 2, Annexure 1 ) called for schools to:

nurture perpetual generations of future citizens who will espouse values and principles, ideals and passions, hopes and aspirations that will build a compassionate, a tolerant and a caring society, and propel Bhutan to be one of the most secure, prosperous and happy nations in the world.

By way of contrast, existing indicators such as the GNP/GDP index that are used in the western educational system and its curricula and which reflect western values do not necessarily always enhance the wellbeing of the people. For example, Hayward et al. (2009a) argue that education for “new economy” focuses on the

requirement for human economic productivity rather than promoting wellbeing or providing wider public benefit.

In this context, the educating for GNH (EGNH) concept was initiated on a national scale to bring about positive changes in the thinking of Bhutan's youth. This change relates to their worldview on morality, spirituality, academy, society, wellbeing, psychology, emotions and harmony (Thinley, 2009; Thinley, 2016; Wangyel, 2001).

### **Statement of the Problem**

Inspired by the vision of the Fourth King and his GNH philosophy, one of the attempts of the government was the introduction of Educating for Gross National Happiness throughout the schools of Bhutan. The government opined that a base to achieving the vision of the Fourth King lies in the schools, where all the future citizens of the country receive education. Consequently, the first prime minister (PM) under the democratic constitutional monarchical government (2008-2012) strongly considered that there was no other “effective, comprehensive, and far reaching way to put GNH fully into practice and to realize our shared vision and goals ... than to infuse our education system fully and properly” (Thinley, 2011, p. xix).

The schools were viewed as the agents of change and catalysts for affecting any new ideas or innovations. The PM called for the urgent institutionalisation of GNH principles and values quickly and without delay into the Bhutanese education system (Thinley, 2009). In 2010, the Ministry of Education ventured into a new education policy (Educating for GNH) through an integrative approach. Educating for GNH (EGNH) was commenced by integrating the GNH values into the following parameters:

1. School leadership and management practices.
2. Curriculum delivery: Classroom teaching and learning.

3. Co-curricular dimension: Transmission of values through co-curricular activities.
4. Media literacy: Enhancing GNH values and principles through critical thinking.
5. Mindfulness and mind training education.
6. School-community relationships.
7. Morning assembly.
8. The pledge: Green school for green Bhutan.
9. Holistic school assessment programmes.

(DCRD, 2011, pp. 40-89)

The focus of this research is centred on parameter two, which is concerned with the integration of GNH values into the existing school curriculum. These values are expected to be consciously integrated into the existing school curriculum. However, Shanahan (1997, p. 18) warned that integrated instruction is likely “to remain a missed opportunity – like the loneliness of beauty or the right word left unsaid – unless we are sufficiently hardheaded about how it works”. In the same vein, Brewer (2002) underscored that the dearth of competent teachers and in-school preparation time negatively affects the worth of integrated teaching.

Due to this policy shift in the education system in Bhutan, Hayward, Panno, and Colman (2009b, p. xix) discussed the conundrum of the decision made by the Ministry of Education and the Government, thus:

Bhutan today stands at a remarkable crossroads in its history, where decisions made today may well influence the future of the country for generations to come. On the one hand, the country’s guiding philosophy since 1972 has been the principle of ‘Gross National Happiness’ (GNH), which seeks to

integrate sustainable and equitable economic development with environmental conservation, good governance, and preservation and promotion of the country's ancient culture and profound traditions. On the other hand, rapid modernization and the lure of consumerism may accentuate materialist tendencies that could undermine the environmental, social, and cultural pillars of GNH. (Hayward et al. (2009b, p. xix)

As Bhutan develops, the achievement of GNH values and principles may be a difficult task for the government, as pointed out by Hayward et al. (2009b, p. xix) and also supported by Ueda (2016) and Schuelka and Maxwell (2016). Better approaches to protect and promote GNH values and principles seem to have become an essential responsibility of policy makers. One of the immediate actions to safeguard the country's guiding philosophy of GNH is to educate the future citizens through the school system.

The approach used to educate the school leaders in all aspects of GNH is the method known as training of trainers (ToT). In this process, the trainers cascade the ideas or information to end users such as teachers after receiving training from the experts. One possible drawback of relying solely on the use of this system of training is the real possibility that the trainers may have been unable, or even unwilling, to share the knowledge of a new policy with the end users. According to the Royal Education Council (2009), Sherab (2008), Dorji (2016), and Kucita, Kivunja, Maxwell, and Kuyini (2013), adopting this type of training model to effect any educational innovations leads to an inconclusive outcome.

However, educating for GNH in schools may be achieved if the directions and policy guidelines are well spelt out; if the curricula activities are researched, well balanced (between cognitive, psycho-social and affective domains of learning) and

standardised; if the teachers are qualified, well trained, motivated, positive and competent in the integrative approach and differentiated teaching and learning strategies; if the resources (material, financial and human) and funding are easily available; if there is good coordination amongst different stakeholders; and if parents and other concerned agencies are supportive (Thinley, 2014; P. Thinley, 2016; UNESCO, 2005; UNICEF, 2000; Windham, 1990).

Hayward et al. (2009b) claimed that Bhutan is the only sovereign nation in the world that officially adopted a holistic approach to development by integrating economic, social, cultural and environmental outcomes as its core philosophy and the foundation of its policy planning. Also unique to Bhutan is putting into practice an educational curriculum based on the GNH principles at a systemic national level (Dorji, 2016; Hayward et al., 2009b; Maxwell & Schuelka, 2016; Namgyel & Rinchen, 2016; Schuelka & Maxwell, 2016; Sherab, Maxwell, & Cooksey, 2016; Thinley, 2016). These authors contend that such GNH curricula enable the learners to acquire attributes such as reasoning, experiential, artistic and feeling faculties, thereby helping them to convert their knowledge into action. If proper educational input and processes are not put in place to effect the innovation (Educating for GNH in schools), the learning of attributes described by Hayward et al. (2009), Thinley (2016) and Sherab et al. (2016) may become an unfulfilled dream of the Royal Government of Bhutan.

One of the objectives of the Ministry of Education is to provide access and quality education to all children in the country, which is an issue that is repeatedly discussed in open forums by the Bhutanese people. In 2006, the concern was deliberated at the highest levels of government – the legislative body of parliament. Ten years later, in 2016, the same issue was again deliberated in both houses of the parliament (NC, 2016). The issue of ensuring quality education may be compounded if

the new ideas of integrating GNH values are not intertwined effectively within the existing school curriculum.

Anecdotally, Sherab (2013) noted during his research into the efficacy of teachers and principals in GNH education in schools that neither of the two teaching colleges in the country were paying much heed to values education. Those teachers who graduated from the teaching colleges were thus untrained in values education and are attempting to implement the current GNH-Infused Curriculum in the schools after receiving only a short one-off training (“hit and run”) session from the Ministry of Education. One study showed there to be a lack of coordination between the stakeholders, low efficacy of teachers, lack of teacher confidence, and minimal attention rendered in classrooms in implementing Educating for GNH in Bhutanese schools (Sherab, 2013; Sherab et al., 2016). By contrast and a case in point, South Korea only permits certified teachers to teach moral education, but in Bhutan, according to Ura (2009), there are neither teachers trained in values education nor any textbooks that contain material related to values education. Ura (2009) and Wangyel (2001) noted that the existing school textbooks do not contain appropriate Bhutanese-inspired values that could be integrated or taught to students. By the same token, Thinley (2010) found that the English curriculum lacked the Bhutanese moral values, particularly those prescribed in literature texts.

The Bhutanese curriculum is textbook based, exam oriented and syllabus prescriptive (Education Sector Review Commission, 2008a, 2008b; Royal Education Council, 2009). Success of both students and teachers in school is judged solely by the kind of credits the student receives in the final examination (Sherab, 2013; Sherab et al., 2016). What is more, both parents and teachers want their children to do well academically. As a result, the teachers and students end up preparing for the board

examinations in meticulous detail (Maxwell, Rinchen, & Cooksey, 2010). With the onset of the present national ranking system of the MoE that is based on the performance of schools (Educating Monitoring and Support Service Division, 2013), academic competitiveness to be in the top ten schools in the nation appears to have become rife.

Furthermore, according to the Ministry of Education (2013), the teachers should not compromise the content material while integrating the GNH values into the existing school curriculum. This policy (mandated to infuse the GNH values into the existing school curriculum without compromising the content of the prescribed texts) creates additional time and preparation restraints for teachers, as exemplified by the finding of the National Council Special Committee (NC, 2016, p. 11) that teachers are overburdened with too many curricular and extra-curricular activities, which leaves them with limited time for preparing and teaching the GNH-Infused Curriculum. When observing the kind of academic activities undertaken in schools, values education seems to be receiving the least attention from the teachers (NC, 2016). The committee (NC, 2016) therefore recommended that the Ministry of Education reduce the workload of teachers by deploying separate ancillary staff to assist in classrooms to allow teachers adequate time for lesson planning and assessments.

Despite crowded school programmes and other numerous challenges that schools face, both teachers and students are, in fact, engaging in teaching and learning the GNH-Infused Curriculum, despite that fact that teachers are neither sufficiently trained about how to integrate GNH values into the existing school curriculum nor provided with values integrated textbooks (Sherab, 2013; Sherab et al., 2016; Ura, 2009).

According to Yangki's (1998) past studies, curriculum implementation in the 1960s and 1970s received strong criticism for possessing a "naïve assumption" that whatever had been planned resulted in exact implementation in the classrooms by the teachers. However, research after the 1960s and 1970s has revealed that the assumption was probably incorrect (Brophy, 1982; Kimpston, 1988). Instead, there were multifaceted variations and discrepancies between the intended and the taught curricula, and that the latter, more often than not, replicated a distorted version of the designed curriculum (English, 1984; Rhodes, 1988; UNICEF, 2000; Yangki, 1998). These authors maintained that only a subset of the originally intended curriculum is learned by the students. According to Yangki (1998), there was no problem with the adoption of the curriculum or programmes, but there was a gap in the implementation of the designed curricula or programmes that influenced the outcomes or success of the projects studied. This case also may be accurate in regard to the implementation of GNHC in Bhutanese schools if the multiple problems the teachers are faced with in schools are considered.

### **Significance of the Study**

Interwoven with religious, social and political foundations, the Bhutanese education system builds its image on actions unique to Bhutan. Educating for Gross National Happiness in schools showcases the development of the education system in the country. The system aspires to add new meaning to teaching and learning in schools. This aspiration lies in the hands of school leaders, teachers and children. Bhutan regards Educating for GNH as paramount. This research is predicated on the following assumptions.

Firstly, the concept of GNH is the most desired developmental philosophy of Bhutan, and educating children about the values of GNH is aimed to create responsible

citizens who are caring, qualified, understanding, empathetic, selfless, helpful and critical and, by and large, who possess all the qualities of GNH graduates who are best suited for the wellbeing of humanity and other sentient beings (Thinley, 2009). By exploring the factors that enable and inhibit the implementation of GNH values in 22 secondary schools of the Thimphu and Samtse districts, ways forward to achieve the successful implementation of the GNH-Infused Curriculum in schools may be determined. Knowledge of both enabling and inhibiting aspects ascertained through this study could be a first step in facilitating the achievement of the desired qualities of a GNH graduate.

Secondly, the research findings of English (1984), Rhodes (1988), Yangki (1998) and UNICEF (2000) indicated that there is a gap between the two types of curriculum (intended curriculum and taught curriculum), which was alluded to in the previous discussion. If the existing possible disparity between the intended Educating for Gross National Happiness (EGNH) via the Gross National Happiness-Infused Curriculum (GNHIC) and actual taught GNHIC is not bridged, the noble vision of the fourth and fifth kings and government may be left unmet. The possible discrepancies that appear to exist between the intended and taught GNH-Infused Curricula need to be revealed.

Thirdly, the findings from Sherub's (2013) case studies confirmed that teachers in Bhutan have low self-efficacy and that they do not infuse the GNH values while delivering their lessons. The reasons teachers have lower self-efficacy and do not infuse GNH values while teaching the lessons requires further enquiry.

Examining the educational production (input and process) indicators that affect the successful implementation of the GNH-Infused Curriculum by the teachers may help achieve quality outputs and outcomes. One of the intentions of this research is to

provide information to teachers about the types of possible pedagogical approaches that may be necessary while attempting to implement the GNH-Infused Curriculum in schools.

Finally, this research has the potential to inform policy makers and key stakeholders about how to continue GNH education via the GNHIC and GNHVITAL approaches in the secondary schools of Bhutan, for example, by ascertaining whether the schools need different and/or new approaches and content to achieve the GNH values and principles.

This research is based on the theoretical framework provided by UNICEF (2000), UNESCO (2005), Windham (1990), Scheerens (2000), Creemers and Kyriakides (2006), Reynolds et al. (2014), Tshering (2014), Yangki (1998) and Sherab (2013). The school effectiveness research model (Creemers & Kyriakides, 2006, 2010; Kyriakides, 2005; Kyriakides & Creemers, 2008; Reynolds, 2006; Reynolds et al., 2014; Scheerens, 2000; Tshering, 2014; Windham, 1990) is incorporated into the theoretical framework and construction of the conceptual framework of the study.

In summary, first, this chapter provided discussion about the political, geographical, and cultural background of Bhutan. Second, the context of the study concerning the philosophy of Gross National Happiness (GNH) was presented. Third, the problem was stated, as well as the rationale of the study. Finally, the objectives and the significance of the study were presented.

## **Chapter Conclusion**

No known formal research has been undertaken that has investigated whether or not teachers are making progress towards closing the gap between the intended and taught curricula pertaining to the infusion of GNH values into the existing school curriculum. In other terms, this research aims to ascertain how effectively the EGNH is

implemented by secondary school teachers via a GNH-Infused Curriculum using a GNHVITAL approach.

A brief history of the geographical, political and values education of Bhutan was provided in this chapter. Next, the context was presented, along with a statement of the research problem and significance of the study concerning the state of GNHIC implementation in secondary schools of Thimphu and Samtse districts. The study also aims to ascertain the educational innovations and approaches needed to promote the teaching of GNH values via curriculum in schools.

In the next two chapters, the literature review pertaining to the research topic is provided. Innovations such as teaching approaches, teachers' attitudes, school resources/facilities and support services (both internal and external) are considered to determine the case/effectiveness of the intended and taught GNH-Infused Curriculum in 22 secondary schools of Thimphu and Samtse districts, Bhutan.

## **Chapter Two**

### **Historical Perspectives of the Bhutanese Education System**

#### **Introduction**

The Bhutanese education system has undoubtedly brought about changes in people's thought, speech and action towards self and others (Phuntsho, 2000).

Before discussing Educating for Gross National Happiness (EGNH) and the GNH-Infused Curriculum (GNHIC), it is crucial to understand the history of the Bhutanese education system.

The content of this chapter provides an overview of the Bhutanese curriculum system since its inception in 1914 to the present stage of the existing curriculum, commencing with a brief outline of the three types of education system in Bhutan: traditional, formal and non-formal. The descriptions are followed by the milestones of the modern (western style) education system, which ultimately interrelates with the research topic, namely Educating for Gross National Happiness (GNH) via a GNH-Infused Curriculum.

There are three sections in this chapter. Section one provides a description of the Bhutanese education system, Section two examines the milestones of the modern or formal education system in Bhutan. Section three includes deeper analyses of educating for Gross National Happiness (EGNH) in schools.

#### **Understanding the Bhutanese Education System: Past and Present**

Bhutan's education systems are closely tied to religion and political history. The only formal education offered in Bhutan earlier than the year 1920 involved various aspects of the Buddhist religion, including liturgy, philosophy, astrology and the fine

arts such as painting, sculpture, music and dance (Dukpa, 2016; Gyamtso & Dukpa, 1998; Wangyel, 2001).

However, with the advent of the first western model school (which is referred to as modern school in the rest of the thesis) in 1914 (Dorji, 2003, 2016), the traditional education system faced new challenges such as preserving Bhutan's cultural identity and social etiquette (Phuntsho, 2000). The differences and similarities of tradition and modernity were manifested in the forms of music, art, health and so on (Dukpa, 2016; Phuntsho, 2000). Nevertheless, this modern education system has not only provided the people with an opportunity to receive an education but also offered options to choose from two schools of thought. These traditional and modern education systems have played a fundamental role in changing Bhutanese civilisation from a tradition-bound society to a convincing participant in national and international affairs (Education Sector Review Commission, 2008b). In 1992, a third type of education system, non-formal education, was established to cater for those groups of people who are unable to attend traditional or modern education provisions (Bhutan Education Blueprint, 2014a; NFE, 2016; Powdyel, 2016).

A description of traditional/monastic education and non-formal education systems are delineated under the following three sub-headings. A detailed discussion about the milestones of the formal/modern/western education system is included in succeeding sections.

### ***Traditional/Monastic Education System***

Prior to the 1960s, monastic education was the only system available in Bhutan (Dukpa, 2016; Gyamtso & Dukpa, 1998; REC, 2012). This school system was linked to Buddhism, which is the religion introduced to Bhutan around the eighth century and which has, since then, played an important role in determining the societal, political,

industrial and cultural progression of the nation (National Education Framework Document, 2012).

The two types of monastic school that are currently operating are those that are government-supported, which comes under the Je Khenpo (the chief abode of the monastic body), and the private monastic schools that are established and managed by other religious leaders (Constitution of Kingdom of Bhutan, 2008). According to Phuntsho (2000), in the traditional formal education system, training is basically focused on religious philosophy and the sacred arts. Phuntsho suggests that monastic education is to be perceived as a recursive course for “edification” and “knowledge” for the benefit of the whole world. This philosophy of study thrives in the *Shedras* (the monastic colleges), *Dratshang* (the monastic schools) and *Gomdeys* (the meditative centres).

### ***Non-Formal Education System***

In 1992, a non-formal education (NFE) programme was commenced for the rural Bhutanese, particularly women and girls, who previously could not access formal education (MOE, 2012; Powdyel, 2016; REC, 2012). The purpose of this style of education is to provide an opportunity to gain basic literacy, numeracy and functional skills. The programme consists of a 12-month basic literacy course (BLC) and a 9-month post-literacy course (PLC).

According to Annual Education Statistics (AES) from the Ministry of Education (AES, 2014), the non-formal education system in Bhutan became popular as an invaluable programme for rendering basic literacy and functional skills to the rural adult populace. In total, as of May 2017, there were 7236 learners who were either attending the basic literacy course (BLC) or the post-literacy course (PLC) in 674 centres under the guidance of 682 NFE instructors (Prime Minister, 2017).

### ***Formal/Modern Education System***

The formal or modern education is an institution-based education that caters for all students from primary school to tertiary institutes or colleges (National Education Framework, 2012). The formal education system in Bhutan comprises primary schools for classes Pre-primary to VI (age range from 6 to 12), lower secondary schools for classes VII to VIII (age range from 13 to 14), middle secondary schools for classes IX to X (age range from 15 to 16), and higher secondary schools for classes XI to XII (age range from 17 to 18).

According to the Education Sector Review Commission (ESRC, (2008), from 1914 to the 1970s, basic or compulsory education in Bhutan was for students up to class VI, but as the nation developed and demands changed, the basic education was raised to class VIII, and in 1996 the level was further lifted to grade X. After grade X, education becomes competitive and priority-based (ESRC, 2008; Thinley, 2016). This situation applies to grade XII for students who want to pursue higher studies and who perform successfully in exit exams.

After 13 years of school education (12 years of formal and one year of pre-primary), those students who wish to pursue their higher studies may enrol in a three-year undergraduate programme in the country's tertiary institutes under the Royal University of Bhutan, which was established in 2003 (ESRC, 2008; MoE, 2014a). Some students go abroad for professional, undergraduate and postgraduate studies either on government scholarships or self-funded. Some of the differences in the three types of education system that exist in Bhutan are shown in Table 2.1.

Table 2.1. *Differences between monastic/traditional, formal/modern and non-formal education systems in Bhutan*

Areas	Monastic Education	Formal/Modern Education	Non-Formal Education
Purpose	Mainly introvert spiritual; training culminating in omniscience	Mainly extrovert skills for human development	Mainly extrovert basic literacy development course for the rural folk who missed the monastic and modern education systems.
Content	Religion or religious oriented, liberal	Secular and scientific; technical	Basic literacy skills and life skills
Approach	Mostly passive reception; static; conservative	Mostly active innovation; creative; progressive (aspirational)	Mostly instructive and guided learning; static & progressive
Perspective	Faith, reverence, sanctity; for religious edification	Interest, curiosity, rationality; for acquiring knowledge and skills	Interest; for acquiring basic literacy and life skills
Medium Methodology	Choꣳ key/Dzongkha Buddhist monastic methods of memorisation, debates, contemplation, exposition, etc.	English Systematic western educational techniques of critical scrutiny, statistics, experiments, etc.	Dzongkha Mix of monastic and western educational techniques of liberal and critical orientation.

*Note.* Reprinted and added to Phuntsho (2000) based on the Non-formal Education (NFE) Strategic Plan: 2016–2018 and existing literature on NFE in Bhutan (NFE, 2016; Powdyel, 2016).

In summary, Bhutanese education comprises traditional, formal (modern/western style) and non-formal systems. Traditional education is provided in Buddhist schools, monasteries and Buddhist colleges. The formal or modern education system exists in schools and colleges that possess the characteristics of a western style of education. Non-formal education is provided to those people who cannot avail themselves of either traditional or modern education.

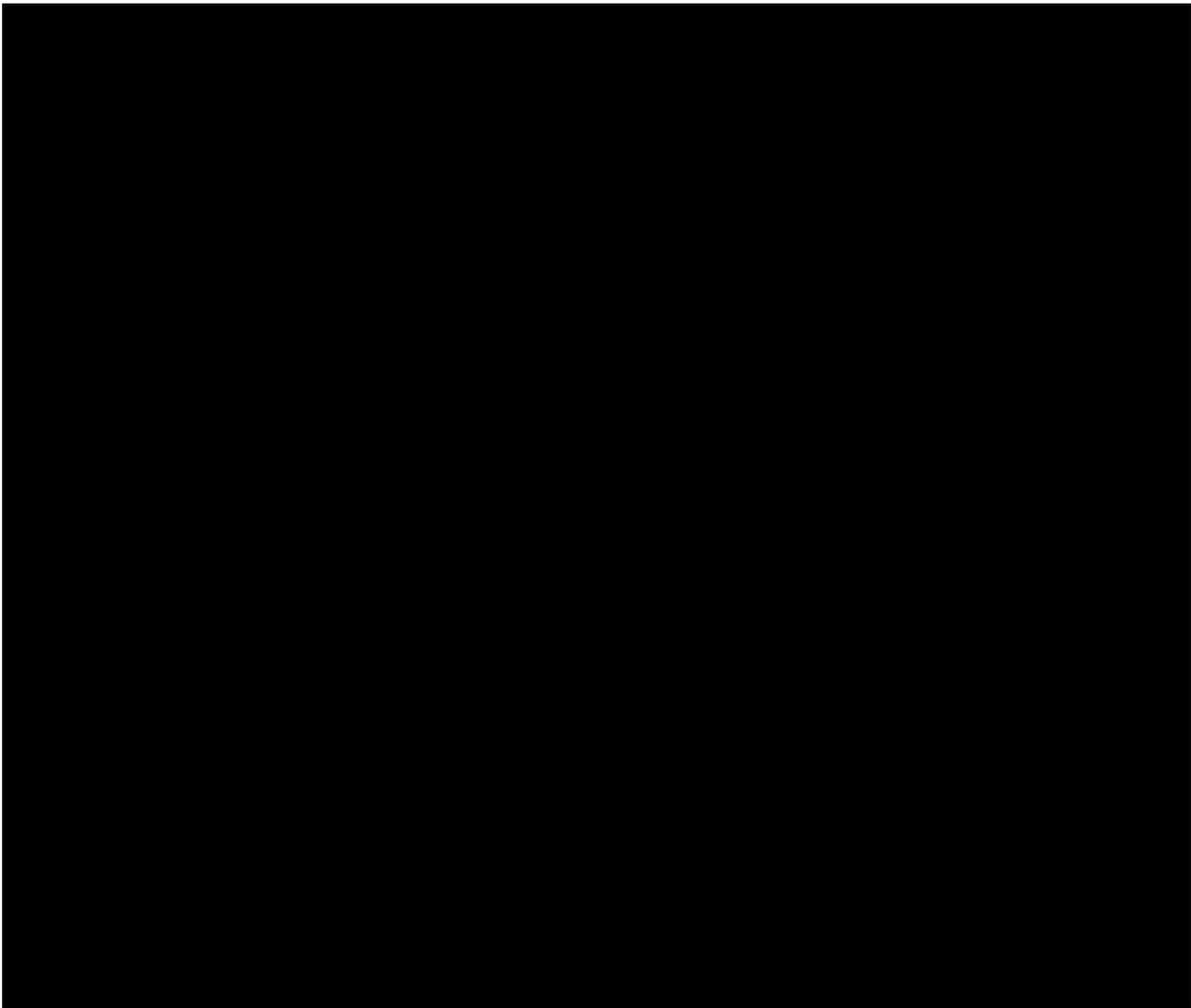
### **Conclusion**

The Royal Government of Bhutan (RGOB) provides people with a means to gain access to either the traditional, modern or non-formal education systems and hopefully become a better informed person in the society after years of learning in schools and colleges. In the past, people only had access to the traditional education system where the content and approaches adopted were religious scriptures and rote

learning. Such approaches to acquiring traditional education still exist in the monastic schools and colleges. With the introduction of a western style of education in 1914, the pursuit of traditional education by the people decreased. The monasteries, Buddhist schools and colleges experienced decreasing student enrolments while there was increasing enrolment in modern schools and a change in the medium of instruction to English. The modern education system brought in new approaches and content, which are progressive and liberal in orientation. The Bhutanese people witnessed the rapid development of their country and changes in practices because of the influences of the western world. Non-formal education (NFE) also enabled people who could not avail themselves of the traditional and modern education facilities when they were young to gain basic literacy via a Dzongkha language (Powdyel, 2016). This form of education assisted NFE learners to develop their ability to read and write the national language and to gain fundamental literacy skills.

### **The Modern/Formal Education System in Bhutan: Milestones**

Due to the government's priority to achieve a modern education system, developmental activities in Bhutan have gained momentum. The introduction of a western style of education has successfully changed the pedagogical approach to teaching and learning, from rote learning to a more constructivist paradigm and exposed the Bhutanese to the outside world of abundant knowledge. However, the pace of development in modern education has been so fast that it has brought unprecedented social, cultural, political and economic transformations to the country (Phuntsho, 2000, p. 97). The Bhutan education milestones are highlighted in Figure 2.1.



*Figure 2.1* Bhutan education milestones.

*Note:* Reprinted from *National Education Blueprint* (MoE, 2014a).

With reference to Figure 2.1, and following in chronological order, a number of milestones in the history of the introduction of modern education are evident. In 1914, Gongzim Ugyen Dorje, who was the chamberlain to the first king, took 46 boys from Bhutan and admitted them to a Scottish mission school in Kalimpong, India, known as Dr Graham's School (Dorji, 2008, p. 18). In the same year, he started a public school in the Haa district of Bhutan, followed in 1915 by the opening of a similar type of school in the king's palace of Bumthang (Dorji, 2008).

Furthermore, the acquisition and use of foreign languages in Bhutan was observed during the first king's reign, as Gongzim<sup>1</sup>Ugyen Dorje was able to communicate in foreign languages with the British India officers during state level meetings (Dorji, 2003). The ability of Gongzim Ugyen Dorje to communicate in a foreign language implies that the modernisation in Bhutan began as early as 1920; however, the actual development began only during the third king's time in 1961 when the first five-year development plan (1961–1966) was launched (Geschäftsführer, 2014; Gyamtso & Dukpa, 1998; Namgyel & Rinchhen, 2016).

When the first five-year plan began, the number of modern schools in Bhutan reached 59 (Gyamtso & Dukpa, 1998). According to the Ministry of Health and Education (1999, p. 12), the Kingdom of Bhutan owned 11 primary schools that provided education to more than 500 students (both for boys and girls) and it was in 1968 that the first 20 Bhutanese students completed their high school education from the schools in the country. In the 1980s, Bhutan had been successfully able to utilise a western model of education system from kindergarten to the tertiary levels (Gyamtso & Dukpa, 1998).

### ***Curriculum Adoption and Pedagogy***

In the change from the monastic to a more modern system, the initial curriculum employed in Bhutan was based on the Indian model. For example, literature from the 1960s until the 1980s was that prescribed for the modern Indian schools (Dorji, 2016; Gyamtso & Dukpa, 1998; Namgyel, 2011; Namgyel & Rinchhen, 2016). Also, the modern schools in Bhutan in the 1960s almost totally depended on expatriate teachers and head teachers from India, whose management and teaching styles were

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<sup>1</sup> The chamberlain of the king  
Chapter Two

authoritarian and teacher centred (Dorji, 2016; Gyamtso & Dukpa, 1998; Namgyel, 2011).

Further historical details located in an attenuated version of the Indian/Bhutanese connection may also be found on the Bhutan/Canada Foundation website (BCF, 2015, para, 7), which includes the following quotation:

In the 1950s, under the second king, His Majesty Jigme Wangchuck, Bhutan opened its first secular schools, with both the curriculum and the medium of instruction (Hindi) borrowed from India. But it was in the 1960s, under the third king, His Majesty Jigme Dorji Wangchuck, that Bhutan began to build its education system in earnest. Realizing that the small, isolated country needed to be able to communicate with the rest of the world, the third king made English the language of instruction. This laid the foundations for the network of primary, secondary and post-secondary institutions spread across Bhutan today.

Between the years 1830 and 1870, it was India that shaped Bhutan's future moving towards a modern state, economy and education system (Dorji, 2016; Lall, 2005; Sarangapani, 2014). The main features of the present education system in India, such as the centrality of textbooks, board examinations and a highly controlled system of education, can all be traced back to the colonial institutional structure that existed under the British.

Apart from the curriculum, pedagogically, according to Sarangapani (2014, p. 2), the colonial schools in India promoted a system of teacher authority, knowledge as received, memorisation, drills/repetitions, teacher centredness and chalk and talk teaching methods, which were also the educational orientations of the western countries at that point in time, that is, conservative and traditional teaching practices. To

recapitulate, the approaches undertaken to teach students were conservative-oriented, where “textbooks culture” and “chalk and talk” methods dominated the teaching and learning process (Dorji, 2016; Jones, 2009, 2013; Namgyel & Rinchhen, 2016; Sarangapani, 2014).

The reason for adopting the Indian curriculum for Bhutan was multi-faceted, but generally it is subsumed under three factors. First, Bhutan’s developmental plans only began in 1961 when Bhutan was opening its door to other countries in the world for the first time in Bhutanese history with almost full financial support from the government of India. Second, Bhutan did not have enough human and financial resources to address the needs required for the developmental activities (Dorji, 2016; Namgyel, 2011; Namgyel & Rinchhen, 2016). Third, Bhutan and India had sound interstate rapport and consequently India provided exclusive financial support for Bhutan’s first and second five-year plans (Dorji, 2016; Namgyel, 2011; Namgyel & Rinchhen, 2016).

However, apart from India, there was another influential force acting on Bhutan’s educational system. In 1962, a Canadian Jesuit Brother (Father Mackey) became the known friend of the late prime minister, Jigme Palden Dorji (Dorji, 2008). Mackey was brought to Bhutan to help establish the Kanglung School in Trashigang, and he became an important figure in the development of modern education in Bhutan (Dorji, 2016; K. Dorji, 2008).

Following Father Mackey, many Canadian teachers came to Bhutan with modern teaching styles and taught the Bhutanese students in different regions of the country (Dorji, 2016). Through the World University Service Canada (BCF, 2015; Dorji, 2016), between 1985 and 1991 more than 40 Canadian teachers were sent to work in the schools of Bhutan. In the following years, the Canadian High Commission, New Delhi, and the University of New Brunswick, “acted as a conduit for Canadian-

Bhutanese activities”, were particularly focused on educational development in Bhutan, and functioned as a central point for visas, visits and official contacts in Bhutan (BCF, 2015, para. 2).

One of the strongest points of Bhutanese modern education is the prevalence of a common school system, which is structured, managed and administered under the care of the government without any castes or creed distinctions, even though Bhutan is a multi-cultural country. The National Education Framework Document (2012, p. 24) mentions that children from all walks of life, namely the poor, middle class and rich, are treated equally and there are no layers in the school system in Bhutan. Education is freely available to all people irrespective of their social status and family background as per the mandate of the Constitution of the Kingdom of Bhutan. Bhutanese pupils enjoy the same status and access to modern education with the children of aristocratic families. This approach is unlike traditional systems not only in Bhutan but also among different groups of people in the western world, where people received different types of education, particularly in India when elitist education was provided during the British-India rule (Dorji, 2003).

### ***Educational Transformation***

The vision of the nation must be contained in the books of the young children, in the words of the teachers and in the education policy documents of the government (His Majesty the King, 2009). The King proclaimed in his speech (2009, para. 1) that it is the responsibility of the government, policy makers and parents to provide the right tools, such as the right books, an appropriate curriculum and the right direction, for teachers and students. To realise the vision of the King and the mandates of the Constitution of the Kingdom of Bhutan, the Ministry of Education embarked on a vision to create “An educated and enlightened society of GNH, built and sustained on

the unique Bhutanese values of *tha dam-tsig ley gju-drey*<sup>2</sup>” (MoE, 2015; Thinley, 2016).

The education system is growing and all endeavours are for the most part oriented towards established educational goals (ESRC, 2008). The National Education Policy (2012) highlights the seven contexts of delivering education in Bhutan:

1. To realize the nation’s vision as proclaimed by the King that the country’s vision can be fulfilled only “if the scope of our dreams and aspirations are matched by the reality of our commitment to nurturing our future citizens” (His Majesty the King, 17 Feb. 2009, PCE).
2. To provide education to improve and increase the knowledge, values and skills of the entire population directed toward the full development of the human personality (The Constitution of Kingdom of Bhutan Constitution, 2008, p. 19, Article 9.15).
3. To provide free education to all the children up to grade X as per the Constitution of the Kingdom of Bhutan (2008, p. 20: Article 9.16).
4. To incorporate the GNH vision into the school practices through the Educating for Gross National Happiness (GNH) initiative as enshrined in Article 9.2 of the Constitution of the Kingdom of Bhutan (2008, p. 18).
5. To build strong foundations for democracy in Bhutan by educating citizens to meaningfully participate in the political process.
6. To create a knowledge society (one of Bhutan’s development goals).
7. To provide access and quality education to all children.

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<sup>2</sup> *tha dam-tsig* means faithfulness in actions or knowing how to maintain faith and relationship, for example, between husband and wife, teachers and students, government and citizens, boss and subordinates, etc. and looking after one another in times of need. *Ley gju-drey* means in succinct terms a circle of karma. *Ley* means deeds/actions. *Gju* means causes and *drey* means outcome of one’s action. Therefore *ley gju-drey* means if our actions are for the good of others then, in return, they generate good merits, which will determine the kind of lives a person will lead in both the present and the future.

Importantly, modern education has been the main tool used thus far to transform Bhutan from a secluded and traditional society into a vibrant, confident and dynamic member of all national and international affairs. The document titled Education Without Compromise (2008b) marks that in addition to providing free basic education, the government has also committed to protect the rights of Bhutanese children by signing documents such as the international Convention on the Rights of the Child and Education for All. The Education Sector Strategy articulates how Bhutan will achieve its long-term vision in the education sector as part of wider national development principles that address the country's unique needs and priorities for attaining Gross National Happiness (EMSSD, 2003). For example, one of the milestones reflected in the Vision 2020 document is that by the year 2020, Bhutanese students' competencies would be equivalent to what is termed the "excellence level" by international standards (EMSSD, 2003).

The main goal of Bhutan is to accomplish Gross National Happiness (GNH), thereby enabling the policy makers to make wise decisions for a better future in Bhutan (National Education Framework Document, 2012). It is considered crucial to put in place a broad roadmap for education to translate all the outcomes into tangible policy statements, to facilitate the effective realisation of education programmes through policy guidelines and to build up the overall education system (MOE, 2012).

Prior to the 1960s, according to Namgyel (2011), the rationale behind the commencement of modern education in Bhutan was twofold, namely, *instrumental* and *integration*. Firstly, the government needed people with new knowledge, skills and language to actively participate in the developmental activities and, as a result, education became instrumental for this cause. Secondly, the age-old practice of living in isolation and seclusion was challenged by the exponential growth of modernisation

and globalisation in the world and by the country's developmental plans. As a consequence, integration with outsiders via a western model of education became an increasingly important and necessary phenomenon in Bhutan (Dorji, 2003; Namgyel, 2011; Namgyel & Rinchen, 2016). In 1962, the English language was formalised as the medium of instruction in schools and institutes owing to its dominance in the world; it is a lingua franca of the world (Dorji, 2003).

### ***Transition Periods of Modern Education System***

In the two decades of the 1980s and 1990s, the Bhutanese education system underwent some noticeable transitions in policy, structure and resources. One of the reasons for experiencing such a rapid evolution is that many Bhutanese who were sent abroad for their undergraduate and higher degree studies in Canada, Australia, the UK, America and India came back as well educated persons and began to take very important leadership posts in the education sector (Namgyel, 2011). Their broader knowledge of the western education system brought two changes to the educational policy and programmes. According to Namgyel (2011, p. 62), the two periods were identifiable as “that of ‘izations’, which concerned Bhutanization, nationalization, decentralization and democratization, and ‘nesses’, which involved teacher centeredness, student centeredness, wholesomeness and, most recently, happiness”. These progressive changes in the education system are delineated in the subsequent sub-sections.

### ***Bhutanisation of the education system***

In 1985, the Department of Education brought about a policy change by Bhutanising the formal education system based on the needs and aspirations of the Bhutanese people (MoE, 2014a, p. 17). The change was noticeable in curriculum documents (Namgyel, 2011). For instance, one of the major changes the Department of

Chapter Two

Education brought into the schools was the introduction of a new system, called the New Approach to Primary Education (NAPE), which emphasised not only putting curriculum design and implementation into the Bhutanese context but also shifting the teaching methodology from teacher-centred to child-centred learning (Gyamtsso & Dukpa, 1998; Namgyel, 2011; Namgyel & Rinchhen, 2016; QPGI, 1990). An initiative was taken by the government to design the Environmental Science (EVS) curriculum and teaching in the medium of Dzongkha in the lower primary grades (QPGI, 1991).

In 1990 and 1993, the Department of Education initiated another two consecutive changes: embarking on the introduction of Bhutanese history and geography in grades VI to VIII and three years later in grades IX and X (Gyamtsso & Dukpa, 1998; QPGI, 1991). The main aim of these two curricula was not only to develop pride for being a Bhutanese but also to nurture a sense of duty, love and loyalty to *Tsa Wa Sum*<sup>3</sup> and to preserve the spiritual, cultural and traditional values, thereby contributing to building a stronger, more prosperous and sovereign independent Bhutan (QPGI, 1991). For example, the English language textbooks were replaced with Bhutanese versions (Dorji, 2016; Namgyel, 2011; Namgyel & Rinchhen, 2016). The document Education Without Compromise (ESRC, 2008) postulates that the desire of the Bhutanese education system is to assimilate the cultural and national values with modern knowledge and technological developments that best serve the interest of the nation.

Prior to the Bhutanisation of the education system, in the 1960s and 1970s, the students had to learn a content that was unfamiliar. As a consequence, children's lived experiences acquired at home did not have any correlation or connection with the designed curriculum and the children were required to learn a content that was obsolete

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<sup>3</sup> King, people and country  
Chapter Two

and borrowed from other countries (Namgyel, 2011; Namgyel & Rinchhen, 2016). As alluded to in the beginning of this discussion under the sub-topic titled Curriculum Adoption and Pedagogy, these unfamiliar and often irrelevant content or learning subjects taught in the Bhutanese schools were all imported from India and its missionary schools in the 1960s, which encouraged rote learning without properly understanding the concepts (Dukpa, 2016; Gyamtso & Dukpa, 1998).

### ***Nationalisation of the education system***

The leaders of Bhutan created a slogan, ‘One Nation, One People’, which may have had an impact on nationalisation and Bhutanisation of the education system (Namgyel, 2011; Namgyel & Rinchhen, 2016). In the 1960s, after the commencement of the five-year plans, the modern schools, institutions and organisations were all headed by expatriate head teachers, mostly from India; however, from 1988 onwards, Bhutanese teachers were appointed as the heads of the schools and institutions under the common theme of ‘Nationalisation of Heads’, thereby moving towards self-sufficient educational development (MoE, 2014a; Namgyel, 2011; Namgyel & Rinchhen, 2016; QPGI, 1990, 1991; REC, 2012). As mentioned in the previous section under the Transition Periods of the Modern Education System, Bhutanese senior teachers were sent for further training on school management and training (Namgyel, 2011; Namgyel & Rinchhen, 2016), and provided the school management guidelines for those newly recruited national head teachers (MoE, 2005, 2012). Consequently, this cadre of national educational leaders acquired distinctive experiences and orientations, which widely impacted on the type of education system Bhutan experiences today (Namgyel, 2011; Namgyel & Rinchhen, 2016).

### ***Decentralisation of the education system***

The term ‘decentralisation’ was a new concept to many Bhutanese in the 1980s. As a result of this change in the national policy, the education system underwent a transition in administration and management of the schools. For example, under the district development committee, the local leaders decided the type of schools they wanted in their locality (Namgyel, 2011; Namgyel & Rinchen, 2016). Since the year 2000, the centrally controlled education monitoring and support services have been decentralised to the Dzongkhags, cluster schools, school level and individual level (EMSSD, 2003).

In addition, in the year 2014, the Ministry of Education decentralised the school administration and management authority, which meant 19 principals had complete autonomy over the conduct and running of their schools (MoE, 2014a). The autonomous schools were given control over recruiting staff, budgeting, capital work, governance and curriculum and assessment. For example, the Guidelines for Autonomous Schools (MoE, 2014b, p. 23) supports localisation of the curriculum without neglecting the national curriculum, which would allow schools to:

- i. be innovative and creative in implementing the curriculum and assessment practices including the use of ICT in teaching and learning;
- ii. adopt any other alternative assessment practices that best maximize student learning outcomes;
- iii. adopt a range of optional curricula that would enhance creativity, skills and attitude of students (art, painting, music, agriculture, vocational skills etc.)

### ***Impact of democratisation of governance on the education system***

Since the advent of a Democratic Constitutional Monarchical System, the Ministry of Education has had the responsibility of addressing some of the new articles

enshrined in the Constitution of the Kingdom of Bhutan. For instance, some of the contents in the existing school curriculum needed revision in order to inculcate some of the rights and responsibilities. Bhutanese social etiquette, tradition, cultural values and so forth, are bestowed on the people by the Royal Government of Bhutan. Namgyel (2011) suggests that it is important to include some educational programmes particularly for the teachers and students on the occasion of this historical change in the governance of Bhutan. The Ministry of Education decided to include the articles and clauses contained in the Constitution of the Kingdom of Bhutan into both the Bhutan Civics and Bhutan History curricula (DCRD, 2014; Namgyel, 2011; Namgyel & Rinchhen, 2016). Indeed, since the very inception of democracy and the resultant change in the political system, the Ministry of Education has appeared to experience some pressure to adopt “particular topics” in the school curriculum.

The concept of ‘student centredness’ was featured in the Bhutanese education system when the government introduced this new concept to teaching and learning under the title “New Approach to Primary Education (NAPE)” in 1985 (MoE, 2014a; Namgyel, 2011; Namgyel & Rinchhen, 2016; QPGI, 1991). Under this NAPE system, each child was pivotal in the school educational process. The school curricular and co-curricular activities were all geared towards the development of students’ cognitive, psychomotor and affective domains of learning. However, those activities were all initially based on students’ aptitudes and interests. With the commencement of NAPE in the primary educational levels, the Bhutanese schools witnessed the redesign of new curricula, revamp of teaching and learning approaches, expansion of school infrastructures and introduction of child-centred teaching approaches (Namgyel, 2011; Namgyel & Rinchhen, 2016). The child-centred approach to teaching in the schools is a mandate of the Ministry of Education (REC, 2012).

However, due to the deterioration of quality education in the late 1990s, a teacher centred approach was re-emphasised in the Bhutanese modern education system on the premise that success of the children's education does not solely depend on focusing only on learners (Namgyel, 2011; Namgyel & Rinchhen, 2016). Teacher centredness was not necessarily centred towards teaching students by using a traditional method, such as 'chalk and talk', rather the teacher-centred approach was initiated as a means of enhancing the quality education of the students by upgrading the academic and professional qualifications of teachers, providing financial allowances and a housing allowance to head teachers and teachers, improving the living conditions of teachers in remote schools and empowering teachers to take part in educational decision making (Namgyel, 2011; Namgyel & Rinchhen, 2016).

One of the existing practices in schools that catered for the development and empowerment of the teacher is that the power and responsibilities of managing the daily school activities are shared by the school principals and teachers. For example, the Teacher on Duty (TOD) has the power to preside, coordinate and manage the day's school activities as per the school calendar with lesser intrusion from the school principals (KLSS, 2010; MoE, 2005).

The concept of 'wholesome education' or *wholesomeness* was embedded into the Bhutanese education system when there was an apparent decline in values in the Bhutanese community. According to Namgyel (2011), there has been a steep rise in unemployment and anti-social activities of the Bhutanese youth. For this reason, the introduction of wholesome education in schools was necessary and timely (Namgyel, 2011; Namgyel & Rinchhen, 2016). Under this initiative, programmes such as vocational education, values education, guidance and counselling, scouting, games and sports, health and physical education (HPE), media education, arts education, life skills

education and so on were systematically implemented in schools (CAPSD, 1999; CAPSS, 1996; NEP, 2012; Namgyel & Rinchen, 2016). The Department of Youth and Sports (DYS) under the Ministry of Education manages all these programmes in the schools (MOE, 2012).

As part of catering for wholesome education, Educating for Gross National Happiness (EGNH) was commenced in the schools in 2010. EGNH in schools was launched through an integrative approach. The GNH values were integrated into different school curricular and co-curricular activities. One of the approaches of integrating GNH values into the school daily activities is via curriculum implementation, which is the focus of the current study.

In summary, this sub-section discussed the milestones of the modern Bhutanese education system since its introduction in 1914. This western style of education began with an imported curriculum and traditional teaching approaches. Modern school education aims to educate and create a GNH society, notwithstanding the unique Bhutanese values of co-existence, interrelationship, interdependence and circle of *Karma*<sup>4</sup>. A discussion on the Department of Education's endeavours to fulfil constitutional mandates pertaining to the provision of accessible and quality education to learners (future nation builders) was presented. The section ends with a review on the impact of a modern education on the development of educational movements.

### ***Conclusion***

Because of the modern education system, Bhutan has witnessed unprecedented transformations in the areas of social, cultural, political and economic development. Bhutan remained in isolation for decades. Without the support of the Government of

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<sup>4</sup> In Buddhism or Hinduism, it is believed that the nature of deeds, actions and thoughts of humans will have repercussions either in their present life or in the next life (Apple, 2015). For example, good actions would merit good outcomes to self and vice versa.

India, the modernisation of Bhutan and what has been achieved thus far would have been a far-fetched dream.

Using a borrowed curriculum (from India), expatriate teachers from India and Canada built a foundation of modern education that nurtured the ability and resources to undertake nationalisation, Bhutanisation, decentralisation, democratisation and other sustainable educational programmes (Dorji, 2016; Namgyel & Rinchhen, 2016). The traditional ways of learning were replaced by constructivist approaches, which entailed progressive, liberal and post-modern orientations. Corporal punishment was totally banned in schools, inclusive education was introduced, early childhood care and learning centres were opened and autonomous schools were identified. Bhutan experienced an all-time high when modern innovations from the west were adopted.

The impact of a western style of education on the people of Bhutan was so great that it made the Ministry of Education realise the implications of modernity on the Bhutanese culture and identity. Educational innovations such as wholesomeness, inclusiveness and happiness were initiated in schools to combat the deterioration of age-old traditions and values. Educating for Gross National Happiness (EGNH) is one of the most influential educational inputs initiated by the government to find an answer to the problem of cultural disintegration.

### **Educating for Gross National Happiness (EGNH)**

The aim of education is to create a society that is just, build a nation that is harmonious, progressive and democratic, and produce people who can rationalise, act and live critically, morally and responsibly in society (Walker & Soltis, 1992). These authors put forward the notion that a broad spectrum of education is essentially about learners, society and knowledge, and if one of these elements is ignored, education is worsened and all other components of education suffer. This claim of Walker and Soltis

(1992) resonates with the aim of Educating for Gross National Happiness (EGNH) in Bhutanese schools.

GNH is a developmental philosophy guided by human values, which is socially constructed for the unity, harmony, wellbeing, happiness and benefits of all the sentient beings in the world. The graduates from Bhutanese schools and colleges who receive a GNH education from the teachers are expected to think critically, act morally and live responsibly in society (DCRD, 2011; Powdyel, 2011a, 2011b; Thinley, 2009; P. Thinley, 2016). Educating for GNH in schools could well be the true rationale for learning (Powdyel, 2011a), where its ideology is to educate the youth not only for the wellbeing of the self but also for the wellbeing of people worldwide, inclusive of nature and sentient creatures (DCRD, 2011; Powdyel, 2011a, 2011b; Thinley, 2011). According to Powdyel (2011b, p. 112), the Minister of Education put forward the idea that Educating for Gross National Happiness:

is essentially an invitation to Education, to all of us educators, to look for and to discover soul behind our role. We are returning to the original and authentic purpose of education - a process that greatly draws the human mind to look for and to love what is true and good and beautiful and useful-values inherent in the goal of education. We are in effect, returning to the root of education-educare-meaning to draw out.

The philosophy of EGNH in Bhutanese schools is predicated on the premise that younger generations are the immediate benefactors of the society, who, in the end, would not only be well educated but also would possess GNH values and skills to promote equitable and sustainable economic development in the country, with good governance and without causing harms to one's culture and environment (DCRD, 2011; Powdyel, 2011a, 2011b; J. Y. Thinley, 2011; Thinley, 2014; P. Thinley, 2016),

consequently guaranteeing the happiness and the wellbeing of Bhutanese people (His Majesty the King, 2009). One of the main principles of the GNH model is that it is a holistic approach to developing Bhutan, that is, bringing growth to the country, which enables the Royal Government of Bhutan to not only initiate a sustainable plan but also execute developmental activities properly (DCRD, 2011; GNHC, 2013; Powdyel, 2011a, 2011b; Thinley, 2011; P. Thinley, 2014). These authors consider that the existence of Bhutan in this globalised world depends on the kind of education its future citizens receive in schools.

Educating for GNH in Bhutanese schools is not limited to the epistemology of social reconstructionism of the educational ideology. EGNH accommodates the ideas and goals of education surrounding the conservative/classical, progressive/liberal and reconstructionist/critical orientations (Jones, 2013; Lawton, 1988). EGNH also aligns with the features of post-modern educational ideology (Jones, 2013), where diversity and wholesomeness are valued as indispensable aspects of the educational experience and process (Jones, 2013).

Bhutanese teachers are expected to relate the GNH values to the curriculum texts provided by the central government and initiate deconstruction and reconstruction of GNH values while teaching the GNH-Infused Curriculum (DCRD, 2011; EMSSD, 2013). The role of students in shaping the GNH-Infused Curriculum is akin to the post-modernists' mode of licensing the learners to deconstruct and co-construct values, as knowledge is assumed to be "constructed" and "relational" (Jones, 2013). The teacher's role is to facilitate GNH-inspired lessons through a GNHVITAL lesson plan (DCRD, 2011; EMSSD, 2013). EGNH provides a platform for both teachers and students to interrogate the realities and truths of GNH education or the GNH-Infused Curriculum

and enable them to co-create knowledge that is useful for their later life (DCRD, 2011; EMSSD, 2013; Jones, 2013).

As previously stated, the preservation of Bhutanese culture, traditions, skills, values and social etiquette, which were required to be passed down to the younger generation through a chalk and talk model that is typical of the traditional teaching and learning methods, were observed in the early period of secular education and in the monastic education system (Dorji, 2003; Namgyel, 2011; Namgyel & Rinchen, 2016). The latter part of the twentieth century saw the advent of progressive, constructionist and post-modern education in Bhutan (Dorji, 2003; Namgyel, 2011), which ultimately resulted in a change in teaching approaches (constructivist approaches) by the teachers in Bhutanese schools (CAPSD & BBE, 2004; Denman & Namgyel, 2008; Dorji, 2003; MoE, 2005, 2012, 2013, 2014a; Namgyel, 2011; Namgyel & Rinchen, 2016).

Through this post-modern EGNH ideology, there is the expectation of a holistic growth of graduates, such that they would be socially, morally, intellectually, spiritually and physically sound and deemed fit to serve the *Tsa Wa Sum* (country, people and king) (Thinley, 2011). The then prime minister indicated that the definitive goal of a GNH education is to produce graduates:

Who are genuine human beings, realising their full and true potential, caring for others – including other species – ecologically literate, contemplative as well as analytical in their understanding of the world, free of greed and without excessive desires; knowing, understanding, and appreciating completely that they are not separate from the natural world and from others – in sum manifesting their humanity, fully. (Thinley, 2011, p. 102)

In addition to the goals of EGNH graduates from the Bhutanese EGNH school system, it is likely that students experience a deeper understanding of the eight forms of GNH greeneries (Powdyel, 2014) with the aim of consolidating the EGNH practices in Bhutanese schools. The eight greeneries are:

1. Natural/Environmental
2. Moral
3. Spiritual
4. Aesthetic
5. Social
6. Intellectual
7. Cultural
8. Academic (Powdyel, 2014).

Gaining knowledge by mutually building GNH parameters and adding to the existing knowledge about the culture, society and democracy invokes the true purpose of learning (Kalpana, 2014; Powdyel, 2011a). It is important to nurture young minds with GNH values and principles through daily school enabling practices and via curriculum integration using a modern pedagogical approach, namely, a constructivist and post-modernist approach to teaching and learning (DCRD, 2011; Powdyel, 2011b; Thinley, 2014).

The Bhutanese GNH philosophy is built on the framework of four pillars and nine domains (Ura, 2009). The four pillars and nine domains are presented in Figure 2.2.

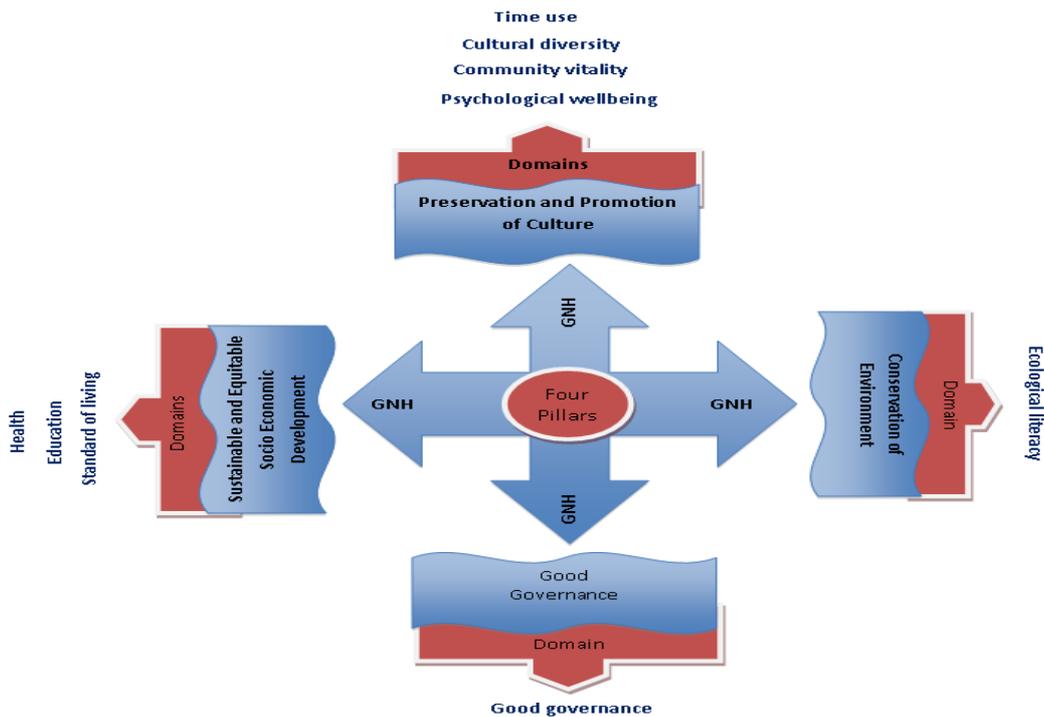
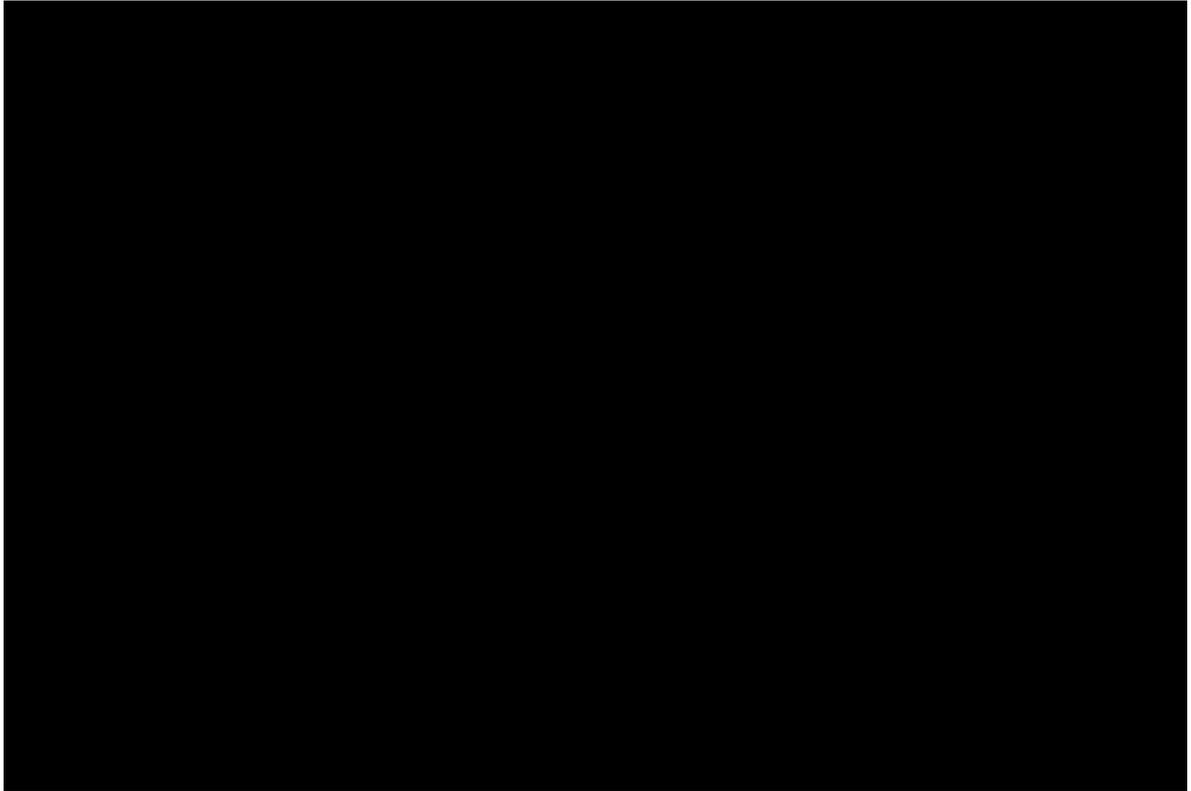


Figure 2.2. The four pillars and nine domains of GNH.

Note. Adapted from Ura, Alkire, Wangdi, and Zangmo (2012, p. 21).

These pillars and domains are considered to be broader aspects of GNH. Under the nine domains, there are 33 indicators that determine the values of happiness (Ura et al., 2012, p. 21). The 33 indicators are provided in Figure 2.3. The fact that Bhutanese students are to be taught GNH values possibly empowers them to become a person who is a benefit to their society. Furthermore, it is hoped that the acquisition of GNH values in schools will have a snowball effect on the nation (Sherab, 2013; Sherab et al., 2016; Tshomo, 2016) and, if successfully implemented in Bhutan, may be of help to other countries (Ura et al., 2012).



*Figure 2.3.* The 9 domains and 33 indicators of GNH.

*Note.* Reprinted from Ura, Alkire, Wangdi and Zangmo (2012, p. 13)<sup>5</sup>. The indicators of GNH as shown in Figure 2.2 are selected and taught to the students as deemed appropriate by teachers. These indicators are employed by the researchers while undertaking the happiness research in Bhutan (Ura, 2009).

### ***Values Integrated Teaching and Learning (VITAL)***

Efforts have been made in India to teach and promote values-oriented subjects in schools through direct instruction, but the outcomes have been reported to be poor. According to Sikand (2013a), Indian schools teach moral science, life skills and civics packaged as a separate subject but, more often than not, teachers and students do not take the subject seriously. In a similar way, based on the guidelines and processes contained in the National Framework for Values Education in Australian Schools (NFVEAS) the Australian Government has mandated that all teachers teach values to their students (Australian Government, 2005). However, the NFVEAS policy,

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<sup>5</sup> ‘*Driglam Namzha*’, which is under the domain title Cultural Diversity and Resilience means the social etiquettes or ‘the way of harmony’ in Bhutan.

guidelines and its materials are dominated by values education discourses, particularly values inculcation, that are conservative in orientation (Jones, 2009). In her study, Jones (2009, p. 54) revealed that the NFVEAS policy document did not completely embody Australian values education.

In 1999, Bhutan introduced values education into the school curriculum with 40 minutes per week allocated for every grade level (CAPSD, 1999). However, Bhutanese schools encountered similar issues to those noted in India and Australia. Consequently, in 2010, the Ministry of Education amalgamated values education with GNH education through an integrative approach, as per the EMSD training manual (EMSSD, 2013; Thinley, 2016). However, a recent review undertaken by the National Council (NC) of Bhutan (National Council, 2016, p. 14) revealed that there is “the current period allocation policy”, which “prescribes one instructional period in a week for values education”. The report revealed that this policy of teaching values as a separate subject has not been implemented strictly in schools. The reviewers, who comprised the parliamentarians of Bhutan, observed that values are disconnected and spread throughout the textbooks, and teachers try to teach values education based on the appropriateness of the lessons in the prescribed textbooks, albeit at the teacher’s discretion.

These contrasting reviews of the literature on values education in Bhutanese schools indicated a lack of uniform school education policy with regard to the implementation of EGNH. However, the report of the National Council’s special committee (2016) suggested that in the absence of a meaningful values education curriculum, a separate values education period as prescribed is not necessary, which suggests an integrative approach to teaching GNH values to Bhutanese students.

Furthermore, teaching values as a separate subject is, according to Sikand (2013b), frequently viewed as a subsidiary, an add-on, and as simply an obvious burden on the teaching fraternity. Teaching values in a compartmentalised way as a separate entity appears to dilute the curriculum and proves to be an ineffective method of teaching values.

Owing to this lack of values education in schools despite its importance, a team of volunteers based in Kanhangad, Kerala, India, launched an initiative in 2012 termed Values Integrated Teaching and Learning (VITAL) (Sikand, 2013b). The VITAL approach to teaching values seeks to make the existing school curriculum values-based without requiring a separate subject. The approach adopted was based on the notion that various subject teachers could extrapolate positive values from their teaching lessons and relay them to their students with a short value-laden message to facilitate learners to take on values that were relevant to their lives (Sikand, 2013b). In other words, teachers can initiate a text-to-life connection or life-to-text connection while teaching a values-based component of a lesson, which would enable the students to relate to their prior experiences in lives.

### ***Intended GNH-Infused Curriculum in Bhutanese Schools***

The VITAL approach to teaching values to students in India aligns with Educating for GNH in Bhutan through the GNH values integrated teaching and learning (GNHVITAL) method. Educating for GNH brought about a policy shift in the Bhutanese school system (Hayward et al., 2009a) that sought to integrate or infuse GNH values into the existing school curriculum (Department of Curriculum and Research Development, 2011). The DCRD (2011) alluded to the fact that facilitating values through this teaching and learning approach is one of the most productive and

natural teaching approaches for teachers to adopt in any learning and teaching institution.

In addition, EMSSD (2013) asserted that curriculum could serve as an effective transporter of GNH values as students engage with learning on a daily basis. The purpose of the GNHVITAL approach to EGNH as defined by the Prime Minister (PM) of Bhutan (Thinley, 2011, p. 43) indicated:

Infusing GNH into the education system is not adding a new subject but enriching learning and improving the process of education. It has to do with creating a context and an approach that infuses a GNH consciousness into everything that is learned and taught. This will make the curriculum and learning more enjoyable, more pleasurable and more relevant... Often there is no clarity on why we teach things, and so learning is inevitably boring.

Infusing GNH understanding creates a purpose and goal for teaching and learning to both teachers and students that makes study less burdensome and more enjoyable.

The PM maintained that GNH values would add colour to the existing teaching and learning norms in Bhutanese schools. He seemed to have been convinced that a GNH-Infused Curriculum would enable the learner and the teacher to explore a holistic and inclusive way of gaining knowledge, skills and values.

The GNHVITAL approach also conforms with Print's (1993) idea about humanistic conception, which is aimed at providing students with intrinsically rewarding experiences to increase personal development. A humanistic approach includes thoughts and feelings of individuals based on personal experiences using an introspective method directed toward assisting learners in their self-development

(Sowell, 2000). Print (1993) wrote that teachers as facilitators, resource personnel, supporters and considerate adults emphasise a holistic, integrated and real-life approach to learning. Print's humanistic approach to learning anchors the features of Jones' (2013) post-modern orientation to education, where facilitation, de-construction, reconstruction and introspections about the cultural truths, reality and hegemony dominate the daily classroom teaching and learning activities.

### ***GNH VITAL in Bhutanese Schools: A Lesson Plan Model (LPM)***

In order to facilitate learning via an infused approach, both the DCRD (2011) and EMSD (2013) provided intended curriculum guidelines regarding how to integrate GNH values into the existing school curriculum using a lesson plan model (LPM) approach. The LPM approach comprised three components: school policy, planning and teaching a lesson (using GNHVITAL approaches).

First, the school policy must ensure that all teachers identify GNH values from the list provided in the guidelines provided by DCRD (2011) and integrate them into daily planning and teaching processes. Under this policy guideline, teachers are required to include the values objectives in their subject lessons and commit to practise (thought, speech and action) as they deliver the GNH-infused content to their students and embody the values mindfully through role modelling. Teachers should also include learning activities on values where possible along with academic goals and monitor, support and assess values achievement in students (DCRD, 2011).

Second, while planning a GNH-infused lesson, teachers are provided with the following guidelines:

1. Referring to the values listed under the nine domains of Gross National Happiness

2. Reading through the syllabi, chapters and contents, and identifying GNH values that can be transmitted through lesson topics
3. Writing down the values against the chapters, topics and contents in the annual/monthly/weekly/block plans
4. Preparing daily lesson plans and integrating values to be taught so that daily lessons have values objectives along with concepts and skills of the particular topic
5. Designing activities to elicit discussion for plans and actions (for example through case studies)
6. Choosing appropriate materials to substantiate values
7. Writing possible issues, concerns and questions that will help teach values for changing attitudes and actions/practices
8. Preparing every lesson thoroughly before entering the class as devoting more time to preparing lessons enable students learn in less time (DCRD, 2011).

Third, during the teaching of GNH-Infused Curriculum content, teachers are expected to enter the classes with prepared lesson objectives and strategies for better learning by students. Teachers should be aware of how they enter the classrooms, notwithstanding their need for appropriate greetings and behaviour during the lesson period (DCRD, 2011). They are also expected to:

- (i) Introduce lessons mindfully through question and answer activities that focus on the lesson.
- (ii) Commence and develop lessons logically and systemically through interactive, collaborative and learner-centred approaches, by challenging the learners with analytical, critical, synthesising, evaluative and reflective questions that would enable them to acquire concepts, skills and GNH

values and attitude, and by consciously practising the GNH values in the class through role modelling, good thoughts and words.

- (iii) Assign tasks such as class work, homework and project work to students that would augment greater conceptual understanding of lesson topics and develop skills, values and attitude.
- (iv) Understand values, seek values clarifications and gain insight into values and changing attitude and behaviours that would culminate in the achievement of GNH principles.
- (v) Plan actions both at individual and group levels with the aim of improving self, class, school, community and nation.
- (vi) Assess students on their values development, provide feedback (written or verbal) based on the assessment criteria for better outcomes and keep records of the assessment scores for further development of class progress (DCRD, 2011, pp. 45-48).

Finally, the approaches to infusing Gross National Happiness values into the curriculum were provided in a guidebook published by the DCRD (2011). The intention for teachers is that whilst planning and developing annual instructional plans, teachers should read each chapter of the subject textbook in that year and identify the Gross National Happiness values embedded in all the chapters. The GNH values should be reflected in their annual plan. At the time of preparing their daily plan, GNH values should be mentioned with brief write-ups about how to transmit them through the topic. Lessons should be planned to integrate values without diluting the subject concept through direct integration or by bringing out inherent values. The guidebook mentions that interdisciplinary integration should be emphasised in the lower classes to effect a more holistic approach to learning.

Teachers are requested to explore creative ways to transmit GNH values even outside the classrooms (picnicking or other outdoor field activities). Any lesson content containing negative value statements should be rephrased into positive sentences (for example the value of sharing instead of stealing). Furthermore, role modelling by teachers is an important aspect of teaching values to students. The teacher should embody the values that are being transmitted to students. Use of songs, stories and similes/metaphors (Educating Monitoring and Support Service Division, 2013) are other recommended approaches for integrating the GNH values into the existing school curriculum (DCRD, 2011).

In summary, this sub-section provided an examination of the concept of Educating for Gross National Happiness (EGNH). A discussion was also presented concerning the approaches and educational ideology that are commensurate with the practices of EGNH in schools. Included is a diagrammatic presentation of the four pillars and nine domains of GNH. Accounts of values integrated teaching and learning (VITAL) in India, Australia and Bhutan were reported upon. The purpose of the intended GNH-Infused Curriculum via a GNHVITAL approach was also highlighted. The sub-section ended with a discussion on the lesson plan model (LPM) that underpins the GNHVITAL process.

### ***Conclusion***

EGNH was commenced in schools to bring about a holistic approach to the development of children. The approach was designed to build a fair society and harmonious nation and to create a critical, moral and responsible people in the community who would benefit both living and non-living things on this earth. In other words, EGNH accords an opportunity for students to learn that balanced and sustainable socioeconomic development, cultural preservation, environmental

conservation and fair and transparent governance in the country generates true happiness and the wellbeing of the people. The philosophy of GNH is in the development of mankind with true values. It is concerned with discovering one's soul and undertaking a role in the public domain to be deemed fit socially, morally, intellectually, spiritually and physically to serve the country, people and king (*Tsa Wa Sum*) in future eons.

## **Chapter Conclusion**

This chapter comprises a literature review surrounding the Bhutanese education system, milestones of modern education, and Educating for Gross National Happiness (EGNH). A historical perspective of a Bhutanese curriculum is also included.

One of these milestones occurred in 1914 when two additional means for the delivery of education, modern (school based) and non-formal (community based), were initiated. Prior to 1914, education was gained through a traditional monastic system.

The commencement of the modern school system and the first government five-year plan brought with it many changes. For example, schools witnessed the arrival of a new curriculum, replacement of expatriate head teachers by national teachers and the introduction of contemporary teaching strategies, which are child centred in approach.

However, one effect of this modern approach resulted in what was considered to be a deterioration of Bhutanese values and traditions. Consequently, additional co-curricular and extra-curricular activities such as wholesome education, values education, inclusive education and GNH education were introduced as an attempt to reduce the impact of modernism on Bhutanese age-old values.

Furthermore, a national education programme entitled Educating for Gross National Happiness (EGNH) was commenced in schools. The method adopted to teach GNH values was a model whereby GNH values were integrated into the existing school

activities. One such model initiated to integrate/infuse GNH values into the school curriculum is the GNHVITAL process. Graduates who receive a GNH-inspired education in the schools and colleges are provided with the means to conserve and promote Bhutanese culture and identity for an indefinite time.

Teaching GNH values to learners through the use of the best of modern innovations seems to have become paramount in this fast-changing world. One of the most productive approaches adopted by the teachers to teach GNH values to students is the values integrated teaching and learning (VITAL) process. This GNHVITAL approach, which is underpinned by the lesson plan model (LPM), can enable teachers to fulfil the premises of EGNH in Bhutanese schools. Conservation and promotion of Bhutanese culture and identity depends on the levels of practice schools undertake pertaining to EGNH.

# **Chapter Three**

## **Theoretical Background and Conceptual Framework**

### **Introduction**

There are enabling characteristics that determine the achievement of quality outcomes of any innovation surrounding the curriculum and instruction in schools. However, these factors can be subsumed under three main parameters: teaching, learning and support services. These factors are discussed in this chapter.

The theoretical background and conceptual framework for this study are largely based on UNICEF's (2000) five determinants of quality education, UNESCO's (2005) enabling inputs for quality teaching and learning and the school effectiveness research model of Windham (1990), Scheerens (2000), Creemers and Kyriakides (2006), Reynolds et al. (2014) and Tshering (2014). A discussion of each of these input characteristics is provided under the three sub-headings of teaching parameters, learning parameters and support parameters, which together make up the effectiveness of teaching, learning and support (ETLS) model.

Prior to the discussion of each input characteristic, a broad outline of the theoretical background for the study is provided. Following this outline, there are four sub-sections. Section one provides a discussion of the model's teaching parameters. Section two highlights the learning parameters and section three the support parameters. The final section provides information regarding the conceptual framework of this study that underpins the ETLS model. The goals and objectives of the GNH-Infused Curriculum can be easily achieved if the input and process characteristics discussed under the ETLS model are considered and put into effect.

## **Theoretical Background of the Study**

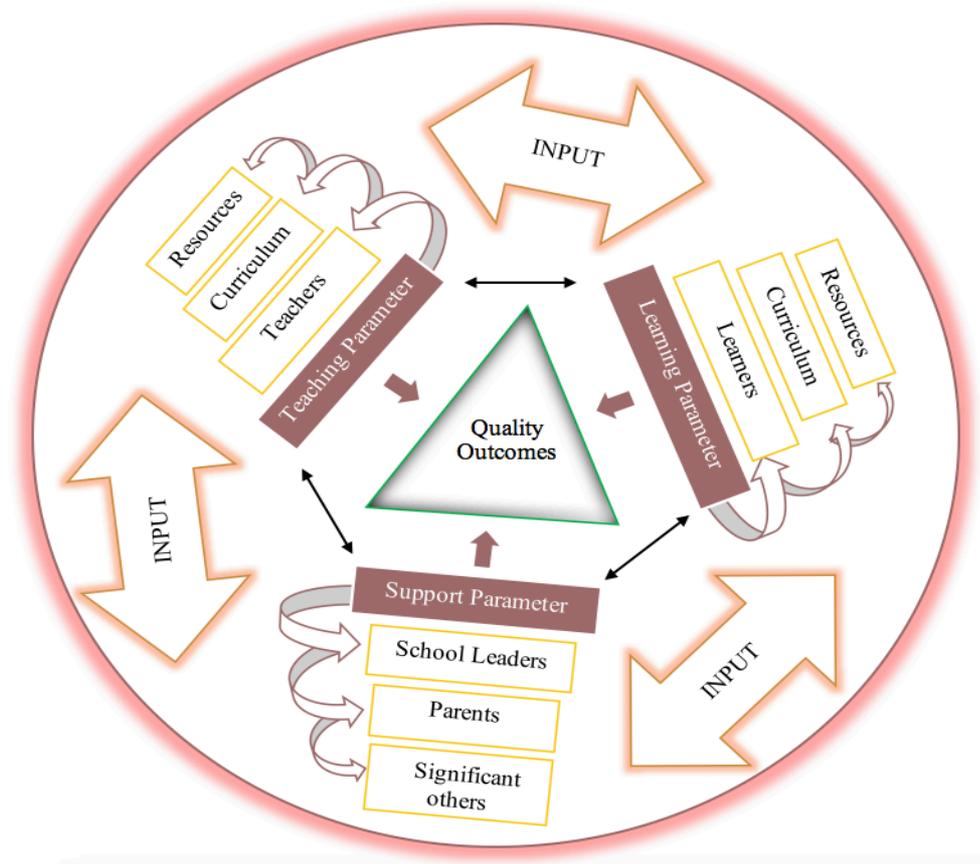
One of the time-tested areas of study in the fields of education systems is school effectiveness research (SER). SER provides indicators for changes in the school education system (Tshering, 2014). The quality, effectiveness and efficiency of education can determine the outcome of any educational innovation in schools. School effectiveness researchers, namely, Scheerens (2000), Creemers (2006), Kyriakides (2008), Reynolds (2014) and Tshering (2014) provide the structures of the school effectiveness models, which cover context level, school level, classroom level and student level within the framework of input, process and output paradigms. The Integrated School Effectiveness Model (Scheerens, 2000), Dynamic Model of School Effectiveness (Creemers & Kyriakides, 2006, 2010; Kyriakides, 2005; Kyriakides & Creemers, 2008) and the Framework of Indicators (Tshering, 2014) include lists of input and process characteristics or variables of the SER models such as school policy practices, school climate, school leadership, school resources, professional development, effective teaching components, students' demographic profiles, motivation and classroom management, to name a few.

Similarly, UNICEF (2000, p. 4) indicated that to attain any educational goal or achieve a quality result, five qualities are necessary: “healthy learners; conducive environments; relevant curricula; child-friendly pedagogy; and useful outcomes”. However, teaching and learning in the classroom is supported by a broader enabling environment consisting of good teachers, strong schools and a coherent national support infrastructure that includes provision, distribution and delivery of resources (including textbooks and other materials) and the physical structure of classrooms and schools (UNESCO, 2005). Furthermore, Windham (1990) adds to the argument,

proposing there are essential input characteristics in the provision of good education. These input characteristics comprise factors such as teacher attributes, facilities, equipment, educational materials and administrative capacity. All these characteristics contribute to building a quality education or determining the achievement of any educational innovation in schools (Creemers & Kyriakides, 2006, 2010; Kyriakides, 2005; Kyriakides & Creemers, 2008; Reynolds, 2006; Reynolds et al., 2014; Scheerens, 2000; Tshering, 2014; UNESCO, 2005; UNICEF, 2000; Windham, 1990). The success of implementing EGNH through a GNH-Infused Curriculum in Bhutanese schools depends on the level of input characteristics that is initiated in the schools by the policy designers.

The effectiveness of teaching, learning and support (ETLS) model was constructed based on the models and indicators presented by the school effectiveness researchers cited in the preceding paragraph. This model was also designed after considering the present structures of the Bhutanese school education system. The first part of the ETLS model (the teaching parameter) embraces teacher, curriculum and resource input characteristics. The second part of the ETLS model (the learning parameter) encompasses the learner's input, but is also underpinned by the curriculum and resource characteristics (which are discussed under ETLS model 1, teaching parameter). Curriculum and resources are generally complementary while teachers and learners engage in teaching and learning processes (UNESCO, 2005; UNICEF, 2000; Windham, 1990). The final part of the ETLS model (the support parameter) is composed of the input characteristics of school leaders, which include the principal, the support staff, parents and significant others. Based on the ideas presented by UNICEF (2000), UNESCO (2005), Windham (1990), Scheerens (2000), Creemers (2006),

Kyriakides (2008), Reynolds (2014) and Tshering (2014), a diagrammatic presentation of an ETL model (Figure 3.1) has been constructed to assist in the understanding of the relationship between input characteristics and outcomes.



*Figure 3.1.* A diagrammatic presentation of the effective teaching learning support model.

*Note.* Adapted from UNICEF (2000), UNESCO (2005), Windham (1990), Scheerens (2000), Creemers (2006), Kyriakides (2008), Reynolds (2014) and Tshering (2014).

A quality outcome or the effectiveness of an educational innovation is expected when all the input characteristics under the teaching, learning and support parameters (as shown in Figure 3.1) are incorporated into the school system. There may be a discrepancy of outcomes when implementing a new innovative idea in the school if one

of the input characteristics shown in the diagram is compromised by the school policy designers.

Schools are more likely to be known for educational effectiveness and achievement of quality educational innovation if sufficient attention is given to all the input characteristics of the ETLS model (Barber & Mourshed, 2009; Creemers & Kyriakides, 2006, 2010; Kyriakides, 2005; Kyriakides & Creemers, 2008; Mourshed, Chijioke, & Barber, 2010; Reynolds, 2006; Reynolds et al., 2014; Scheerens, 2000; Sherab, 2008; Tshering, 2014; UNESCO, 2005; UNICEF, 2000; Windham, 1990). The success of an educational innovation depends on proper placement of supportive, well-motivated teachers and suitable physical resources (UNESCO, 2005). The review of each of the parameters under the ETLS model is discussed in detail in the following sections and sub-sections.

## **Teaching Parameter**

The teaching parameter, as shown in Figure 3.1 of the ETLS model, incorporates the three input characteristics of teachers, curricula and resources, which influence the achievement of a quality teaching output. Each of the three input characteristics is further explained in the following three sub-sections.

### ***Teacher Input Characteristics***

The root of quality education outcomes is a quality teacher (AIR, 1999; Barber & Mourshed, 2009; Besong, 2014; Darling-Hammond, 1997; Dorji, 2003; Kagwiria & Amukowa, 2013; Namgyel, 2011; Osborne, 1999; Sherab, 2008; UNESCO, 2005; UNICEF, 2000; Windham, 1990). At the heart of an education system lay the teachers, who play a very pertinent role in nurturing quality learning in students, as even when there are considerable variations in learners' conditions, teachers can actively enhance

students' performance through appropriate teaching approaches and practices (Barber & Mourshed, 2009; McKinsey, 2007; Sherab, 2008; UNICEF, 2000). For instance, a new meta-analysis about the factors likely to help children learn revealed the significance of the teacher effect on children's learning in schools (UNESCO, 2005). Despite the heterogeneity of classrooms and facilities, good teachers are effective with learners at all achievement levels (Barber & Mourshed, 2009; Besong, 2014; Gauthier & Dembele, 2004; McKinsey, 2007; Mourshed et al., 2010; UNESCO, 2005). Similarly, Osborne (1999) professes that curriculum is nothing more than pieces of paper unless the teacher converts it to useful learning experiences.

The notion of child-centred education is well supported in Bhutan; however, it is the competence, skills and mindsets of teachers that provide the best results (Besong, 2014; Dorji, 2003; Namgyel, 2011; Sherab, 2008; UNESCO, 2005; UNICEF, 2000; Windham, 1990). Ineffective teachers are more likely to produce poor performances amongst students (Besong, 2014; Gauthier & Dembele, 2004; UNESCO, 2005). It is imperative that teachers embody good academic knowledge, skills, values and attitudes to effect efficient teaching-learning processes in the class (Cole & Knowles, 2000; Shulman, 2003).

The teacher input characteristics of pedagogy, teacher training and professional development, skills in assessments and teacher's attitude and behaviour are discussed in the following sub-sections.

### ***Pedagogy***

By improving teacher effectiveness through training and professional support services that address effective pedagogy, much can be done to improve education (Barber & Mourshed, 2009; McKinsey, 2007; Mourshed et al., 2010; UNESCO, 2005).

Studies in Australia, Ghana and Kenya indicated that once schools have sufficient resources, including in most cases suitable textbooks, it is the teacher's instructive practice that makes the difference (Besong, 2014; Glewwe, Kremer, & Moulin, 2000; Horsley, 2004; Laws & Horsley, 2004; Okyere, Mensah, Kugbey, & Harris, 1997). Specifically, in Bhutan, while availability of textbooks affects the quality of teaching and learning, the use of textbooks by teachers differs greatly (UNESCO, 2005), thereby confirming the importance of professional support for teachers concerning teaching pedagogy and the effective use of these textbooks (Barber & Mourshed, 2009; Besong, 2014; Glewwe et al., 2000; Glewwe, Neuman, & Kremer, 2003; Horsley, 2004; Laws & Horsley, 2004; Okyere et al., 1997; UNESCO, 2005). The effectiveness of teaching and learning materials depends on teachers' ability and willingness to use them (AIR, 1999; Askerud, 1997; Barber & Mourshed, 2009; Besong, 2014; Mourshed et al., 2010; Rosenberg, 1998), and providing appropriate training on the use of teaching materials is therefore indispensable.

Similarly, teachers need to be trained to use teaching approaches that are progressive/liberal, constructivist/critical and post-modern in orientation, where child-centredness is the dominant feature of the teaching and learning process (Jones, 2013). The constructivist approach to teaching and learning would enrich the thought processes of learners (Kalpana, 2014). Consequently, teachers must be equipped with an effective contemporary teaching approach including Vygotsky's Zone of Proximal Development (ZPD) and scaffolding to successfully achieve educational goals (Barber & Mourshed, 2009; Jones, 2009; McKinsey, 2007; UNESCO, 2005).

### ***Teacher training and professional development***

A strong link exists between academic training/teacher training and a teacher's

competence/knowledge to disseminate lesson content to students (Besong, 2014; Hammond, 1997; Windham, 1990). When considering all aspects of teacher training and professional development, it also appears that the impact of teacher subject matter competence depends on the nature of competence, quality of competence and rate of utilisation of knowledge and competence by the teachers (Hammond, 1997; Windham, 1990). Hammond (1997) maintained that “without know-how and buy-in [knowledge, skills, and commitment of teachers in the schools], innovations do not succeed”.

Low efficacy or inability to teach certain aspects of the curriculum or the lack of theoretical underpinning of pedagogies and so on that may not have been addressed at pre-service training colleges can be readdressed through designed professional development. Such programmes are deemed highly valuable if significant others are included in sessions that involve discussions and reflections, lesson observations and maintaining teaching journals, and if training is not limited to one-off short training or off-site kinds of programmes (Hammond, 1997; UNICEF, 2000). To reinforce this notion, the results from the case studies conducted in Bangladesh, Botswana, Guatemala, Namibia and Pakistan revealed that ongoing professional development activities provided to teachers throughout their teaching career have contributed to student learning and retention rates (Craig, Kraft, & du Plessis, 1998; McKinsey, 2007; UNICEF, 2000).

### ***Assessments***

Undertaking varied kinds of assessments in schools not only facilitates teachers to differentiate their teaching strategies but also allows them to align their teaching approaches with the learning needs of the students (Black & Wiliam, 1998; Brookhart, 2002; CAPSD & BBE, 2004; UNESCO, 2005; UNICEF, 2000; Windham, 1990).

Formative assessment can bring improvements in the learning and performance of learners (Black & Wiliam, 1998); whereas, summative assessment determines the educational level of the learners by conducting tests or one-off examinations and awarding certificates based on learners' test performances (UNESCO, 2005).

In some Asian and African countries, both formative and summative assessments are chosen by teachers to continuously assess learners' achievements and provide feedback for better teaching and learning outcomes (UNESCO, 2005). For instance, Sri Lanka, South Africa and Ghana introduced continuous assessments (using both formative and summative assessments) to supplement the national examination (UNESCO, 2005). The aim of this dual approach to student assessment was to facilitate a holistic assessment of learners' growth and accomplishment and reduce the motivation to teach for examination purposes, and also to take account of the constraints of each type of assessment (UNESCO, 2005). Similarly, in Bhutan, both types of assessment are used to ascertain students' learning outcomes (CAPSD & BBE, 2004; Namgyel & Rinchhen, 2016). The Bhutan Council of School Assessment and Examination (BCSEA) administer both formative and summative assessments in the schools. Namgyel and Rinchhen (2016, p. 68) claimed that BCSEA is "the watchdog of the education system in the country". A holistic approach, which includes awarding of character certificates and socially useful and productive work (SUPW) grades to students were initiated as a means to assess the GNH values achievement by the students (DCRD, 2011; EMSSD, 2013)

For school-level assessment to be influential, it should be consistent, regular and reliable and be part of an overall school development policy. In order to reconcile both formative and summative assessments, there must be a strong focus on providing

feedback to the learner and teacher (Black & Wiliam, 1998; Brookhart, 2002; UNESCO, 2005; UNICEF, 2000; Windham, 1990).

Returning briefly to the main idea of this section, assessment is one of the enabling inputs required from teachers to achieve high quality teaching and learning outcomes in schools (Barber & Mourshed, 2009; Black & Wiliam, 1998; Brookhart, 2002; CAPSD & BBE, 2004; Mourshed et al., 2010; Namgyel & Rinchhen, 2016; UNESCO, 2005; UNICEF, 2000; Windham, 1990). Furthermore, for governments seeking to improve education quality or to achieve any educational innovation, having a sound school assessment policy is essential (CAPSD & BBE, 2004; Mourshed et al., 2010; UNESCO, 2005).

### ***Attitude and behaviour of teachers***

Windham (1990) considered that a crucial feature and one that is often ignored in research is the teacher's attitude towards classroom teaching and learning processes. Little is known about the attitude of Bhutanese teachers towards the implementation of GNHC in classroom settings. It is essential that the attitude of teachers or their perspectives about a school innovation be determined before any kind of research is undertaken in order to understand how a newly introduced programme works in schools (Bernard, 2017; UNESCO, 2005; UNICEF, 2000; Windham, 1990; Yero, 2010). The teacher's attitudinal and behavioural characteristics include the teacher's attitudes toward students, community, school administration, fellow teachers, the teaching profession and so on (Bernard, 2017; UNESCO, 2005; UNICEF, 2000; Windham, 1990; Yero, 2010). There are multiple ways in which a certain kind of attitude is formed: it can originate from one's experiences as a student, from the teacher training courses or from their social and community interactions (Windham, 1990). However, a

case in point is that attitudes are the powerful determinants of teachers' work ethic and their empathy towards the teaching profession and learners (Bernard, 2017; Windham, 1990).

Another significant aspect concerning a teacher's attitude (to resolve the issue of lack of interest in teaching), as suggested by UNESCO (2005), is to build up a sound aptitude and motivation test while rethinking the criteria and procedures for admission to teacher training by the teacher recruiters. Finding appropriate recruits with suitable attitudes, aptitude and motivation may be essential for the success of implementing new innovations such as the GNHIC in Bhutanese schools.

Furthermore, with respect to a teacher's lack of motivation for teaching, behaviour such as teacher tardiness, poor lesson planning and disinterest through improper use of school time significantly impact on students' learning (UNICEF, 2000). A teacher who exhibits such poor practices may hinder the achievement of educational quality outcomes. Time on task and opportunity to learn are critical features for the attainment of educational quality (UNICEF, 2000).

The school effectiveness research undertaken by UNESCO (2005) revealed that there are consistent positive correlations between the teacher's instructional time and students' success at both primary and secondary school levels. This important relationship appears to be stronger in developing countries; Fuller and Clarke (1994) reported this finding to be the case in 12 out of 14 studies. Similarly, allocating teacher time appropriately for school administrative tasks, instructional tasks and monitoring and evaluation tasks is another important area the school leaders should be mindful of, with a focus on more time for instructional duties (UNESCO, 2005).

In summary, this section provided a discussion about qualities of the teacher

that are essential for ensuring quality learning outcomes. Attitude, motivation, aptitude and a good work ethic are all important qualities of teachers who can achieve the required educational outcomes (UNESCO, 2005; UNICEF, 2000; Windham, 1990). Accordingly, there is a necessity for continuous professional development of teachers, fostering of positive attitudes and role modelling by teachers, all of which can contribute to successful achievement of educational programmes (for example, GNHIC in Bhutanese schools).

### ***Curriculum Input Characteristics***

Understanding of the history of educational ideologies is not only important for gaining insight into the educational policy pertinent to curriculum innovation and changes but is also a cornerstone for the effective implementation of such innovation or a policy change in the school system. According to Lawton (1988), there are three basic educational ideologies that influence the curriculum outcomes of schools and universities: classical humanism, progressivism and reconstructionism. These ideologies are also referred to as conservative, liberal and critical by Jones (2013). In addition, a fourth ideology that appears relevant to today is known as the post-modern educational orientation/ideology. A discussion of each relevant ideology is presented in the following four sub-topics.

#### ***Classical humanism***

The concept of classical humanism (CH) is perhaps the most ancient educational philosophy or ideology. It originated in Greece in the fourth century BC when Plato propounded the idea of cultural inheritance. The custodians of this cultural inheritance were a group of conservative and traditional guardians (Jowett, n.d.; Lawton, 1988; Plato, 1997, n.d.). Jones (2013) suggested that the goal of the educators

at this time was to maintain the status quo by reinforcing the beliefs and practices of society and transmitting them to future generations. The pedagogical approach entailed the undisputed authority of the teacher, passivity of students and transferring of authorised knowledge (Jones, 2013). The ideology survived the Middle Ages and the Renaissance and, according to Lawton (1988), was revived later in the nineteenth century by literary figures, specifically, Arnold (1869) and Eliot (1948).

This classical humanistic curriculum, which is geared more towards subject-centred or knowledge-centred education, was practised by the public school and Oxford or Cambridge educated Christian gentlemen in the same era (Lawton, 1988; Walker & Soltis, 1992). This ideology can also be traced through the twentieth century, particularly in the works of Bantock (1980), who then wrote two different types of curriculum for two distinct groups of community: a literary education for a small minority or high class based on the high culture and a quite contrasting popular culture education for the general masses based on oral tradition or folk culture (Bantock, 1980; Lawton, 1988). Since the ideology of classical humanism is based on anti-democratic and anti-social justice, framing a separate curriculum for a ‘high and low class’ of people may be bluntly regarded as unacceptable in democratic societies, because democracy is generally considered to be the embodiment of freedom, justice, equality of opportunity and so on (Lawton, 1988).

### ***Progressivism***

Progressivism may also be known by the term child-centred education. This ideology dates back to Rousseau’s (1786) time in the eighteenth century. The cornerstone of this ideological orientation is that education improves the potential of students by encouraging them to participate in challenging activities and rewarding

their achievements (Lawton, 1988). Another important feature of Rousseau's ideology was to provide the real essence of the childhood period in its own right and not to regard it as a stage of preparing for adulthood (Lawton, 1988). Rousseau claimed learning happens through experience, not via books, and is acquired from nature, not from adults (Rousseau, 1768; 1943). The fundamental principle of Rousseau's idea is that children should develop themselves liberally and naturally. He called for free will in education to attain uniqueness and personhood for every person (Walker & Soltis, 1992). This ideology aimed to permit children to choose a curriculum (or may be no curriculum) for themselves, and to allow them to develop without any adverse harms from the society (Walker & Soltis, 1992). However, Lawton (1988) argues that there is enough evidence showing that children are not naturally virtuous and can be made tolerable only under the pressure of adults insisting on social norms. The classroom practice of teachers under this ideology is "characterized by the teacher's role as facilitator, active inquiry by students, and emphasis on understanding the reasons for social phenomena" (Jones, 2013, p. 28).

In the twentieth century, one of America's leading philosophers, John Dewey (1916), described a type of education that suited the growth of the individual and progress of democratic society, which is an approach that was much like Rousseau's. His claims are that learning from experience and learning by doing align with the child-centred perspectives held by progressives.

The followers of progressives<sup>6</sup> in America were against the prevailing school practices of rote learning/memorisation, drill, stern discipline and the learning of fixed subject matter defined in adult terms with little relation to the life of the child (Walker

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<sup>6</sup> Those groups of people who supported the ideology and ideals of progressivism and who promoted the child-centred approach to designing a curriculum and teaching in the classrooms.

& Soltis, 1992). Interestingly, Rousseau (1768), Dewey (1916) and their followers' ideas were advanced by Piaget as the foundation of scientific method in pupils' learning (Lawton, 1988).

### ***Reconstructionism***

According to Lawton (1988), reconstructionism is a society-centred approach to acquiring education. He reported that the significant aspect of this ideology is to regard the individual and society as mutually integrated rather than in contradiction. Jones (2013, p. 27) also considers this ideology as 'critical', and espouses the view that education creates a better society or reality confronting the status quo by fostering learners to recognise values and cultures that are unfair or untenable, to offer alternatives remedying wider relegation and marginalisation, and undertake suitable action to initiate converting those options/alternatives to fulfilment/realisation.

The features of reconstructionism are:

1. Education is one of the forces that bring changes to society.
2. Educational processes are distinct from social processes (political propaganda, commercial advertising or mass entertainment).
3. The process produces better and efficient citizens befitting today's society.
4. Education places importance on core curriculum based on democratic rational and values in which existing social practices are analysed, criticised and reconstructed.
5. Students learn and acquire knowledge through active, social processes concerning projects and using problem-solving strategies that are guided but not dominated by teachers.

6. Teachers are carefully selected and highly trained and are chosen as agents of cultural renewal.
7. Utopian thinking is recognised as a way of improving society, not necessarily as visioning for a perfect society (Lawton, 1988; Skilbeck, 1984).

Under this approach, the roles of students in shaping curriculum are to ask analytical questions about “the most deep-seated values and assumptions in society” (Jones, 2013, p. 28). The roles of teachers here are to display democratic relations with students, show a high level of collaboration and engage in learning that involves ideological critiquing.

### ***Post-modernism***

The post-modern orientation to acquiring education is a recently developed ideology that emerged in the 1980s (Jones, 2013). Jones (2013) maintains that there has been an increasing impact of this education orientation on shaping education policies and discourses since the 1990s onwards. This ideology originated from the post-structuralism vanguard movements of French literary intellectuals and philosophers who were the critics of grand narratives and structuralism in the 1960s and 1970s (Carlson, 2005; Jones, 2013; Leitch et al., 2001). Examples of this ideology encompass the values education movement, such as GNH values education in Bhutanese schools (DCRD, 2011; Powdyel, 2011a, 2011b; Thinley, 2011), which raises the morale of ethical inquiry or analytical teachings (Freakley & Burgh, 2002; Mikulics, 1998; Veugelers, 2000), the deconstructive analytical teachings (Carlson, 2005; Fonow & Marty, 1992) and peace education in schools (UNESCO, 2005; UNICEF, 2000), and embrace the multicultural discourses and multiple intelligences of the learners (Jones, 2013).

Teachers and learners take part in deconstructing and co-constructing the “cultural truths”, “reality” and “hegemony”, and they perceive knowledge as constructed and relational (Jones, 2013, p. 44). According to Jones (2013), the school provides spaces for reorganisation and creative transformation of culture and identity when teachers and students engage in such educational discourses, as this orientation focuses on deconstructive principles that provide multiple perspectives or frameworks for consideration of issues and knowledge through an inquiry approach.

In summary, these four ideologies of education remain one of the most influential change stimuli for designing a curriculum for the learners in schools and universities. To further deepen the understanding of the features of the curriculum, discussion of the various kinds of curriculum is essential but necessary. Definitions of curriculum, the types of curriculum and their characteristics pertaining to this study are provided in the following section and sub-sections.

### ***Curriculum Definitions***

While a variety of definitions of the term ‘curriculum’ have been suggested, the definition adopted is that proposed by UNICEF (2000) and also Kelly (2009), who defined curriculum as a process between the intended, taught and learned curricula. Gobby and Walker (2017) termed these three types of curriculum official, enacted and lived, where their focus is on the lived experiences of the learners (learned/lived curriculum).

The purpose of a curriculum or any educational programme is to achieve broad goals and related specific objectives that have been developed within a research and theoretical framework, with consideration of the experience of professional practices of past and present generations and the varying needs of the people (Parkay, 2006). Any

national goals for educational outcomes that are translated into measurable objectives offer a commencement point for the progress and execution of curriculum plans (Cross, 2005; UNICEF, 2000). For example, one of the national goals that needs to be included in the curriculum is a values-based education containing literacy, numeracy and life skills that puts more emphasis on a child-centred method of teaching (UNICEF, 2000).

Students' learning is strongly determined by the type of curriculum that is in place in the education system (Shilling, 2011; UNESCO, 2006; UNICEF, 2000). One of the features of curricula, as put forward by Haghshenas (2013) and Wilson (2001), is that they must entail reliable and contextualised studies, whereby the three domains of learning, namely psycho-social, affective and cognitive, are readily available to students. Despite the importance of teaching such a balanced curriculum (comprising psycho-social, affective and cognitive domains of learning), according to Ura (2009), Bhutanese curriculum texts do not seem to facilitate the GNH values integrated teaching and learning ambience in the classrooms, thereby missing the affective domains of learning, which, in effect, may hinder the proper implementation of the GNHIC in schools. In addition, the National Council's (2016) quality education review committee pointed out that there is a dearth of GNH-inspired curriculum texts, which means that Bhutanese teachers may struggle while planning and teaching the GNH values integrated lessons to their students due to the absence of such values embedded curriculum texts.

### ***The intended, taught and learned curriculum***

The intended curriculum is one that is overtly prescribed in the syllabuses, prospectuses and so forth, while the actual taught curriculum is the real experience the

pupils receive in a classroom or a school when the designed or intended<sup>7</sup> curriculum is put into practice by the teachers (Kelly, 2009; Shilling, 2011; UNICEF, 2000). The learned curriculum is what the students actually learn from the intended, taught and hidden curricula (UNICEF, 2000). The hidden curriculum is the latent/hidden learning the learners experience as a result of the intended/official curriculum (Kelly, 2009). With regard to these intended and taught curricula, according to Kelly (2009) and Cross (2005), it is more likely to be a bias decision concerning the case of the curriculum implementation in schools without consideration of the gaps that unavoidably exist between theory and practice, the preference of some teachers, and, more particularly, the national curriculum designers.

### ***The total curriculum***

The rationale behind the total curriculum involves planning a broad, inclusive and holistic curriculum. A total curriculum is not simply a collection of different subjects or content merely for teaching, transmitting or delivering. According to Kelly (2009) a total curriculum must step beyond the statement of knowledge-content to justify why certain content should be learnt and what effects such content or subjects would have on its recipients. What is more, the nature of the total curriculum must be gender sensitive and inclusive but also outcomes oriented (Glatthorn & Jailall, 2000; Glatthorn, 1997). Furthermore, the total curriculum must entail learner-centredness and standardised curriculum design and must be free from discrimination, particularly in terms of cultural diversity, multiple intelligences, in-born talents and the vested interests students have with regard to their own learning (Print, 1993; UNESCO, 2005;

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<sup>7</sup> The word “designed” is also used as “intended” to avoid the repetition and to align with the word lexicon.

UNICEF, 2000). All in all, Kelly (2009, p. 13) contended that a total curriculum might entail four major aspects of educational planning and practice:

1. The intention of the planners [intended curriculum]
2. The procedures adopted for the implementation of those intentions [taught curriculum]
3. The actual experiences of the pupils resulting from the teachers' direct attempts to carry out their intentions or those of the planners [learned curriculum]
4. The 'hidden' learning that occurs as a by-product of the organization of the curriculum, and indeed, of the school [hidden curriculum].

### ***Integrated curriculum***

According to UNICEF (2000), curriculum integration can mean: (i) integrating particular concepts into existing subject matter, (ii) including certain skills, knowledge, attitudes and behaviours that cut across curriculum categories into traditional subject matter areas or key learning areas, and (iii) reframing what we want children to learn so that there is emphasis on learning connections rather than divisions of knowledge.

Students may learn to assimilate the knowledge they receive from different disciplines when they are exposed to integrated curricular activities. Having realised the importance of the integrated curriculum, UNICEF (2000) maintains that it is important to integrate peace education, non-violence, inclusive environments, life skills, values education and so on into the daily teaching of curriculum texts for the holistic development of learners.

A curriculum becomes more instrumental and a meaningful means to achieving greater knowledge or gaining a relevant body of knowledge when there are

interdisciplinary connections, text-to-life connections and life-to-text connections in the everyday teaching and learning process (Brewer, 2002; Glatthorn, 1997; Simmons & Bahl, 1992; Sulayman, 2014). By the same token, according to the findings of more than 90 studies that compared integrated curricula with traditional curricula, students learn more with integrated approaches than any other teaching methodology (Glatthorn, (1997). Glatthorn (1997) maintained that children learn better when the learning is holistic, integrated and not disjointed. Shanahan (1997) added that integrated instruction promises a greater unity and attachment with regard to the varied content/subject knowledge acquisition. However, Shanahan cautioned that the integrated curriculum demands substantial efforts from the teachers while planning and delivering the integrated curriculum lessons, as lack of skills in planning and delivering the integrated curriculum would confuse the student's learning.

In summary, a review of the literature reveals that understanding educational ideologies fosters a meaningful curriculum, appropriate teaching approaches and accurate assessments. Additionally, the curriculum designers need to maintain equilibrium between the three types of learning, namely, the cognitive, psycho-motor and affective domains, while designing the curriculum. Curriculum is a process between the intended, taught and learned curricula, and becomes more meaningful when it is holistic and integrated.

### ***Resource Input Characteristics***

Well-appointed and stimulating classrooms and adequate teaching and learning materials have an important bearing on achieving quality teaching and learning outcomes (Todd, 2010; UNESCO, 2005; UNICEF, 2000; Windham, 1990). According to UNESCO (2005), material resources such as textbooks, the accessibility of

classrooms, libraries, school facilities and other infrastructure and learning materials stimulate the successful implementation of school innovations. Along with appropriate curriculum and skilled teachers, the adequacy of school facilities is likely to be important in producing a quality teaching and learning process. UNESCO (2005, p. 36) states that enabling and underpinning school resources inputs are intrinsically interrelated with the processes of teaching and learning.

### ***School infrastructures***

Notwithstanding views such as that of UNESCO (2005), there is little definite empirical evidence for whether the provision of school structures or buildings is correlated to higher learner accomplishment after considering students' milieu (Fuller & Dellagnelo, 1999). However, in India, a survey of 59 schools was carried out by Carron and Chau (1996), with findings that only 49 schools had buildings, 25 schools had one toilet, 20 schools had electricity, 10 schools had one library room each and 4 schools had one television set each, and that there was a strong correlation between sufficient resources in the school and students' higher learning scores in Mathematics and Hindi (Carron & Chau, 1996). In Latin America, a study by Willms (2000) of 50,000 grade three and four students ascertained that schools that lacked teaching and learning materials and had insufficient library facilities had significantly lower test scores compared to the well- equipped and furnished schools. The conclusion from Willms' (2000) study concurred with the findings for schools in Botswana, Nigeria and Papua New Guinea (Pennycuick, 1993).

### ***Teaching and learning materials***

School effectiveness research in the 1970s and early 1980s showed a positive impact on student's achievement of having relevant, quality textbooks (Todd, 2010;

UNESCO, 2005). Also, a World Bank evaluation in Ghana indicated that an efficient school infrastructure is important for effective teaching and learning processes (WorldBank, 2004). Careful consideration of appropriate distribution of teaching and learning materials, classroom facilities and physical infrastructure such as tables, chairs, chalk boards, computers and audio-visuals aids and so on plays an important role in better learning (UNESCO, 2005, p. 160). Lee and Barro's (2001) research on the impact of school resources on students' test scores revealed, first, that a pupil's achievement in any test is better when the class sizes are smaller; second, a sample collected from 58 countries showed that there were significant positive correlations between pupils' test scores and higher teacher salaries; and third, pupils' repetition and dropout rates were highly associated and affected by school resources. A study by UNESCO (2005) also noted that providing training and continual support to teachers on newly introduced materials should be a vital aspect of teaching and learning materials enrichment.

### ***Technology***

The various uses of technology have been found to have developed the student-centred academic environment in schools (Barber & Mourshed, 2009). For example, effective, quality educational learning processes can be created with the use of the internet, video, teleconferencing and televised educational talks, as they can be both interactive and time saving (Barber & Mourshed, 2009). Training teachers to use interactive video technology improves the conceptual understanding of pedagogical issues around the use of technology for many teachers (Barber & Mourshed, 2009; Maheshwari & Raina, 1998; UNICEF, 2000). In addition, Droste (2000) purports that internet technologies may be used as an aiding tool for other methods, an improvement

which could be used by many schools in developing nations. Having understood the importance of technology in education, Chambers (2000) posits that the two basic equalisers in life are the internet and education. E-learning removes barriers of time and distance, thereby creating worldwide learning opportunities for people from different parts of the world (Chambers, 2000).

In summary, this sub-topic on Resource Input Characteristics provided a discussion on the three important factors of school infrastructure, teaching and learning materials and technology. The literature has shown that there is a robust relationship between school infrastructures/facilities (classroom buildings, library rooms, toilets and electricity) and students' learning. The information concerning the teaching and learning materials, including textbooks, guidelines, chalk, computers and audio-visuals, and their impact on a child's learning were also presented. Though inclusive under teaching materials, a separate discussion on technology was also provided.

### ***Conclusion***

An argument has been presented that purports that to have a successful teaching process in schools, input characteristics such as teachers, curricula and resources are essential. These three indicators should be given due diligence by teachers (because of the impact that each indicator has on students' learning) while undertaking teaching in the classrooms. Undermining any of these indicators is expected to reduce or decrease the effectiveness of the teaching process in schools.

Teachers are vital to school education services. Without them the success or effectiveness of any educational innovation in schools may fail to materialise. A qualified, well-trained teacher with an appropriate teaching aptitude and positive attitude, who embodies virtuous skills such as grit, tenacity, cogency, determination

and a growth mindset, brings forth positive changes even in the least promising students (Duckworth, 2007). The school policy makers should attempt to nurture these qualities in teachers. In this endeavour, the teachers would benefit from the government investing in the cultivation and culturing of the professional development of teachers in the areas of teaching pedagogy, assessments, positive attitude, role modelling and values. The studies referred to in this chapter revealed that the input characteristics discussed above determine the achievement of educational innovations/inventions in schools.

The curriculum is also important for nurturing good teaching practice in schools. It is best if the curriculum design is based on a researched, theoretical framework, the professional practices of teachers in the past and present, and the needs of the society. Curriculum design should also be based upon educational ideologies, namely, traditional/classical, progressive/liberal, constructivist/critical and post-modern. An understanding of these educational ideologies by the curriculum designers is crucial.

There are different types of curriculum, such as intended and official, overt or co-overt, hidden, taught or enacted, learned or lived, integrated or infused or a total curriculum. These curricula should not only be standardised and inclusive but also balanced, with content comprising psycho-social, affective and cognitive skills. Discussions were also provided in this section on curriculum that requires values such as peace, sustainability, happiness, global education and so on to be integrated into the daily teaching lessons.

Without available resources in schools, simply having quality teachers and appropriate curricula may not facilitate an effective teaching and learning process.

School resources such as classrooms, libraries, textbooks, stationery and so forth are indispensable for the success of any educational innovation. In this contemporary world, having access to information and communication technology (ICT) is a prerequisite for aiding meaningful teaching and learning in schools.

Teachers, curricula and resources are pivotal for teaching. The effectiveness of teaching GNH values to Bhutanese students relies on the kind of teachers, curricula and resources the government puts in place in schools.

### **Learning Parameter**

The learners, teachers, curricula and resources significantly contribute to achieving learning outcomes. The input characteristics pertaining to teacher, curricula and resources as discussed under the teaching parameter (the first part of the ETL model) would all contribute to achieving the required learning outcomes. The learner input characteristics are explained in detail below.

#### ***Learner Input Characteristics***

The input characteristics are good health and nutrition, learner aptitude and perseverance, and learner readiness and prior knowledge. Children learn well when they are physically, socially and mentally fit (McCain & Mustard, 1999; Todd, 2010; UNICEF, 2000). These three learner input characteristics are elaborated on below.

#### ***Good health and nutrition***

A healthy childhood, that is, for the five years of life, renders a base for a good life and for academic outcomes to flourish (UNICEF, 2000, 2012). A balanced, nutritious diet can provide children with opportunities for wholesome development (Todd, 2010). For instance, a child who has good health is less likely to miss school, and regular attendance supports continuity of learning in both curricular and co-

curricular activities (UNESCO, 2005; UNICEF, 2000). UNICEF (2000) purported that sufficient nutrition is vital for proper brain development and functioning in the formative years, and early discovery and appropriate remedial attention for children with a disability can provide greater opportunities for healthy growth. Furthermore, the study suggested that children perform better in school activities when their basic needs such as health, nutrition and psycho-social requirements are fulfilled (McKinsey, 2007; Todd, 2010; UNESCO, 2005). UNESCO (2005) also posits that children who are developed well physically, mentally, socially and emotionally during the formative years are happier and more productive than their counterparts who missed these learning opportunities.

### ***Learner aptitude and perseverance***

A learner's aptitude, passion, perseverance, school readiness, prior knowledge and barriers to learning are some other characteristics of the learner that need to be recognised by the teachers and the curriculum designers (Bernard, 2017; UNESCO, 2005). According to Duckworth (2007, 2013), it is the learner's perseverance that is the prime factor that creates gaps between the successful and unsuccessful students in schools. Duckworth reported that soon after she began teaching maths to seventh graders in a New York public school, she realised that intelligence was not the only factor dividing the high achievers from those who lagged; it was "grit", the power of passion and perseverance, that creates the differences in students' performances in schools (Duckworth, 2007, 2013). She asserts that lack of grit is not about having no talent or lack of ability, but it is about having a poor attitude; students should never give up on their endeavours. The learners have to be "grittiest" when they fail to achieve a goal; grit is the predictor of success in students (Duckworth, 2007, 2013).

In addition, Fuller et al. (1999) articulated that children who show persistence by maintaining regular attendance at school consistently do well academically and, consequently, this significantly influences achievement. To cite an example, Miske and Dowd (1998) identified that students in Malawi who went to school regularly had significant gains in learning and minimal repetition and dropout rates.

### ***Learner readiness and prior knowledge***

According to UNESCO (2005), essential characteristics such as socioeconomic background, health, place of residence, cultural and religious background and the amount and nature of prior learning determine the learner's ability to learn well at school. In addition to these important features that determine the learner's readiness, recognising the impact on learning of factors such as gender, disability, race, ethnicity and so on among students should be a priority (UNESCO, 2005). For example, students in The Philippines, Sri Lanka and Turkey who were exposed to early childhood programmes did better in primary schools than those who were deprived of such prior learning opportunities (UNICEF, 2000, 2012; UNICEF & UNESCO, 2007). Studies from India, Morocco and Latin America revealed that disadvantaged children benefit the most from such early preparatory programmes (UNICEF, 2000, 2012; UNICEF & UNESCO, 2007). Children's psychological and psychosocial developments in life will be hampered if they are subjected to chronic stresses or miss positive stimulation in their pre-school years (McCain & Mustard, 1999; Todd, 2010; UNICEF, 2000). A study in 12 Latin American nations revealed that children being able to access day care was associated with higher test scores later in primary school (UNICEF, 2000; Willms, 2000). In the same context, the research indicated that being in early child care is

related to cognitive and social development (UNESCO, 2005). In general, this research supports the following propositions:

- The early years of life are a key period for the development of intelligence, personality and behaviour.
- Early childhood learning and development can be enhanced by ECCE<sup>8</sup> programmes.
- The effects of such programmes are likely to be greater for children from disadvantaged backgrounds than for their more privileged peers.
- Good programmes are sensitive to differences in cultural, social and economic contexts. (UNESCO, 2005, p. 57)

In summary, this section presented a justification that suitable curricula and dedicated teachers may be rendered ineffective if the learners are unhealthy, passive, disinterested or frequently absent from school and do not have access to prior learning experiences. That is, there seems to be a connection between a learner's health, absenteeism, aptitude, readiness or prior knowledge and a quality education output or achieving learning outcomes. Providing attention to these attributes is a prerequisite for achieving the goals of school educational programmes.

### ***Conclusion***

The learning parameter postulates that to encourage a positive learning process in schools, the input characteristics of learner, teacher, curricula and resources are necessary. In other words, the learning parameter requires both the characteristics of the teaching parameter in addition to the efforts from the learners themselves to bring about quality learning. To achieve the desired learning outcomes of a designed curriculum,

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<sup>8</sup> Early child care education (ECCE)

there needs to be a shared responsibility between the teachers and learners. Good health, aptitude, grit, perseverance, readiness and prior knowledge are critical features of the learner for achieving effective learning at school.

### **Support Parameter**

The internal and external support systems comprising school leaders, education officers, monitors, examiners, resource personnel/trainers and parents largely account for the provision of quality support services that contribute to quality education outcomes in schools. The various internal and external support input characteristics are discussed below.

#### ***Internal Support Input Characteristics***

The leadership style and management skills of school leaders impact on the attainment of quality outcomes in an education system. It is important that in addition to undertaking administrative tasks, the school leaders take on instructional responsibilities and possess sound knowledge in teaching strategies and instructional supervision (UNICEF, 2000). Quality leadership and administrative school support staff for teachers and students are critical elements in the school processes (UNICEF, 2000).

#### ***School leaders***

It takes only a few positive words from a school principal to motivate teachers and learners and a few negative words to demotivate them (Leithwood, Day, Sammons, Harries, & Hopkins, 2006). Effective school leaders not only transform the feelings, attitudes and beliefs of the people around them but also practise and provide guidance to teachers and students in promoting the school culture (Hopkins, 2001). They can assist teachers by focusing on the spectrum of learning outcomes (Leithwood et al.,

2006; Leithwood, Jantzi, & Steinbach, 1999) to help build strong relationships with parents and learners (UNESCO, 2005).

The principal is usually regarded as the most informed and powerful person in a school's hierarchical system; therefore, it is crucial that the leader models what he/she advocates for the school (Barber & Mourshed, 2009). In addition, the school heads need to be mindful of their words and actions as their leadership and management style can seriously affect the whole school system (Leithwood et al., 1999, 2006).

Because of their significant contribution to the achievement of quality outcomes in schools, there are protocols that a school principal must not neglect. First, curricular and extra-curricular activities should not be neglected, as to do so could erode the motivation of teachers and students and could adversely affect quality learning.

Providing support for teaching and learning through better conditions, professional development, teachers' autonomy and inclusive decision-making processes have been shown to impact on the learning of students (Barber & Mourshed, 2009; Leithwood et al., 2006; McKinsey, 2007; Mourshed et al., 2010; UNICEF, 2000). Second, managing a school is not the role of the school principal alone. It takes a collective and concerted effort of the principal, teachers and ancillary staff to deliver the quality input to achieve quality learning outcomes in students (Powdyel, 2011b, 2014; Thinley, 2014).

Empowerment of all staff is paramount if all individuals are to fully engage with the learning processes of the school. Finally, an effective principal strives for the benefit of all staff and students. The principal ensures that a school is a "homecoming" for students and teachers (Powdyel, 2011b, 2014; UNESCO, 2005). It is a matter of ethics and morality, and there is no denying the fact that practices of harassment, bullying and corporal punishment in a school go against the principles of a positive school culture

(Thinley, 2014). Instead, values like honesty, authenticity, integrity and love must be greeted, claimed and encouraged enthusiastically (Treasure, 2013) for the development of wholesomeness in learners, thereby promoting the GNH values in the schools.

The school is ultimately for the learners, consequently, the vision, mission, aims and objectives of the school must be geared towards development of quality students (Leithwood et al., 2006). Tschannen-Moran and Gazeis (2004) asserted that at the school level, principals are the cornerstones of the spearhead to change efforts (McKinsey, 2007) and to achieve the implementation of any new educational innovation. Important aspects of school leadership include trusting the members of the school, motivating them by providing opportunity for both school and personal development and valuing team effort and their decisions (Barber & Mourshed, 2009; McKinsey, 2007; Wahlstrom & Louis, 2008). UNESCO (2005) concurred that efficient school leadership thrives when there are conducive working environments, motivations for change, a friendly school atmosphere and a robust relationship amongst schools and communities.

### ***School support staff***

Apart from principals, vice principals and teachers, there are support and ancillary staff such as administration assistants, office assistants, wardens, nurses, accountants, games instructors and so on (KLSS, 2010; MoE, 2005; Thinley, 2014). Support services from the ancillary staff are equally important for the success of school programmes (MoE, 2005, 2012). The school needs support staff to assist in shouldering administrative and other non-teaching responsibilities (MoE, 2005, 2012).

### ***External Support Input Characteristics***

Parental support and support services from the concerned education stakeholders are necessary for the effectiveness of any school innovation. The school-affiliated institutions in Bhutan, such as district education offices, the education monitoring division, the curriculum department and teacher training colleges, play a significant role in achieving the curriculum goals and school programmes (MoE, 2005, 2012). These institutions are referred to as ‘significant others’ in this study. Further discussions concerning the importance of supports services required from the parents and ‘significant others’ in pursuit of successful school outcomes are provided in the following two sub-topics.

#### ***Parental support***

Parental support in the education of their children is vital. Studies initiated by Barnard (2004), Henderson (1988), Krashen (2005), Marzano (2003), Shumox and Lomax (2001) and Todd (2010) revealed that the children whose parents are educated do fairly well in any curricular and co-curricular activities in schools. In other words, providing a supportive home environment for children is conducive to their academic success (Marzano, 2003; Todd, 2010). What is more, the performance of students in academic fields depends heavily on parental engagement in their daily learning activities (Barnard, 2004; Henderson, 1988; Shumox & Lomax, 2001).

Krashen (2005) found that learners whose parents are caring, supportive, educated and time-conscious about their learning do better in standardised tests than children whose parents are otherwise. Interestingly, some parents even take part in school activities for the development of their children, which is welcoming and exemplary to others (KLSS, 2010). A large-scale study in 12 Latin American nations

revealed that parental involvement in a day care school through model reading by parents to their young children was correlated with higher exam test scores, minimal grade repetition and lower dropout rates once those children were in primary school (UNICEF, 2000; Willms, 2000).

### ***Significant others***

To reiterate, in this research, the term ‘significant others’ refers to affiliated institutions, educational officials or personnel who have an impact on the achievement of school innovations or programmes. These personnel (who are external to the school but part of the overall education system) include district education officers, education monitoring and teacher support officials, curriculum designers, subject specialists, exam controllers, researchers and teacher trainers (UNESCO, 2005). Isolating these groups of education experts from schools may render the implementation of school programmes ineffective and may impact negatively on the achievement of any learning outcomes or educational goals (Barber & Mourshed, 2009; Mourshed et al., 2010; UNESCO, 2005).

In summary, the section concerning the support parameter examined the internal and external input characteristics required for the successful implementation of any educational innovation in schools. The internal support enablers such as principals and support staff provide an extensive contribution towards initiating, affecting and achieving the planned school outcomes. Similarly, the external input characteristics, namely, parents and significant others (school affiliated agencies), are prerequisites for the effectiveness of school plans.

## ***Conclusion***

Maintaining a vigorous support system and an environment conducive to learning in schools is crucial for the success of any educational plans, irrespective of whether they are curricular or extra-curricular activities. Institutionalising both internal and external support systems in schools is essential.

School principals are important human resources that teachers and learners encounter on a daily basis during their teaching and learning processes. Having quality internal support services contributes to successful teaching and learning in schools. Principals need to be equipped with the skills not only to render professional support to the teachers but also to provide the resources that aid the effective implementation of schools plans and innovations. Maintaining a good interpersonal relationship between the teachers, school heads and supporting staff in schools is indispensable.

In addition, it is necessary to seek support services from external bodies that are affiliated with the learning processes in schools. In this regard, parents are vital for the effective education of their children. Furthermore, the school-affiliated agencies have a role to play in filling the gaps schools may experience when implementing educational innovations. Maintaining a systematic relationship with these external support agencies could enable the schools to undertake effective implementation of an innovation such as the GNH-Infused Curriculum.

In Bhutan, the curriculum and other curricular activities are designed by the autonomous government agency, the Royal Education Council (REC, 2017), and teachers are trained by the teaching colleges of education under the Royal University of Bhutan (RUB, 2017). Ignoring the importance of these significant people working in these agencies may hinder the delivery of quality education to learners (NC, 2016).

Breaking the link between the schools and affiliated educational institutions impacts on the successful implementation of any educational programmes (Barber & Mourshed, 2009; Mourshed et al., 2010; UNESCO, 2005; UNICEF, 2000).

In the next section, the conceptual framework of the study is designed and presented. The construct of this framework is based on the theoretical background underpinning the ETLS model.

### **Conceptual Framework of the Study**

The conceptual framework of the study is the effectiveness of teaching, learning and support (ETLS) model that is adopted and designed based on UNICEF's (2000) five dimensions/determinants of quality education, with additional elements from UNESCO's (2005) policies for better quality or enabling inputs for quality teaching and learning. The school effectiveness research models (which comprise structures such as context level, school level, classroom level and student level within the paradigms of input, process output and outcomes indicators) of Windham (1990), Scheerens (2000) Creemers and Kyriakides (2006), Reynolds et al. (2014) and Tshering (2014) also contributed to the framing of the conceptual framework of the study.

The framework provided in Figure 3.2 displays the hypothetical effects of implementing the GNH-Infused Curriculum (GNHIC) on the academic outputs, behaviour and skills, values and attitudes and GNH graduates. However, this research undertaking examines the effectiveness of Educating for GNH via a GNH-Infused Curriculum using a mixed methods approach and does not necessarily include an impact study or causal relationship testing. Nevertheless, this study aims to examine whether or not there is a relationship between the different input characteristics and if

school resources, support services and values and attitudes input variables predict the effective implementation of the GNH-Infused Curriculum variable.

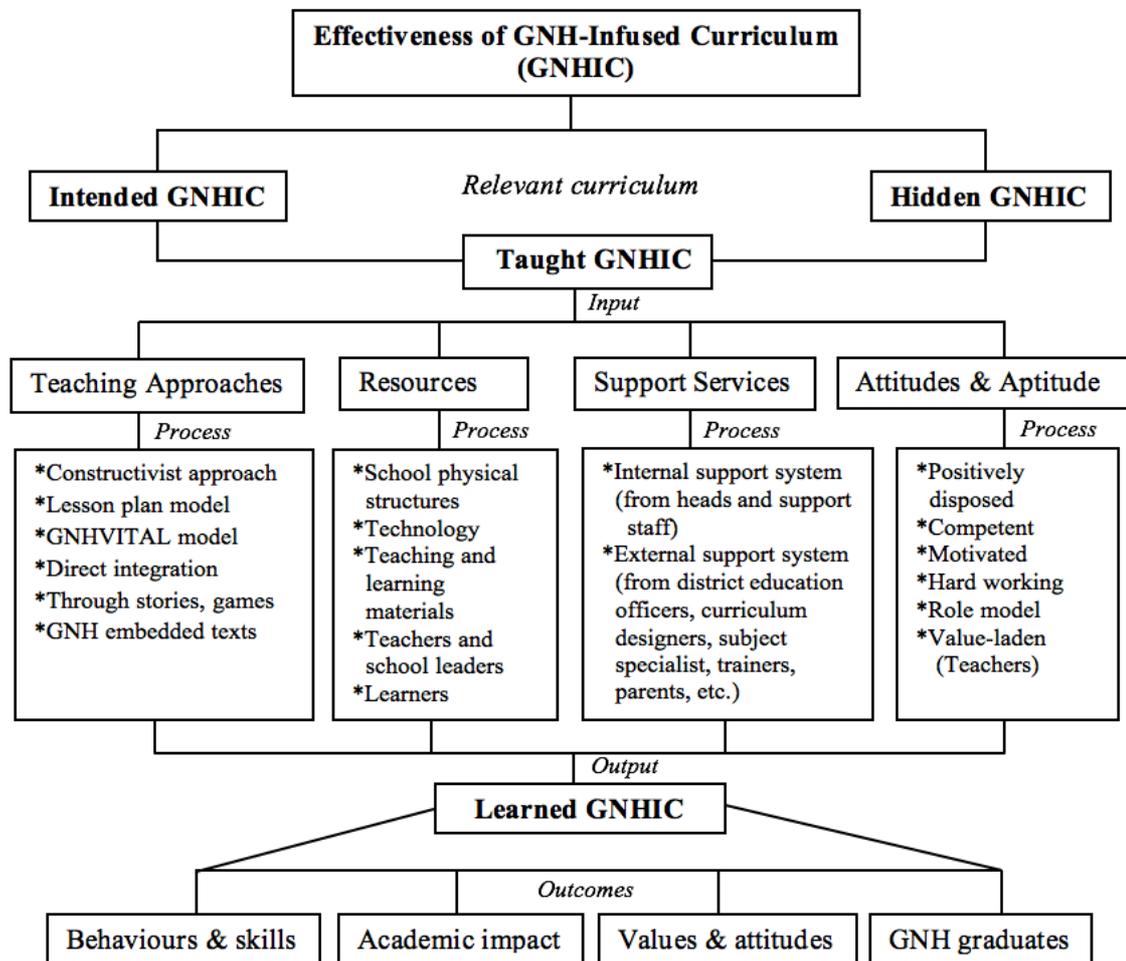


Figure 3.2. The conceptual framework of the interrelationship between the intended, taught and learned GNH-Infused Curriculum.

Note. Adapted from UNICEF (2000), UNESCO (2005), Windham (1990), Scheerens (2000) Creemers and Kyriakides (2006), Reynolds et al. (2014) and Tshering (2014). Learned curriculum is achieved if the input and process characteristics (as shown in Figure 3.2) are realised.

The GNHIC can be effective when schools consciously deliver the intended and hidden GNH-Infused Curriculum (which is a taught GNHIC), without creating any gap between the intended curriculum and taught curriculum. The literature supports the notion there is a possible gap between the intended curriculum and taught curriculum

that significantly affects the attainment of the learned curriculum (UNICEF, 2000; Yangki, 1998).

According to the literature outlined in the previous sections, the intended curriculum may be implemented effectively if teachers are, amongst other things, positively disposed, motivated and using appropriate teaching pedagogies. Also, if there are quality resources such as enough classrooms, library rooms, laboratories, technology, teaching and learning materials and quality support services available from both the internal and external support services, the implementation of the GNHIC should be achievable.

There are multiple dimensions or input characteristics that may influence the achievement of learning outcomes. However, the present study considers the four input characteristics of teaching approaches, resources, support services and teachers' attitude and aptitude to ascertain the effectiveness of the GNH-Infused Curriculum implementation in 22 secondary schools in Thimphu and Samtse districts, Bhutan. How each of these characteristics is interrelated is also a question to be addressed. It is noted that previous research about these input characteristics revealed that having relevant teaching pedagogy, abundant resources (both material and human), supportive environments, and competent and motivated teachers are crucial for the attainment of educational goals (Creemers & Kyriakides, 2006, 2010; Kyriakides, 2005; Kyriakides & Creemers, 2008; Reynolds, 2006; Reynolds et al., 2014; Scheerens, 2000; Tshering, 2014; UNESCO, 2005; UNICEF, 2000; Windham, 1990).

The thesis topic, “Intended and taught GNH-Infused Curriculum in secondary schools of Thimphu and Samtse districts, Bhutan: A mixed methods school effectiveness research” is guided by the following research questions.

***Main Research Questions:***

1. To what extent is the intended GNH-Infused Curriculum being taught effectively in the secondary schools of Thimphu and Samtse districts, Bhutan?
2. What are the experiences of teachers who are infusing Gross National Happiness values into the existing school curriculum for secondary schools in Thimphu and Samtse districts, Bhutan?

***Sub-questions related to first overarching research question:***

1. What levels of GNHVITAL, SR, ISS, ESS and TAGC scales have been implemented by the secondary school teachers of Thimphu and Samtse districts, Bhutan?
2. Does the extent of implementation of the GNH-Infused Curriculum in the secondary schools of Thimphu and Samtse districts vary across the teacher characteristics (age, gender, qualification and number of years in service) ?
3. Does the extent of implementation of the GNH-Infused Curriculum in the secondary schools of Thimphu and Samtse districts vary across the school characteristics (district, location, day/boarding school type, and category of school)?
4. Is there a relationship between the GNHVITAL, SR, ISS, ESS and TAGC scales in terms of overall implementation of the GNHIC in secondary schools?
5. Do survey scales such as SR, ESS, ISS and TAGC and the demographic variables predict the successful implementation of the GNH-Infused Curriculum

(GNHIC) as determined by the GNHVITAL scale? Which variables are more or less predictors of GNHVITAL?

***Sub-questions and interview research questions related to second overarching research question:***

1. What teaching methods have been deployed by the teachers to engage the students in the GNH-Infused Curriculum?
2. What are some of the structural and physical resources available for the successful implementation of the GNHIC in schools?
3. What are some of the notable interpersonal factors that may influence the taught GNH-Infused Curriculum?
4. What are the attitudes of teachers towards the implementation of the GNH-Infused Curriculum in the schools?

In summary, the conceptual framework is designed based on UNICEF's (2000) five dimensions of quality education, UNESCO's (2005) enabling inputs for quality teaching and learning, and the school effectiveness research models of Windham (1990), Scheerens (2000) Creemers and Kyriakides (2006), Reynolds et al. (2014) and Tshering (2014). Four input characteristics of teaching approaches, resources, support services and attitude and aptitudes of teachers concerning the implementation of a GNH-Infused Curriculum are considered for this research. The section ends with the research questions.

***Conclusion***

For this research, the four input characteristics of teaching approaches, resources, support services and attitudes and aptitude of teachers are selected to study the effectiveness of Educating for GNH via a GNH-Infused Curriculum (GNHIC).

There needs to be a robust relationship between the intended, taught and learned curricula (UNICEF, 2000; Yangki, 1998). The aims of the study are:

- (i) to determine whether a relationship exists between the intended and taught GNH-Infused Curriculum
- (ii) to facilitate the achievement of the desired qualities of GNH graduates by studying both enabling and inhibiting factors
- (iii) to scrutinise the findings of Sherab's (2014) study as to the reasons why teachers had lower self-efficacy and did not infuse GNH values while teaching the lessons
- (iv) to provide information to teachers about the types of possible interventions that may be useful while attempting to implement the GNH-Infused Curriculum in schools
- (v) to inform policy makers and key stakeholders about how to continue GNH education via the GNHIC and GNHVITAL models in the secondary schools of Bhutan.

## **Chapter Conclusion**

Teachers, learners, curricula and resources appear to be the primary determinants of successful teaching and learning processes in schools. The school leaders, parents and 'significant others'<sup>9</sup> nonetheless strengthen the practices of teaching and learning in schools. These support service groups provide both professional and material support services to the teachers and learners for quality outcomes.

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<sup>9</sup> School affiliated institutions such as district education offices (DEO), royal education council (REC), Bhutan council for school examinations and assessment (BCSEA), educational monitoring division (EMD), teacher's professional support service division (TPSSD), teaching colleges, and so on.

The effectiveness of teaching may occur primarily for three main reasons. First, teachers are the key to effective teaching. Teachers must have a sound knowledge about the teaching subject/content/texts, pedagogy and professional discourses. It is important to have teachers with a positive aptitude for teaching children and self-learning for the advancement of their teaching knowledge and career. Second, it is essential to design a relevant curriculum that has balanced texts that provide cognitive, psycho-social and affective domains of learning. A biased and fragmented curriculum may render ineffective learning outcomes. Curriculum should not be excluded from the goals of the school and, in effect, has a legitimate role in framing any theory of school effectiveness (Hargreaves, 2001). Third, resources that enable the successful undertaking of teaching processes in schools are required. A poor school environment with lack of appropriate resources is detrimental to initiating effective teaching lessons in the class.

In addition to the prerequisites for enabling successful teaching processes (which comprise quality teachers, a relevant, balanced and gender sensitive curriculum and desired physical resources), learning entails greater efforts or hard work from the learners and consideration for their physical and psycho-social ambience. Input factors such as learner's grit, health, aptitude, finance and home ambience need to be prioritised if quality learning is to be realised. The effectiveness of the teaching and learning processes is strengthened when there are strong support services from the school principals and other affiliated personnel. Provision of emotional and professional support services to teachers by both principals and significant others (including parents, education officers, trainers, researchers, etc.) promises better teaching and learning outcomes in schools. Both social capital (capacity to generate trust and sustain networks) and intellectual capital (capacity to create and transfer

knowledge) can be strengthened when the school is effective and maintains collaboration, reciprocity and strong networks among the school members and significant others (Hargreaves, 2001). In other words, there can be better leverage strategies for effective schools (i.e., relationship between input characteristics surrounding ETL parameters and educational output/effected change on students' intellectual and moral excellence).

To revisit, the input characteristics surrounding the effectiveness of teaching, learning and support parameters promise the effective implementation of educational programmes (e.g., GNH-Infused Curriculum for this study). The next chapter presents the research methodology underpinning the study, which is a mixed methods approach.

# **Chapter Four**

## **Research Methodology**

### **Introduction**

This chapter provides discussion about the theoretical framework of the research designs and methodology that are relevant to the conceptual framework of the study. The chapter highlights the methodological confluence of the study.

There are two sections in this chapter. The first section presents discussions about the philosophical assumptions, research worldviews, method, design and data collection tools such as survey and interviews. The reliability, validity and research criteria surrounding quantitative and qualitative research approaches pertinent to this study are also presented. The second section provides information about sampling processes, introductory data analysis and ethical issues of the study.

### **Philosophical Assumptions and Research Worldviews**

Understanding the philosophical assumptions and the worldviews underpinning a study are the prerequisites of research undertakings (Creswell, 2003; Creswell & Clark, 2010). The key philosophical assumptions around the ontological, epistemological, axiological, rhetorical and methodological aspects enable researchers to outline the theoretical framework of the study (Creswell, 2003; Creswell & Clark, 2010). Furthermore, worldviews, namely, post-positivism, socio-constructivism, participatory /advocacy and pragmatism, influence researchers' approaches (Creswell, 2003, 2009; Creswell & Clark, 2011, 2017). Quantitative (QUAN) and qualitative (QUAL) researchers approach the realities, truths, values and languages of the study differently (Creswell & Clark, 2011, 2017; Ivankova, Creswell, & Stick, 2006; Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 1989; Tashakkori & Teddlie, 2003b).

The post-positivists (QUAN researchers) argue there is only one reality/truth, and that the “truth out there” can be measured objectively by using scientific and formal languages (Creswell, 2003, 2009; Creswell & Clark, 2011, 2017). In addition, these researchers extrapolate that since the knowledge is objectively measured, QUAN research entails a value-free, unbiased and scientific approach. The truths/realities are studied without influencing or being influenced by the participants (Flipp, 2014). The reality can be described independent of human perceptions, as the researchers and participants are independent (Flipp, 2014). In practice, quantitative researchers undertake the research by collecting “hard data” through surveys and observations without engaging personally with participants and using numbers and statistics to show what is happening with the realities/truths “out there” in the world (Creswell, 2003, 2009; Creswell & Clark, 2011, 2017; Flipp, 2014).

In contrast, socio-constructivists (QUAL researchers) refute the theory espoused by the post-positivists, instead believing that new knowledge, truths and realities are created inductively based on people’s sets of beliefs and perspectives formed because of the experiences they acquire as they interact with world affairs (Creswell, 2003, 2009; Creswell & Clark, 2011, 2017; Flipp, 2014). This type of research takes account of personal biases and values (by being up front in reports about researchers’ values/biases) (Creswell, 2003, 2009; Creswell & Clark, 2011, 2017; Flipp, 2014). It is an interpretivist approach and it purports that there is no access to reality independent of humans’ minds (Flipp, 2014); that is, phenomena cannot be described as they are, but only how humans perceive them. There is no such “thing” as absolute objectivity (Creswell, 2003, 2009; Creswell & Clark, 2011, 2017; Flipp, 2014).

Values become infused in all events and how the world is interpreted.

Consequently, the truth, realities, values and existence can be studied inductively using

interviews, participant observations, case study, informal languages or personal opinions (Creswell, 2003, 2009; Creswell & Clark, 2011, 2017; Flipp, 2014). In practice, qualitative researchers engage in fieldwork and participate to gain an understanding of participants' views on their realities/truths (Creswell, 2003, 2009; Creswell & Clark, 2011, 2017; Flipp, 2014). Constructivists use the words of the participants in quotes and themes to show their differing perspectives (Creswell, 2003, 2009; Creswell & Clark, 2011, 2017; Flipp, 2014).

Similarly, participatory/advocacy research aligns with the interpretivist/socio-constructivist research approach as opposed to the realist (QUAN) research approach but this research allows the participants to take equal responsibilities and active roles in research concerning social problems (Creswell & Clark, 2017; Flipp, 2014).

Participants are the collaborators, fellow researchers and experts who enable the research to happen (Creswell & Clark, 2017; Flipp, 2014). This advocacy/participatory research approach allows for the needs of the people who are apparently “powerless” in society to have their opinions become known to the wider community (Creswell, 2003, 2009; Creswell & Clark, 2011, 2017; Flipp, 2014). What is more, this research should result not just in information but also in action. The participants are empowered to make changes in their communities and advocate for the powerless people so that change can happen (Creswell, 2003, 2009; Creswell & Clark, 2011, 2017; Flipp, 2014).

Amidst the influx of differing research worldviews and contrasting philosophical assumptions surrounding the unending methodological debate occurring between the realists/post-positivists and interpretivists/socio-constructivists, a different worldview and methodology has emerged. The term “pragmatism”, is applied to the new worldview, which anchors the characteristics of both QUAN and QUAL methods. In research terms, this recently developed methodology is known as mixed methods (Creswell & Clark, 2017).

The present mixed methods research is underpinned by a pragmatist's worldview (Creswell & Clark, (2011). Johnson and Onwuegbuzie (2004) claimed that pragmatism can be the philosophical partner for mixed methods research. Pragmatism is pluralistic, problem centred, real world practice oriented and focused on the research question (Creswell & Clark, 2011, 2017; Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 2003b). The pragmatist worldview mutually combines the strengths and weaknesses of post-positivist and constructivist worldviews; it does not adhere to one rigid paradigmatic approach to research, but rather focuses on the practical issues of the problem under study and employs the most fitting methods, designs, tools and other approaches to address the research questions (Creswell & Clark, 2011, 2017; Ivankova et al., 2006; Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 1989; Tashakkori & Teddlie, 2003b). The pragmatist's worldview supports the notion that the best result can be achieved by considering subjective and objective ways of studying the existing knowledge and generating new ideas by using both deductive and inductive methods, embodying both single and multiple realities, truths and values, using either or both formal and informal languages in writing and reporting the findings, thereby according a wider scope to research underpinnings.

Historically, the inception of the new methodological movement began when Greene, Caracelli, and Graham (1989, p. 256) defined a mixed methods design as an integration of collected numbers and words where the former were referred to as quantitative methods and the latter as qualitative methods. After ten years, the idea of mixing methods shifted to methodology, when Tashakkori and Teddlie (Tashakkori & Teddlie, 1998, p. ix) defined mixed methods as the amalgamation of quantitative and qualitative approaches. These authors maintained that a mixed methods research underwent many iterations and eventually reached a point where it has now become “a

separate methodological orientation with its own worldview, vocabulary, and techniques” (Tashakkori & Teddlie, 2003a, p. x).

By the same token, Johnson, Onwuegbuzie, and Turner (2007, p. 123) concurred that mixed methods research is a process in which researchers combine the characteristics of quantitative and qualitative research approaches, such as use of viewpoints, data collection tools, analysis and inference techniques, for the deeper understanding of a research problem. Creswell and Clark (2011) supported the idea that mixed methods research provides flexibility to use multiple worldviews as the researcher moves in the continuum of a research process. These authors claimed that a mixed methods research approach would become more appropriate if the study were to seek an understanding of a relationship between the variables or the cause and effects of one group over the other. Furthermore, they stressed that mixed methods research offsets the weaknesses of both qualitative and quantitative research methods, thereby placing the study in a reliable context.

Mixed methods research aligns with the features of a pragmatic worldview. The research theoretical framework for this study is shown in Table 4.1.

Table 4.1. A blueprint outlining the theoretical framework of the study.

<b>Epistemology / Paradigm/ Worldviews</b>	<b>Theoretical Perspectives</b>	<b>Axiology (role of values)</b>	<b>Rhetorical</b>	<b>Methodology</b>	<b>Methods &amp; Designs</b>
Pragmatism	Focus on research question / consequences of action/ problem centred/ real world practice oriented/ pluralistic	Biased and unbiased perspectives	Third person formal language	Combination of quantitative (QUAN) and qualitative (QUAL) methods.	Survey questionnaires Semi-structured interviews Convergent parallel design

*Note.* Theoretical framework adapted and devised from Creswell and Clark (2011) and Crotty (1998), using the blueprint headings of Crotty (1998) and descriptions of Creswell and Clark (2011).

## **Research Method and Design**

Mixed methods research comprises six major designs: convergent parallel, explanatory sequential, exploratory sequential, embedded, transformative and multiphase (Creswell & Clark, 2011, 2017). The intention in this study is to employ a convergent parallel design where quantitative data and qualitative data are collected simultaneously during the same phase of the research process (Creswell & Clark, 2011, 2017). A varied and complementary data set could be obtained when this convergent design is used, thereby providing the best understanding of the research problem (Creswell & Clark, 2011, 2017). This design removes the weaknesses of both qualitative and quantitative research with regard to generalisability, flexibility, maintaining participants' relationships and so on. Qualitative research is less generalisable but is flexible and maintains a strong or informal relationship with the participants, as opposed to quantitative research, which is inflexible and maintains a distant or formal relationship with the participants but findings may be generalisable as data can be collected from a large sample of people. Mixed methods research brings together the strengths of quantitative and qualitative research. The importance of the contribution of both paradigms, i.e., quantitative and qualitative, is given equal emphasis when analysing and collecting the data to better understand the research topic (Creswell & Clark, 2011, 2017).

A convergent design does not mix the philosophical assumptions (Creswell & Clark, 2011, 2017). However, there may be issues raised concerning the philosophical assumptions, as the design involves collecting, analysing and mixing the QUAN and QUAL data and results at a particular point in time (Creswell & Clark, 2011, 2017). Nonetheless, it is recommended to work from a pragmatist's paradigm, as merging of two approaches entails a broader understanding of the topic under investigation

(Creswell & Clark, 2011, 2017). The mixed methods convergent parallel design procedures are provided in Figure 4.2.

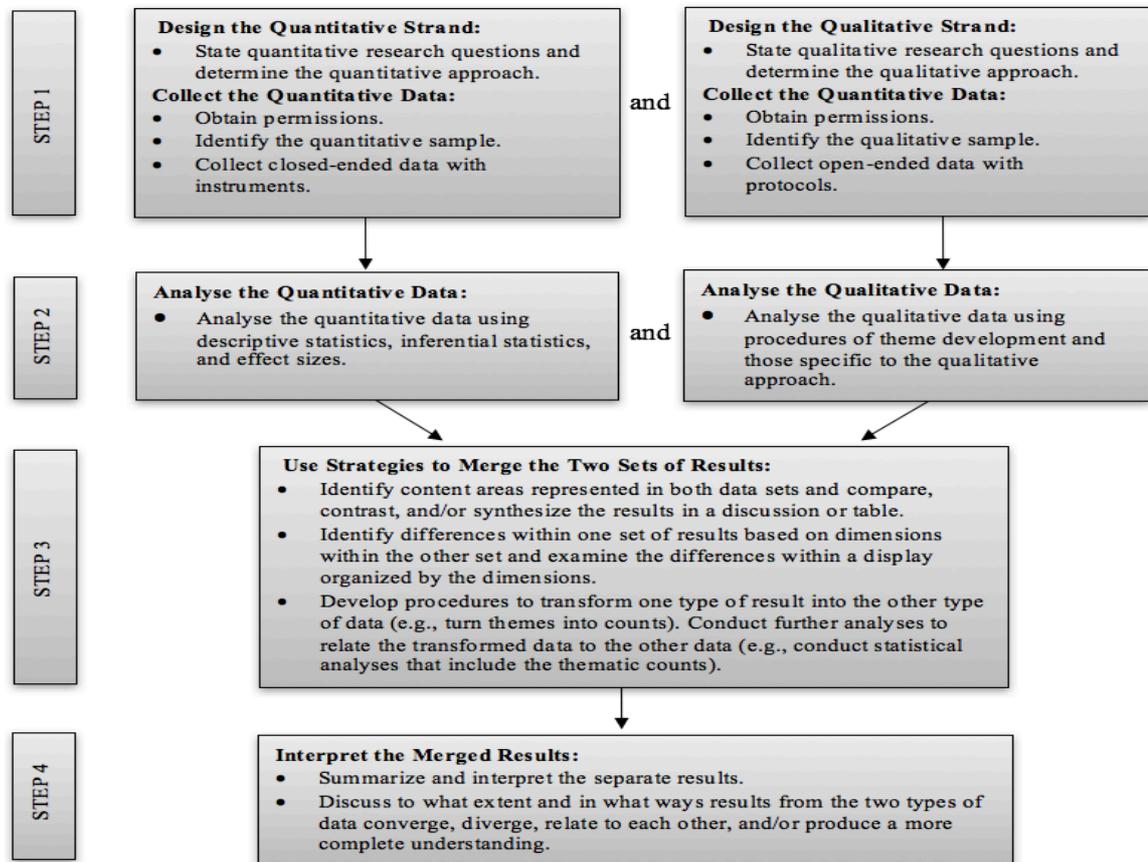


Figure 4.1. A flowchart of the basic procedures in implementing a convergent design. Note. Reprinted from *Designing and Conducting Mixed Methods Research* (Creswell & Clark, 2011, p. 79).

First, both quantitative and qualitative data relevant to the topic are collected. The data collection is concurrent but separate, without the influence of the other. Importance is afforded to both QUAN and QUAL data. Second, the data are analysed independently using separate data analysis methods for quantitative and qualitative data. Finally, the discussion is presented by combining the results of both survey and interview data analyses in an attempt to ascertain “to what extent and in what ways the two sets of results converge, diverge from each other, relate to each other, and/or combine to create a better understanding in response to the study’s overall purpose” (Creswell & Clark, 2011, p. 78).

Choosing appropriate data collection tools provides an effective outcome of the research. The following sub-section provides discussion pertaining to data collection tools.

### **Data Collection Tools**

Data were collected using two tools, namely, survey and interview. Observation was omitted as a tool, as Sherub (2013) had already identified that in the Bhutanese context, teachers were not infusing GNH values into the classroom teaching and learning processes. The survey method plan as recommended by Creswell (2009, pp. 146-147) was followed while collecting the survey data. Creswell (2009) claimed that considering indicators such as the purpose of the survey, reasons supporting the choice of survey, type of survey (cross-sectional or longitudinal) and form of survey data collections is crucial for the effective conduct of a survey. Data for the qualitative phase of the research were collected using semi-structured interviews. Both survey (for additional data) and interviews were initiated by visiting the schools in person. Additional discussion of each tool is provided below.

#### ***Survey***

A cross-sectional survey was designed to ascertain to what extent the secondary school teachers of Thimphu and Samtse districts effectively implement the Gross National Happiness-Infused Curriculum (GNHIC) in schools as determined by the Gross National Happiness Values Integrated Teaching and Learning (GNHVITAL) scale. The survey questions also aimed to explore whether innovations such as physical resources (facilities), teacher qualification, training, professional development workshops, teachers' attitude towards the GNHIC (production input indicators), support services and teachers' capacity (production process indicators) were available in the school to aid the effective implementation of the GNHIC.

Furthermore, the school characteristics and teacher characteristics were considered to ascertain whether or not differences existed between the groups on GNHVITAL, school resources (SR), internal support system (ISS), external support system (ESS) and teachers' attitude towards the GNH-Infused Curriculum (TAGC) scales. Though secondary to the research, understanding the relationship between the scales was important. In order to determine whether differences existed, a regression test was undertaken to ascertain the possible impact that each of the input and process indicators (as determined by SR, ISS, ESS and TAGC scales) had on the effective implementation of the GNHIC (as determined by the GNHVITAL scale) in the secondary schools.

The survey data were collected using both electronic media and on-site (field visit) approaches. The online survey was opened via a website titled Qualtrics (an online survey data collection software) and was in place from May to July 2016. The survey questionnaires were uploaded into Qualtrics, which was accessible to the participants. The on-site survey<sup>10</sup> was conducted using self-administering questionnaires during school visits (data collection phase) to four secondary schools.

According to Cohen, Manion, and Morrison (2011), the use of a survey as a research tool is not only economical but also helps to determine correlations, predictions and comparisons, thereby allowing the gathering of large-scale data from a wider population and enabling generalisations to be made about the given variables. Neuman (2011, p. 230) conceded that the Likert scale is simple and easy to use, as when the ranked survey items are combined, a comprehensive multiple indicator measurement is obtained. Different combinations of several scale items produce the same overall score (Neuman, 2011).

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<sup>10</sup> Survey questionnaires were printed in hard copies and personally circulated randomly to the teachers in four secondary schools in Thimphu district, Bhutan.

A pilot study was planned to be undertaken in an attempt to avoid ambiguous and biased questions in the final survey; however, the pilot survey failed to achieve the minimum sample requirement criteria for statistical testing and data analysis. There were a total of 23 respondents in the pilot survey; however, inclusion of these data was not warranted due to statistical validity issues. Notwithstanding, the pilot survey provided firsthand experience about how to use the instrument and the online survey software such as Qualtrics for the purposes of analysis. Before administering the final survey questionnaires, advice and evaluation from experts ( $N=4$ ) with relevant subject knowledge were sought and adopted to achieve the face validity of the instruments (Cohen et al., 2011; Kitchenham & Plfleeger, 2002).

Initially, a 6-point Likert-type scale was employed for this research project, although 5 or 7-point scales are generally used by quantitative researchers (Bailey, 2004; Hartley, 2013). According to Neuman (2011, p. 226), a Likert scale is used in survey research to facilitate the participants to express their attitudes or perspectives in terms of ‘agree’ or ‘disagree’ ordinal-level categories ranked along a continuum. However, he cautions that limiting the choices to only two categories creates only a crude measure. He claims that it is usually better to use four to eight categories by combining or collapsing categories after the data have been collected, and the number of categories can be increased at the end of a scale by adding ‘strongly agree’, ‘somewhat agree’, ‘very strongly agree’, and so forth (Neuman, 2011, p. 227). Readers may be confused if the number of choices in the scale is more than eight and/or nine at the most, as “more distinctions than that are not meaningful, and people will become confused” (Neuman, 2011, p. 227). Nunnally (1978, p. 521) professed:

As the number of scale steps is increased from 2 up through 20, the increase in reliability is very rapid at first. It tends to level off at about 7,

and after about 11 steps, there is little gain in reliability from increasing the number of steps.

The 6-point Likert-type scale has an even number with bipolar scales ‘strongly disagree’ to ‘strongly agree’ (Bailey, 2004), which removes neutral mid-point responses, thereby compelling the respondents to make a choice to respond to the survey item (Garland, 1991, as cited in Hartley, 2013). Importantly, Neuman (2011, pp. 227-228) purports the choices should be evenly balanced amongst the categories of response scale (e.g., strongly agree, agree, strongly disagree, disagree).

Of note, following an initial analysis using the 6-point Likert scaled questionnaires (Likert, 1932), data abnormalities (data misfits) were exposed. The 6-point scale, of necessity, was collapsed to a 4-point scale (strongly disagree, disagree, agree and strongly agree). More discussion regarding this process is provided in Chapter Five.

### ***Survey Instruments***

The construction of survey instruments was based upon the premise that the designed instruments measure the case of the intended and taught GNH-Infused Curricula in secondary schools of Thimphu and Samtse districts. This approach was attempted through the five dimensions of GNH values integrated teaching and learning (GNHVITAL) approaches, school resources (SR), internal support system (ISS), external support system (ESS), and attitudes of teachers towards EGNH via a GNHVITAL approach. The instruments were constructed to ascertain what GNHVITAL approaches were implemented by the teachers, what resources were available to facilitate the GNHVITAL activities and what internal and external support systems were accounted for in school to aid the implementation of GNHIC. In addition,

the survey instruments were drafted to measure the attitudes of teachers towards the implementation of GNHIC in schools.

Creswell (2009, p. 145) indicated that a numeric description of the attitudes and opinions of the population can be ascertained through a survey design when a sample of a population is studied. He informs readers that from sample results, generalisations can be made about the relevant population. Survey questionnaires were constructed for data collection purposes based on the indicators and guidelines for teachers concerning the EGNH via a GNHVITAL approach that were developed by the Department of Curriculum and Research Development (DCRD, 2011) and relevant survey instruments used by preceding Bhutanese researchers surrounding the EGNH in Bhutanese schools (Sherab, 2013; Zangmo, 2014). The details of each survey scale and the construction of the instruments are provided in the following sub-topics.

#### ***Gross national happiness values integrated teaching and learning scale***

The first survey dimension was aimed at investigating the approaches undertaken by teachers in government secondary schools from Thimphu and Samtse districts when implementing the GNHVITAL innovation or the GNH-Infused Curriculum (GNHIC). This survey scale was designed to determine the extent to which the intended and taught GNH-Infused Curricula are implemented in secondary schools of Thimphu and Samtse districts, Bhutan. There were 20 survey questions for this GNHVITAL scale. Fourteen survey questionnaires used the indicators provided in a book titled *A Guide to Advancing Gross National Happiness* written by the Department of Curriculum and Research Development (DCRD, 2011). Six survey items that underpinned the research question were designed by the researcher. These items aimed to establish some of the teaching and learning approaches undertaken by the teachers to teach the GNHIC based on the guidelines provided by the DCRD (2011). This

dimension contained three negatively worded questions to prevent unmindful responses (Bailey, 2004). All the survey instruments were proofread by two independent experts who provided necessary support before the data were collected from the research participants. The survey items are provided in Appendix M.

### ***School resources scale***

The second dimension was designed to identify school resources (SR) available in schools that may influence the implementation of GNHVITAL innovation or the GNH-Infused Curriculum. This dimension aimed to assist with the investigation regarding the extent to which physical and human resources such as library books, teaching and learning materials (TLM), classroom furniture, professional support services, policy documents and classroom structures may affect the implementation of the GNHIC. The SR was investigated using nine survey items. One instrument was adopted from the DCRD (2011) and eight were newly developed with input from experts. The SR dimension contained six positively worded statements and three negatively worded statements (Bailey, 2004). The survey test items are provided in Appendix M.

### ***Interpersonal relationships scale***

The third scale aimed to discover the interpersonal relationships (IPR) that exist in schools that may affect the GNHVITAL process or the taught GNHIC. The IPR scale comprised 18 survey questions, of which two were modified from Sherab (2013) regarding the directions provided by the school leaders and teachers' motivation to integrate the GNH values into the school activities and 16 were purposively constructed for this research undertaking. The new instruments were designed to ascertain what type of interpersonal relationships existed between the teachers and significant others such as principals, district education officers, education monitors, school department

heads, parents, preservice teacher trainers and so on that could enhance the effective implementation of GNHIC in schools. This dimension was further segregated into two domains, as a problem emerged with data construct validity (data misfit). This scale contained three negatively worded questions and 15 positively worded questions (Bailey, 2004). The survey questionnaires are provided in Appendix M.

### ***Teacher attitudes about gross national happiness-infused curriculum scale***

The final dimension provided a discussion about the teachers' attitudes towards the implementation of GNH-Infused Curriculum in secondary schools of Thimphu and Samtse districts. To effect a new educational innovation in schools, ascertaining the teachers' attitudes towards its implementation is the first stepping stone to achieving the outcome. The term used for the analysis of this scale is teachers' attitudes towards GNH-Infused Curriculum (TAGC). There were 20 test items for this domain. Four test items were revised from Sherab (2013), one came from Milson and Mehlig (2002) and the remainder were designed based on the guidelines provided by DCRD (2011) about Educating for GNH via a GNHIC. This dimension contained five negatively worded statements and 15 positively worded statements (Bailey, 2004). The survey instrument is provided in Appendix M.

### ***Reliability and validity of measurement scales***

Both reliability and validity of measurement scales were tested using a Rasch analysis model. Both item and case reliability scores were above .70 for all the survey scales. The *face validity* was achieved under the guidance of an independent expert. The *construct validity* was attained using Rasch modelled software packages, namely, Winsteps and QUEST. The *construct validity* ranged between 96% and 100% and was assessed based on the *infit* and *outfit* mean square (MNSQ) statistics. Drouin et al. (2011, p. 547) put forward that "The mean-square (MNSQ) fit statistic assesses the

item's or person's contribution to measurement productivity (how well the item/person adds important information to help measure and understand the construct)".

The *infit* mean squares for all the scales were within the expected range from .70 to 1.30. Curtis and Boman's (2007) *infit* acceptable values range from .70 to 1.4. Moreover, items with MNSQ fit < .50 are a less productive measurement; within .5–1.5 are a productive measurement; within 1.5–2.0 are an unproductive measurement; and > 2.0 misrepresent or devalue the measurement outcomes and should be deleted from the assessment as they will impair the measurement of *construct validity* (Drouin et al., 2011; Linacre, 2002).

### ***Interview***

In-depth interviewing was used to assemble the additional data and to explore the participants' experiences and challenges in implementing the GNH-Infused Curriculum. Kvale (1996, p. 112) defines an interview as an attempt to understand, unfold and uncover the people's point of view and lived world experiences before considering any scientific explanations surrounding a problem under study. In a similar way, Cohen, Manion, and Morrison (2011, p. 409) describe an interview as "a flexible tool for data collection, enabling multi-sensory channels to be used: verbal, non-verbal, spoken and heard". Consequently, the interview was employed as a reliable tool to collect qualitative data surrounding the teachers' experiences of EGNH via a GNHVITAL approach.

### ***Semi-structured interview***

The semi-structured interview was used to collect data from the research participants. This type of interview, according to Cooksey and McDonald (2010, p. 317), is very flexible, enabling the researcher to "cover any issues in any order while remaining open to a follow up of any emergent issues and associated leads". In the

same manner, Minichiello, Aroni, and Hays (2008) purported that unlike structured interviews that contain predesigned questions in order, the semi-structured interviews sanction greater suppleness during the data collection process. However, Minichiello et al. (2008) maintained that skills such as using probing questions, guiding the interview and not leaving any questions unattended are some of the indispensable attributes of the researcher.

To avoid some possible interviewing problems, it was necessary to engage with and practise effective interviewing skills prior to the commencement of data compilation. As such, it was necessary to pilot test and trial the data collection (Cooksey & McDonald, 2010). Prior to the interviews, a pilot interview with one teacher was initiated to gain confidence and experience in conducting interviews. Based on the pilot interview experience, the order of questions was changed to achieve flow and save time. Five rounds of demonstration with the interviewing techniques were initiated before undertaking the final interviews. The interview scripts and questions are provided in Appendix K.

### ***Qualitative research criteria for interview data collection***

The aim of the qualitative phase of the study was to ascertain the experiences of teachers while they infused Gross National Happiness values into the existing school curriculum in secondary schools in the Thimphu and Samtse districts, Bhutan. The rationale for choosing these two districts was based on mitigating circumstances of cost, access and time constraints. Of particular interest when choosing these two districts, Thimphu is the capital of Bhutan and Samtse is one of the remotest districts in the country, therefore data collected from these two diverse districts may provide a replicable picture of possible practices in the schools in the other 18 districts in the country with regard to the implementation of the GNHIC. From the list of schools that

had the maximum participation rate for the survey were identified. Following this process, interviewees were selected based on their willingness to participate and their interest in the topic. In other words, the sampling techniques employed for this research were convenient and voluntary samplings (Cooksey & McDonald, 2010).

Prior to the data analysis, the raw interview transcripts (which are provided in Appendix P) were reread and translated into British English to align with the language requirement of the Leximancer software Version 2.25. Unlike Leximancer software Version 4, Version 2.25 does not read inverted commas, apostrophes, abbreviated words, contracted words and brackets. This software is designed to decipher the words written in plain text format. The validity and reliability of the interview data were observed when analysis was undertaken using this text-mining software (Kivunja, 2013).

The analyses were initiated after segregating the interview texts into different groups based on the four research sub-questions:

1. The approaches undertaken by teachers to teach the GNH values via existing curriculum as determined by Gross National Happiness Values Integrated Teaching and Learning (GNHVITAL) interview data collection questions.
2. School resources available in schools to aid the implementation of the GNH-Infused Curriculum in schools as determined by the school resources (SR) interview questions.
3. Type of support systems present in the school to promote the successful implementation of the GNH-Infused Curriculum in schools as determined by the internal and external support system (ISS and ESS) interview questions.

4. Examining teachers' attitudes towards the implementation of the GNH-Infused Curriculum as determined by teachers' attitude towards GNH-Infused Curriculum (TAGC) interview questions.

Data cleaning was performed on Leximancer Version 2.25 prior to generating the final data (concept maps and textual evidence) for each of the interview texts grouped under different research sub-questions. Words such as teacher and teachers (either singular or plural words) were merged and general terms and codes (such as et al., participant's code, etc.) were removed from the concept seeds. The cutoff value for all the concept word percentages throughout the different domains of interview texts was set at 19.5% or 20% to conceive holistic evidence to support the theme and concept. More about the qualitative data analysis using Leximancer software is provided in Chapter Seven.

In summary, this section of this chapter provided a discussion of the philosophical assumptions, research worldviews, method, design and appropriate data collection tools used in this study. The reliability and validity of the survey measurement scales were briefly introduced. A discussion on the five survey scales of GNHVITAL, SR, IPR (which later modifies into ISS and ESS) and TAGC was also provided, followed by a brief review of the interview and semi-structured interview questions. The qualitative research criteria were also noted.

### ***Conclusion***

This study uses a mixed methods research design that encompasses all the features of quantitative and qualitative approaches. Mixed methods research enables the researchers to take advantage of the strengths of both QUAN and QUAL research approaches and offset the weaknesses, thereby enabling a holistic understanding of a research problem.

Mixed methods research anchors a pragmatic worldview that considers both post-positivist and socio-constructivist worldviews, and, importantly, focuses on the practical issues of a research problem. The research designs, tools and other approaches are employed to address the research questions. This present study employs a convergent parallel design, where both QUAN and QUAL data were gathered concurrently. The data collection tools of survey and interviews are used, based on four research dimensions (GNHVITAL, SR, IPR and TAGC). Undertaking reliability, validity and quality checks of the data are crucial. The reliability and validity of the survey data were ascertained using Rasch model software (Winsteps). The qualitative criteria were addressed using Leximancer text-mining software in addition to the verification and confirmation of quality data by an expert.

The second section provides information on the sampling procedure, participants' samples for both the quantitative and qualitative research approaches, brief highlights of data analysis and ethical issues of the research.

### **Sampling Processes**

The effective choice of research method, instrument and samples determines the quality of research (Cohen, Manion, & Morrison, 2007). There is a variety of sampling strategies, such as probabilistic (simple random, stratified random and systematic) and non-probabilistic (quota, purposive, snowballing, convenience and volunteer) (Cooksey & McDonald, 2010). Due to lack of adequate access, resources and other mitigating circumstances, a convenience sample was employed for the survey and purposive and volunteer samplings were used for the interviews. According to Cooksey and McDonald (2010, p. 461) volunteer sampling allows the researcher to solicit or advertise "for potential participants, and those that agreed to participate comprise the

sample”. These sampling choices align with the pragmatic worldviews of “what works best” for the research topic.

### ***Survey Sampling Process***

Creswell (2009, pp. 147-149) noted that specifying the characteristics of the population and the sampling procedure is essential for any survey research. For this research, all the secondary school teachers ( $N=500$ ) under Thimphu and Samtse districts were identified through the District Education Office and school principals. The sampling for this teacher population was a single stage process, whereby the researcher used the email addresses of secondary school teachers. In the email, the participants were invited to be involved in either an online survey or an on-site survey (self-administering the survey questionnaires) based on the convenience of the administrators, participants and researcher. Though the selection process was a convenience sampling, or in the case of the interview a volunteer sampling (the sample was selected only when they agreed because of the ethical issues surrounding social research today and participants’ right to withdraw from the interview at any time), the survey research involved the stratification of the teacher population according to district to ensure the sample represented the three categories of school. The characteristics of district, category of school and gender were considered while sampling the population. Table 4.2 provides the details of the final samples used for survey data collection.

Table 4.2. Details of samples for survey data collection

Category of School	Total School	Number of Teacher Participants		Total Participants
		Male	Female	
HSS <sup>11</sup>	5	35	21	56
MSS <sup>12</sup>	10	40	43	83
LSS <sup>13</sup>	7	26	37	63
<b>Total</b>	22	101	101	<b>202</b>

*Note.* Table 4.2 provides a total number of participants, their gender and schools from each category of school. MSS have the maximum participants and LSS the minimum.

### ***Interview Sampling Process***

For semi-structured interviews, volunteer sampling was used to collect the interview data from each category of school (LSS, MSS, HSS) based on the number of participants in each participating school (as per the information contained in Table 4.2). In addition, the choice of participants was made based on the premise that the data could be efficiently handled if the number of participants was kept small. Other reasons were mitigating circumstances, accessibility and catchment areas of the participants.

The schools with the highest number participating from each category of school in each district from the final choice of 165 case score statistics (i.e. number remaining after initial statistical analysis) were selected for the interview sampling (see Table 4.3).

Table 4.3. Details of samples for interview data collection

Type of School	School from Each District		Number of Teacher Participants		Total Participants
	Samtse	Thimphu	Male	Female	
HSS	1	1	2	2	4
MSS	1	1	2	2	4
LSS	1	1	2	2	4
<b>Total</b>	6	6	6	6	<b>12</b>

*Note.* Schools and participants for the qualitative data collection were selected based on the maximum responses provided during quantitative data collection. Two participants (1 male and 1 female) from each level of school (HSS, MSS, LSS) were purposively selected (based on their approval) for the semi-structured interview.

<sup>11</sup> Higher Secondary School

<sup>12</sup> Middle Secondary School

<sup>13</sup> Lower Secondary School

The district and schools were coded as D1S1HSS for district 1, school 1, higher secondary school; D1S1MSS for district 1, school 1, middle secondary school; and D1S1LSS for district 1, school 1, lower secondary school. Similarly, D2S1HSS stands for district 2, school 1, higher secondary school; D2S1MSS stands for district 2, school 1, middle secondary school; and D2S1LSS stands for district 2, school 1, lower secondary school. S2, S3... stand for school 1, school 2 and so on. The frequency table is provided in Table 4.4.

Table 4.4. Frequency of survey participants from each category of school

<b>School Codes</b>	<b>Frequency</b>	<b>Percent</b>
D1S1HSS	24	14.5
D1S2HSS	4	2.4
D1S3HSS	8	4.8
D1S1MSS	5	3.0
D1S2MSS	17	10.3
D1S1LSS	9	4.8
D1S2LSS	7	4.8
D1S3LSS	6	3.6
D2S1HSS	7	4.2
D2S2HSS	1	.6
D2S1MSS	21	12.7
D2S2MSS	6	3.6
D2S3MSS	8	4.8
D2S4MSS	6	3.6
D2S5MSS	6	3.6
D2S6MSS	1	.6
D2S7MSS	1	.6
D2S8MSS	1	.6
D2S1LSS	15	9.1
D2S2LSS	9	5.5
D2S3LSS	1	.6
D2S4LSS	2	1.2
<b>Total = 22 schools</b>	<b>165 participants</b>	<b>100.0</b>

*Note.* In Table 4.4, under the school codes column, the third letter and the fourth number e.g. S1, S2... are the codes for the schools (school 1, school 2 and so on). Seven schools had less than five survey participants; however, they were included for the statistical analyses.

From district 1, the highest number of participants in each category of school were D1S1HSS with 24 participants, followed by D1S2MSS with 17 participants and D1S1LSS with 9 participants. Similarly, from district 2, the highest number of respondents in each level of school were D2S1HSS with 7 respondents, D2S1MSS with 21 respondents, and D2S1LSS with 15 participants. From these high response, one

male and one female participant were selected (based on interest and volunteering) for the interview data. The interview was conducted in a quiet location and free from distractions after observing all the interview ethical issues.

### **Data Analysis**

The survey data were analysed using statistical software Winsteps (3.92.1), which is used for the Rasch model analysis, and the Statistical Package for the Social Sciences (SPSS, Version 24), which is applied for data cleaning and group analyses in this study. Winsteps is one of the most used software programmes for analysing unidimensional data (Lynacre, 2007). The design of this software is based on the item response theory and it provides a preset formula to achieve data normality, validity and reliability of a study. SPSS has the capability of handling a package of data and has diverse features, which are constructed based on the classical test theory, and can easily analyse the multiple data (Cooksey & McDonald, 2010). The categorical variables were analysed using SPSS (24). A Rasch model was used to test both external and internal validity and reliability of continuous variables. Both case and item difficulty analyses were undertaken to determine the gap existed in the implementation of GNH-infused curriculum in the sample schools. MANOVA, correlations and regression analyses were employed to ascertain the significant differences between the teacher and school characteristics on all the scales (GNHVITAL, SR, ISS, ESS and TAGC), intercorrelations between the scales and the predictability of SR, ESS, ISS and TAGC about the GNHIC as determined by the GNHVITAL scale.

The interview data analyses were conducted using text-mining software known as Leximancer 2.25 (Smith, 2003). Commenting on Leximancer, Cooksey and McDonald (2010, p. 510) indicated that the software “uses a state-of-the-art automated machine learning capability coupled with high-level statistical analyses”. The themes

were drawn using the key concepts of the text; however, the researcher had the discretion to edit and customise the themes. The software can analyse huge interview tests generating defined themes and concepts, thereby saving significant time for the researcher (Kivunja, 2013; Smith, 2000, 2003; Smith & Humphreys, 2006). The researcher can discover the deep meaning of the data embedded in the digital structures via thematic and semantic analyses (Kivunja, 2013), which may not necessarily need an inter-coder to confirm the validity of defined themes and concepts. The software also allows the researcher to modify the concepts and themes to fulfil the research questions (Smith, 2000, 2003; Smith & Humphreys, 2006). However, the themes were cross-examined by the two research supervisors for reliability and validity checks. The details of the data analysis will be provided in next three chapters.

### **Ethical Issues**

The assumptions concerning the code of conduct, ethics and values of the research undertakings were promoted and the biases of the researcher were reported to handle the risk involved in understanding the reality of the topic being investigated. Punch (2014, p. 36) promulgated that the ethical issues in research arise in all stages of the research process, commencing from the choice of the research topic (to establish research worthwhileness), to undertaking the literature review, data collection and analysis, reporting, publishing the findings and even the further uses and outcomes of the research. Ethical issues relate to the conduct of the research and the willingness of the participants to participate in the research without being coerced. Cooksey and McDonald (2010, p. 372) recommended the following ethical principles for every researcher :

- the right to confidentiality, privacy and anonymity
- duty of care, and the minimisation of harm and risk

- cultural and social sensitivity
- full disclosure and transparency
- respect for intellectual property ownership
- avoidance of conflicts of interest
- equity and fair treatment.

Furthermore, anonymity of the participants was maintained and their roles in the research were kept confidential. All the data were collected and analysed ‘in good faith’ without suppressing, falsifying, inventing or undertaking other fraudulent practices that would constitute scientific misconduct and be considered not acceptable in professional research communities (Creswell, 2003, 2009; Neuman, 2011).

A professional code of conduct was maintained during the entire course of research and due consideration was given to ethical issues at all stages of the research. Ethical considerations of the research were observed under three broad headings: before, during and after/post vis-à-vis the data collection, analysis and thesis reporting (Namgyel, 2011).

### ***Pre-data Collection***

Ethical issues were considered prior to collecting the data from the participants. Ethics approval was sought and received from the Human Research Ethics Committee, Higher Degree Research Office, UNE, Australia, UNE Ethics Approval No. HE16-087. An approval letter from the Director General of School Education, Ministry of Education, Bhutan, was also solicited prior to collecting data from the secondary schools in Thimphu and Samtse districts, Bhutan. The approval letters from these agencies are provided in Appendix L and Appendix I. Furthermore, district education officers and school principals were contacted via email and phone calls to seek permission to collect data from the schools. As requested by the researcher, the school

principals provided the email addresses of the teachers after obtaining consent from the individual teacher. A total of 22 school contact addresses were obtained. Creswell (2003, p. 64) expounded that the researcher must seek a participant's consent by undertaking a signed agreement before engaging them in research. Therefore, the potential participants were identified and initially contacted via email and phone call and then a letter of invitation was sent to participate in the online survey. Detailed information about the research and ethical issues were provided both via an email attachment and a paper-based copy. A letter of undertaking with the participants was sent, and follow-up information and details of the survey research were provided for the interested participants.

The school principals were contacted a second time to seek permission from teachers to volunteer and participate in the semi-structured interviews. A total of 12 teachers (6 males and 6 females), with four from each school level agreed to participate in the interviews, which provided the researcher with sufficient participants to satisfy the requirements of the research.

### ***During Data Collection***

The researcher commenced the survey and interviews as per the approved undertakings with the UNE Human Ethics Committee. Online survey data were collected as per the letter of approval from the UNE Ethics Office. Similarly, additional survey data and interviews were conducted based on the participants' approval and at a time and in a space that was convenient to them (see Appendices J and N). The purpose of the interview within the broader context of the research study was explained, firstly through an online information sheet and secondly via a verbal presentation (face-to-face dialogue). The participants were also assured that their anonymity would be maintained.

In doing so, the researcher was being truthful and straightforward about the study objectives and the anticipated risks and benefits to the individual participant and the community. Assuring participants that what they say would be kept in confidence is important for earning their trust and eliciting good data. The participant's permission was sought to record the interview for data recording and retrieval. The teachers were interviewed during their free time and when they were ready in a comfortable place of their choice. During the interview, the appropriate functional language was administered, for example, "could you please tell me...", and due respect was paid to the participant's views.

### ***Post-Data Collection***

A higher degree of confidentiality was maintained after the data collection. Transcription was done in the researcher's study room. The anonymity of participants was maintained by masking their names in the data. In order not to reveal the participant's identity, alternative numbers or code names for each of the participants were coined, for example, TPf1, TPm2, TPf3 for teacher female participant 1, teacher male participant 2, teacher female participant 3 and so on. The code names were provided for each school, namely, D1S1HSS for district 1, school 1, higher secondary school; D2S1HSS for district 2, school 1, higher secondary school; D1S1MSS for district 1, school 1, middle secondary school and so on. Follow-up information was provided for interested participants. The researcher ensured that the sensitive documents were kept under lock and key and that they would remain so for five years and then destroy thereafter (Creswell, 2003).

In summary, the second section provided the deliberations on sampling and the participant sample surrounding quantitative and qualitative research methods. An introductory data analysis process was also highlighted for both quantitative and

qualitative research. The section ended with a discussion on actions undertaken to address the ethical issues of the research.

### ***Conclusion***

One of the important components of the research process is the research sampling method. The authenticity of the research findings solely relies on the type of sampling techniques employed. Inappropriate sampling may lead to false knowledge claims. There are different sampling methods that researchers can use to choose the samples, depending on the time, resources and accessibility available to the researchers. For this study, convenience and volunteer samplings were used. A total of 202 participants comprising 101 males and females each from the 22 schools participated in the survey research. However, due to data misfits only 165 participants were considered for the group data analysis. For the interview, a total of 12 participants (one male and one female each from LSS, MSS, HSS at each location) participated from the total of 165 samples. While undertaking the data collection process, ethical issues were observed as per the mandates of the UNE HDR Ethical Committee.

## **Chapter Conclusion**

This research is a mixed methods study that encompasses both QUAN and QUAL aspects of research. Mixed methods research consolidates the strengths and dispels the weaknesses of quantitative and qualitative research approaches (Creswell & Clark, 2011, 2017). It is a holistic approach and focuses on ‘what works best’ for the research question. In effect, this mixed methods research aligns with the pragmatic worldview, meaning the research explored different approaches to address the research question. This paradigm mutually combines the strengths and weaknesses of post-positivist and constructivist worldviews, focuses on the practical issues of the problem

under study and employs suitable methods, designs, tools and other approaches to answer the research questions.

A mixed methods study is built on five major research designs: convergent parallel, explanatory sequential, exploratory sequential, embedded and transformative and multiphase (Creswell & Clark, 2011, 2017). The intent for this research was to employ a convergent parallel design, where both QUAN and QUAL data were gathered simultaneously. Observing data reliability and validity and other quality checks and controls promises quality research outcomes. In this study, the reliability and validity of the survey data were achieved by undertaking a test on Rasch model software through the use of Winsteps software and the Leximancer text-mining software.

One pertinent component of research is research sampling. A flawed choice of sampling may lead to a false research output. Understanding an appropriate sampling method may provide accuracy of research sampling and sample choices. Convenience and volunteer sampling methods were employed for this study. Similarly, ethical issues surrounding the research undertaking are as important as considering the other components of the research process. The research code of conduct should be observed from the start of the research (e.g., choosing the topic) through to the ending, reporting and interpreting of the research findings.

# **Chapter Five**

## **A Rasch Analysis of Survey Instruments**

### **Introduction**

This chapter presents information on the data screening, rationale, instrument validation and use of Rasch analysis regarding the continuous variables of GNHVITAL, SR, ISS, ESS and TAGC in the cross-sectional survey data. Data screening was undertaken using SPSS Version 24. Rasch analysis modelling was helpful for providing validation of the instruments.

There are three sections in this chapter. The first section provides a description of the procedures employed while undertaking data screening and preliminary analyses, the second section provides a discussion surrounding the rationale for the use of the Rasch analysis model and the third section presents information on validation of the survey instruments.

### **Data Screening and Preliminary Analysis**

A total of 67 survey questions were used that asked respondents to rate their answers using a 6-point Likert scale from “very strongly disagree” to “very strongly agree” without any neutral point. The neutral point was intentionally excluded to compel participants to choose on either the “agree side” or the “disagree side” of the scale. These survey questions were designed to collect data on four dimensions: Gross National Happiness Values Integrated Teaching and Learning (GNHVITAL), interpersonal relationships (IPR) comprising Internal Support System (ISS) and External Support System (ESS), school resources (SR) and teachers’ attitudes towards the GNH-Infused Curriculum (TAGC).

The survey contained both positively ( $n=55$ ) and negatively worded questions ( $n=12$ ). This process was undertaken in an attempt to improve the attention given by participants to each question (Bailey, 2004; Cooksey & McDonald, 2010; Salazar, 2015). However, the eventual aim was to reverse the coding for these negatively worded questions when undertaking statistical analyses using Winsteps and SPSS before performing any psychometric tests.

### ***Demographic Information***

The survey was initiated in the secondary schools of Thimphu and Samtse districts, Bhutan. Of the 13 secondary schools in Samtse district, five schools did not have a reliable internet connection and consequently these schools could not participate in the online survey. However, data were collected from one of these five schools during a field visit (on-site survey). Of the 23 secondary schools in Thimphu, nine secondary schools did not provide access and permission to collect data from the teachers. None of the six private schools in Thimphu participated in the survey. A combined total of 22 secondary schools from Thimphu and Samtse participated in the survey, which accounted for a response rate of 61% of all schools. The survey respondents were government school teachers from seven Lower Secondary Schools (LSS), ten Middle Secondary Schools (MSS) and five Higher Secondary Schools (HSS<sup>14</sup>). The survey responses from Thimphu district comprised four LSS, eight MSS and two HSS, and the responses from Samtse district encompassed three LSS, two MSS and three HSS. The demographic features of the survey respondents are shown in Table 5.1.

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<sup>14</sup> LSS means Lower Secondary School. MSS means Middle Secondary School. HSS Means Higher Secondary School

Table 5.1. The demographic features of survey respondents

<b>Demographic Characteristics</b>	<b>Sub-groups</b>	<b>Frequency</b>	<b>Percentage</b>
District	Thimphu	85	51.5
	Samtse	80	48.5
Gender	Males	76	46.1
	Females	89	53.9
Age	Less than 5 years	38	23
	6 - 10 years	50	30.3
	11 - 15 years	33	20
	16 - 20 years	21	12.7
	21 years and above	23	13.9
School Category	LSS	49	29.7
	MSS	65	39.4
	HSS	51	30.9
Day or Boarding system	Day	124	75.2
	Boarding	41	24.8
Location	Remote	17	10.3
	Semi-urban	64	38.8
	Urban	84	50.9
Qualification	PTC/ZTC/Dip	15	9.1
	Bachelors	89	53.9
	Masters	44	26.7
	Any Other	17	10.3
Teaching experience	Less than 5 years	38	23.0
	6 - 10 years	50	30.3
	11 - 15 years	33	20.0
	16 - 20 years	21	12.7
	21 years and above	23	13.9

*Note.* The data contained in Table 5.1 provide the descriptive statistics of the demographic characteristics of four teacher characteristics (second, third, seventh and eighth rows) and four school characteristics (first, fourth, fifth and sixth rows).

### ***Data Cleaning and Achieving Unidimensionality***

The data recorded in the Qualtrics files were downloaded into the data analysis software package Statistical Package for Social Sciences (SPSS). A total of 207 teachers from 22 schools from Thimphu and Samtse districts responded to the survey titled “GNH-Infused Curriculum Survey”. There were 134 online and 73 on-site participants. Of the 207 respondents, eight returned the questionnaires with some missing data. The online survey participants were requested to complete the questionnaires; however, one participant did not respond. At the conclusion of the data collection phase, one online and four hard copy data sources were excluded from the

final computation and statistical analysis as the data contained missing information. A total of 202 responses comprising 101 females and males each (134 online and 68 hard copies) comprised the data for analysis of survey items.

To reiterate, as mentioned in Chapter Four, the survey data were analysed using statistical software Winsteps (3.92.1) and QUEST for the Rasch model and Statistical Package for the Social Science (SPSS, Version 24) for data cleaning and group analyses. Both Winsteps and QUEST produced similar graphical outputs; however, the scale, case/item and threshold input scores were all derived from Winsteps. Only item fit maps of the scales were migrated from QUEST.

Winsteps is one of the most used software programmes for analysing unidimensional data (Linacre, 2008, 2012, 2016, 2006). Analysis showed that one fifth of the data were deficits (abnormality or misfits), which if not corrected would have resulted in biased data interpretation and unreliable results at the end. Two possible reasons could be that the survey instruments were designed and used for the first time in data collection, and because some test items were negatively worded, which was noted in the previous section under the heading Data Screening. To clarify this latter point, the negative wording was included to test the idea about negatively worded questions, despite the fact that some literature, for example, Bond and Fox (Bond & Fox, 2007, 2015), found that there were gaps between the point-measure correlation scores of negatively worded items and positively worded test items that caused confusion and subsequent measurement disturbances.

However, one of the means of correcting the data misfits without deleting the test items was achieved by collapsing the response grouping into fewer manageable categories (Bond & Fox, 2007, 2015). The previously designed 6-point survey response categories were collapsed to a 4-point response without any neutral point using

Winsteps Version 3.92.1 and SPSS Version 24. New category labels 1, 2, 3, 4 from strongly disagree to strongly agree label descriptions were allocated. Responses from the original categories 1 and 2 (very strongly disagree and strongly disagree) were collapsed to a new category label 1 (strongly disagree); responses from the old category label 3 (disagree) were put into a new category label 2 (disagree); responses from the original category label 4 (agree) were allocated to a new category label 3 (agree); and the responses from the original categories 5 and 6 (strongly agree and very strongly agree) were collapsed in to a new category label 4 (strongly agree).

Evaluation of whether the data fit the Rasch model to a reasonable level was necessary (Bond & Fox, 2007, 2015; Drouin et al., 2011). Unlike classical test theory, the Rasch analysis model requires the data to achieve case and item reliability, separation indices and internal validity. Achieving *unidimensionality* is important for reliable results and replicability of the data in future research. The new sets of data were used to determine whether any further data inconsistencies existed. The collapsed data revealed very strong item and case reliability; however, the data produced weak construct validity.

The data were normalised by excluding six items from the GNHVITAL domain, one item from the SR domain, six items from the interpersonal relationships (IPR) domain and two items from the teachers' attitude towards the GNH-Infused Curriculum (TAGC) domain. However, due to some problems with the unidimensionality and construct validity, the IPR dimension was further bifurcated into two domains, namely, the internal support system (ISS) and the external support system (ESS). The ISS comprised five items and the ESS comprised seven survey items, which are shown in Table 5.2. Each of these new domains achieved unidimensionality and internal validity of the data, which happened to align with the theoretical background and conceptual

framework of the study surrounding the support parameter (i.e., the third part of the ETLS model discussed in Chapter Three). Drouin et al.(2011, p. 547) indicated that “if the items are not measuring the same latent trait (as indicated by Rasch fit statistics) they need to either be eliminated or modified to better fit the model”. A total of 52 test items were considered for the final survey data analysis. In sum, 15 items were eliminated to better fit the Rasch model. The deleted and selected items are shown in Table 5.2.

Table 5.2. Details of deleted and selected items of various scales

<b>Dimension</b>	<b>Deleted items</b>	<b>Final selected items for analysis</b>
GNHVITAL	3, 4, 6, 10, 16, 20	1, 2, 5, 7, 8, 9, 11, 12, 13, 14, 15, 17, 18, 19
SR	6	1, 2, 3, 4, 5, 7, 8, 9
ISS	17	2, 3, 4, 16, 18
ESS	1, 5, 6, 12, 15	7, 8, 9, 10, 11, 13, 14
TAGC	1, 12	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20
<b>Total</b>	<b>15 items</b>	<b>52 items</b>

*Note.* Of the 202 participants, a total of 165 responses were considered for the final case score analysis. The extreme case outliers were excluded from the final data analysis on SPSS (24), which is discussed in Chapter Six.

In summary, the section on data screening and preliminary analysis provided discussion about the Likert scale, survey dimensions, demographic information, data cleaning and achieving data unidimensionality. A 6-point Likert scale labelled from “very strongly disagree” to “very strongly agree” was the instrument used to gather the data concerning the survey dimensions, namely, Gross National Happiness Values Integrated Teaching and Learning (GNHVITAL), interpersonal relationships (IPR), school resources (SR) and teachers’ attitude towards GNH-Infused Curriculum (TAGC) scales. Data were collected from 22 secondary government schools comprising LSS, MSS and HSS from Thimphu and Samtse districts. The demographic characteristics of gender, age, qualification, experience, school category, type of school, location and district were considered while collecting data from the

participants. The data cleaning was administered using quantitative data analysis software (i.e., SPSS). The data were analysed using Winsteps Version 3.92.1 and SPSS Version 24. The data unidimensionality was achieved using a Rasch measurement scale, which is inbuilt in the Winsteps software. The misfit test items were rectified by first collapsing the survey scales to a 4-point Likert scale labelled from “strongly disagree” to “strongly agree” without any neutral point. The misfit items were removed from the group before undertaking statistical analyses (details of data misfits are explained in the following sub-topic, Validation of Survey Instruments).

### ***Conclusion***

Prior to undertaking research involving a survey, it is important to consider appropriate survey instruments, measurement scale and demographic features. This study initially employed a 6-point Likert scale: however, due to the observation of data misfits and reliability issues, the data were collapsed to a 4-point scale, which is explained under the next sub-topic Validation of Survey Instruments and in Chapter Six.

The survey instruments also contained negatively worded questions with the intention of reducing “donkey” or biased responses from the respondents. The use of negative test items was attempted to minimise acquiescence bias (Nunnally, 1978), which may occur when the respondents agree with the statements without considering the actual content of the item or by adopting an automated response pattern (Salazar, 2015). However, after attempting to enact this process it was discovered that this approach affected the internal consistency of the scales. The preliminary analysis showed the problem of data misfits with the negatively worded questions even when the scores were reversed before undertaking the data analysis. Those deleted data misfit

items as discussed in the previous section and shown in Table 5.2 were mostly related to the negatively worded items.

Demographic characteristics assist the researcher to become more aware of the holistic information pertaining to the research question. The level of GNHVITAL implementation and other survey scales (SR, IPR and TAGC) across different teacher and school characteristics were ascertained. Furthermore, undertaking data reliability and validity checks are paramount prior to initiating statistical tests. For this study, Rasch measurement software Winsteps was used to determine the construct validity and internal reliability of the data. When the reliability thresholds were met, the SPSS software was used to undertake a further analysis of variance concerning the case scores and demographic characteristics using, for example, analyses of multivariate data (MANOVA) and regression tests.

### **Rationale for using the Rasch Model**

In 1950, Georg Rasch (1901–1980) contemplated the basic principles of analysing test data that he encountered during his consulting practice with his students (Linacre, 2008, 2012). It was observed that the real-world problems were solved by scientific laws. However, Rasch discovered that in an actual sense, scientific laws do not exactly predict the world but are only an approximate. Nonetheless, to solve practical problems, approximate solutions are usually effective enough (Linacre, 2008, 2012). Rasch emulated the success of the physical sciences by establishing regularities or discovering scientific laws and then applying them to psychological and probabilistic data. He critiqued that classical test theory and statistics in general are conducted as if everything in the world is ordered, arranged and determined. Such an approach to test methods is false and illusive (Linacre, 2008, 2012), as the world is filled with randomness and chance. Time and chances are everywhere (Linacre, 2008, 2012).

Instead of spending time by attempting to deal with the error associated with randomness, Rasch took the approach that randomness could be accounted for statistically. For example, a random behaviour can be observed when a crowd watching the ball in a tennis match decides whether the ball is out or in when the tennis ball lands near a line. Some people may say that the ball is in the court and some consider the ball is outside the line. The closer the ball is to the line, the less agreement amongst the crowd and vice versa. Perhaps the crowd watching the tennis match is split about 50:50 when the ball is too close to the line. Georg Rasch took insight from and capitalised on such random behaviour in the world (i.e., the closer to the line, the more disagreement among the crowd). It was not a chaotic randomness but a controlled randomness that Georg Rasch saw (Bond & Fox, 2007, 2015; Linacre, 2008, 2012) that could be used to construct a measurement. In terms of a tennis ball, a measurement could be constructed based on how much disagreement there is amongst the crowd, which would indicate how far the ball is from the line (Linacre, 2008, 2012).

Rasch measurements take random behaviours of the world that people observe and transform them from randomness into structures and linear measures of distance (Bond & Fox, 2007, 2015; Linacre, 2008, 2012). Rasch's emphasis is on structured randomness. The easiest way to think about the world is in terms of a straight line – unidimensional variables. The premise of the Rasch measurement is that the entirety of the universe can be conceptualised as unidimensional variables; that is, many variables called 'latent traits' lining up in many different directions but explaining everything. The task is to investigate these variables one at a time because that is the easiest way to study them. A fundamental rule in science is one thing at a time (Linacre, 2008, 2012). If a scientific experiment is conducted, it is organised in such a way that only one variable is changing at a time. When two, three or more variables are used at once,

these variables interact and the people who conduct the experiment become confused and, consequently, progress stops (Linacre, 2008, 2012).

As alluded to in the preceding paragraph, the world is conceptualised in terms of unidimensional variables (Linacre, 2008, 2012). The convenient way to use this concept is as straight lines marked out in equal intervals – linear measures. With this linear approach, information such as what is close together, what is far apart, inferences from distances, comparison of distances, what is expected, what is not expected, what is known and what is not known are ascertained. However, when something is discovered that is too predictable, for example in the previous example of tennis if too many agreements are for a ball that is “in”, then there is a concern that the randomness of the data is lost. There must be some other variables or something else must be intervening to make the data too predictable. Therefore, in any measurement system, it is important to ascertain what is known and identify what is unknown, thereby leading to the development of new and better ways of thinking about a world of developing theory. This way of observing the “truths out there” in the world is what the Rasch model aims to clarify. Miller (2001, p. 103) put forward that “Rasch Scaling is based on item response theory (IRT)” where the measurement of a case ability and an item difficulty on the specified construct are independent from each other. In other words, the estimates of case ability and item difficulty are scored separately on a logit scale measuring both dichotomous and polytomous data.

Similarly, the fundamental theory of measurement is based upon the notion of having certain properties in terms of small or large objects, strong or weak persons or entities and so on (Linacre, 2012). For instance, the person’s ability can only be measured by observing his or her actions. In social science, for example in education, there is an interest in measuring the hidden aspects or the latent traits of educational

phenomena. The testing of new instruments to measure an underlying phenomenon is paramount and, in effect, there is a quest to ascertain the observable features of the educational environment, such as Educating for GNH (EGNH) via the GNH-Infused Curriculum (GNHIC). In addition, it is necessary to address whether such instruments can achieve similar results in a different educational setting that is intended to measure similar aspects of properties. Both observable and hidden features are measured on the premise that any trait or ability can be mapped onto the continuum and divided into equal units with either a greater or smaller point of origin, which involves the use of numbers (Hardy, 2011). In other words, both observable and hidden characteristics can be measured by placing them on the Rasch measurement scale and calibrating them in logits with equal intervals. More discussion of measuring latent traits and its reliability and construct validity are provided in the following two sub-sections.

### ***Measurement of Latent Traits***

To have a meaningful measurement, there must be an agreement about the units used (logits) and the starting point for trait measurement. For measurement purposes, a numerical label is assigned based on the number of counts of the observed events. These labels indicate the numerical link between the observed events (Hardy, 2011). For example, in this study, a 4-point Likert scale was considered for the final analysis of the data with the response options of ‘strongly disagree’ (SD), ‘disagree’ (D), ‘agree’ (A) and ‘strongly agree’ (SA). Each response category is assigned a value of 1 for SD, 2 for D, 3 for A and 4 for SA. The total scores for each test item are considered to be a reliable pointer for measuring the hidden traits and endorsability of respondents (van Alphen, Halfens, Hasman, & Imbos, 1994).

However, this way of assigning the numerical value to the survey response option is quite arbitrary. The respondent may experience difficulty in choosing

response options such as ‘disagree’ from ‘agree’ or ‘strongly agree’ or vice versa. For instance, a respondent who chooses the ‘strongly agree’ response category for all four test items has a total score four times greater than the other respondents who select the ‘strongly disagree’ response option for the same four test items (Bond & Fox, 2007, 2015). In addition, such numerical value labelling against each response category does not necessarily reveal the magnitude of variation in the respondent’s latent trait or ability. A case in point is that in the Rasch model, ordinal observations are expressed as interval scores. The Rasch model (Winsteps 3.92.1) considers the threshold scores as one of the determining factors for ascertaining the data fit and achieving the construct validity.

### ***Importance of Reliability and Construct Validity Tests***

The reliability and construct validity tests for a measurement instrument attempt to expose the degree of variation in the respondent’s latent trait or ability and the item appropriations. Reliability ensures a test instrument functions consistently between and within the samples. It investigates aspects of correlation, variation and error within and between the respondent groups (Hardy, 2011). In contrast, validity seeks to confirm that an instrument actually measures what it is intended to measure (DeVellis, 2006; Hardy, 2011). The reliability (internal consistency) and construct validity (internal validity) are achieved by using the Rasch measurement scale. Assessing whether data fit the Rasch model is necessary.

On the other hand, appraising unidimensionality or construct validity should be viewed on a scale range of more to less that is one-dimensional, because a multidimensionality approach can distort the understanding of person or item measures (Drouin et al., 2011; Smith, 2002). It is important to conduct parametric or non-parametric statistical analyses only after the completion of reliability and construct

validity tests for all the survey instruments that best fit the Rasch measurement model. For this research, person and item fit indices, reliability and separation indices, item difficulty comparisons, item thresholds and internal validity underpinned the determination of unidimensionality, data precision and data replicability.

The Rasch model provides detailed diagnostic information and could reveal the hidden aspects of the data. Curtis and Boman (2007, pp. 249-257) claimed that Rasch is advantageous:

to view data at macro- or scale-level, meso- or item- and person-level, and the micro- or threshold-level in order to generate a complete understanding of how well an instrument is working and to identify modifications that might improve the measurement properties of the instrument.

The information provided at each of these three levels validates the test or survey instruments.

In summary, this section presented information on the rationale for using the Rasch model and discussed the premise and ways of undertaking Rasch measurements. A brief discussion about latent traits measurement and the importance of reliability and construct validity tests was also provided in this section.

### ***Conclusion***

Understanding the background study and rationale for using the Rasch measurement scale enables the researchers to initiate an effective statistical test. The mathematical processes employed by the Rasch model leads to the calculation of the latent traits of the data and insists on unidimensionality, data precision and data replicability. Both person and item reliability and the construct validity of instruments can be achieved by undertaking a Rasch analysis using software such as Winsteps and QUEST. The data can be diagnosed via the three levels of scale, item and person, and

threshold. These diagnostic levels are discussed in the following section and sub-sections.

## **Validation of Survey Instruments**

Rasch analyses were initiated on all five survey dimensions (GNHVITAL, SR, ISS, ESS and TAGC). The results for the scales were generated using Winsteps Version 3.92.1 and QUEST software. The QUEST software was operated by the Rasch analyst and expert. The results from the application of both software programmes were compatible and produced the same graphical outputs. The validation of survey instruments was undertaken at three tiers: the *macro* or scale level, the *meso* or item level and the *micro* or threshold level.

### ***The Macro Level: The Scale***

At macro level, the scale measurement was undertaken to determine the internal consistency of person and items. Unlike Cronbach's alpha (indicator of internal consistency of a set of test items), Rasch analyses produce various indicators to measure the scale. Rasch takes into account not only the consistency of items but also the consistency of a person's responses to a set of items. The respondent's responses decide the item difficulty and person's abilities, which are placed on a common measurement scale.

The GNHVITAL domain revealed a person or case reliability alpha of .80 based on 191 measured (non-extreme<sup>15</sup>) persons. The item reliability was .96 based on 14 measured (non-extreme) items. Negative point-biserials were eliminated as they demonstrated off-dimension characteristics that did not correspond to the construct validity. The SR domain showed a person reliability of .69 based on 197 measured

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<sup>15</sup> Non-extreme scores refer to those scores that were within the bandwidth of Rasch reliability and construct validity scores. The extreme scores from both top and bottom cases were removed for reliable data analysis.

(non-extreme) persons and an item reliability of .97 based on 8 items (non-extreme) items. The SR person reliability was less than the minimum cutoff value by .01(.70 minus .69); nevertheless, the lower acceptable limit may be reduced to a lower limit ( $\alpha=.60$ ) if the test items were self-designed (Cooksey, 2007, p. 299). Similarly, the ISS had a person reliability of .79 based on 185 measured (non-extreme) persons and an item reliability of .97 based on 5 measured (non-extreme) items. The ESS had a .89 logit person reliability (based on 190 non-extreme person scores) and a .90 item reliability (based on 7 non-extreme item scores). The TAGC domain had a person reliability of .79 based on 201 non-extreme persons and an item reliability of .98 based on 18 non-extreme items. These figures indicate a good internal consistency between the survey item scores and the person responses. Reliability alpha values of .70 and above are considered acceptable, alpha values of .80 and above are considered to demonstrate good reliability and alpha values of .90 and above are considered to indicate excellent reliability (Drouin et al., 2011; Duncan, Bode, Lai, & Perera, 2003; Linacre, 2002, 2012, 2016, 2006; Manning & Munro, 2007).

Another evaluation of person and item reliability is gained using the Rasch separation indices. Curtis and Boman (2007, p. 251) supported that:

The consistency with which individuals provide information about the difficulties of items that form the scale is reflected in the item separation index; the consistency with which individuals are placed on the scale by the items in the instrument is reflected in the person separation index.

The GNHVITAL scale showed good separation statistics (2.03) for person estimate and excellent separation (5.18) for the item estimate. Separation reliability from 1.50–1.99 is considered acceptable, from 2.00–2.99 is considered good and 3 and above is

considered excellent (Drouin et al., 2011; Duncan et al., 2003). The SR scale showed separation statistics for both person and item values of 1.50 and 6.18, respectively.

Table 5.3 shows the separation statistics of ISS, ESS and TAGC, which all scored both good and excellent separation reliabilities.

Table 5.3. The parametric scores of five survey dimensions

Parameters	Scales/Dimensions				
	GNHVITAL	SR	ISS	ESS	TAGC
Item Mean	.00	-.01	.00	.00	-.01
Item SD	.69	.61	.77	.46	.73
Item Separation	5.18	6.18	5.89	3.05	7.44
Item Reliability	.96	.97	.97	.90	.98
Case Mean	1.83	.79	1.62	.95	1.10
Case SD	1.73	.89	1.93	2.57	.75
Case Separation	2.03	1.50	1.97	2.92	1.91
Case Reliability	.80	.69	.79	.89	.79
Internal Validity	14/14	8/8	5/5	7/7	16/18
Cronbach's Alpha (Internal Consistency)	.89	.68	.83	.92	.76

*Note.* Items means are at zero or less because the Rasch model considers scores only within the acceptable logits and if the mean is zero that is interpreted as the items being equally divided into 50% of item difficulty, which is good for the measurement and data replicability. By default, the item mean is set at 0.0 logits, which indicates a well-targeted construct. The person mean score should be near 0 or +1 logits to determine well-targeted instruments (Drouin et al., 2011; Duncan et al., 2003). Ideally, a well-targeted instrument would have a mean score of 0.0 logit and standard deviation of 1 logit on the Rasch measurement scale.

Some understanding of the value of mean scores by both items and persons is needed. The distance between the item mean score and person mean score indicates the targeting of instruments for a sample. If the person mean score lies within 0.5 logits of the origin (0.0 logit) or is located approximately at +1 logit, the measurement is effective/appropriate. Curtis and Boman (2007, p. 252) claimed that “when the person mean was more than 1.0 logits from the origin, measurement was compromised”. For GNHVITAL, TAGC and ISS domains, the person mean scores were 1.83, 1.10 and 1.62, which could indicate that either the scales were not well targeted, the test items were comparatively easy as more respondents endorsed these scales/agreed to these

item scales or the persons were well spread across these item scales. To reiterate, a well-targeted instrument would have a mean score of 0 and standard deviation of +1 logit on the Rasch measurement scale. However, it is not uncommon to find that about 90% of person scores for well-targeted instruments ranges from -3 to +3 logits, which is a common distribution pattern (Curtis & Boman, 2007).

### ***The Meso Level: Items and Person***

Examining Infit Mean Square or IMS (the information weighted index) and Outfit Mean Square or OMS (the unweighted index) statistics help to ascertain the *inlier* and *outlier* mean square patterns, which are sensitive to the erratic responses of person on item difficulty and person's ability.

The ideal *infit* and *outfit* mean-square cutoff value ranges from .70 to 1.30. Values greater than 1.30 are termed *underfitting* and those values less than .70 are termed *overfitting* (Bond & Fox, 2007), noting that a perfect MNSQ value is 1 (Bond & Fox, 2007, 2015; Drouin et al., 2011, p. 547). The infit and outfit mean-square scores for both persons and items for the GNHVITAL dimension were 1.01 and 1.0, respectively, which are within the ideal MNSQ band widths (Bond & Fox, 2007) and the perfect MNSQ fit value of 1 (Drouin et al., 2011). The infit mean-square values of TAGC, SR, ISS and ESS are provided in Table 5.4 and are all within the cutoff values. There were no underfitting, noisy, muted and overfitting or too predictable scores from the final 52 test items. There is a strong fit and the data are within the cutoff values, thereby achieving a 96% to 100% internal validity.

Table 5.4. Person and item infit mean squares for the five survey scales

SCALE	PERSON INFIT		ITEM INFIT	
	MNSQ	ZSTD	MNSQ	ZSTD
GNHVITAL	1.01	.0	1.01	.0
SR	1.04	-.1	.98	-.2
ISS	1.01	-.1	.99	-.1
ESS	.98	-.2	.99	-.1
TAGC	1.09	.0	.97	-.2

*Note.* Wu and Adams (2007, p. 80) underscored that “when the data fit the model, we expect the fit mean-square to be close to one”. To ascertain “how close to one is close enough” the variation of the MNSQ needs to be known.

The asymptotic variance of the fit MNSQ is provided by  $2/N$  (where  $N$  stands for the sample size of respondents), which means that for a smaller sample, more items fluctuate around the logit “1” though the items fit the Rasch model (Wu & Adams, 2007). Fit maps of all the survey domains are shown in Figures 5.1, 5.2, 5.3, 5.4 and 5.5. The fit MNSQ values for all the survey scales are within the bandwidths of .70 to 1.30, achieving strong internal validity or construct validity of data.

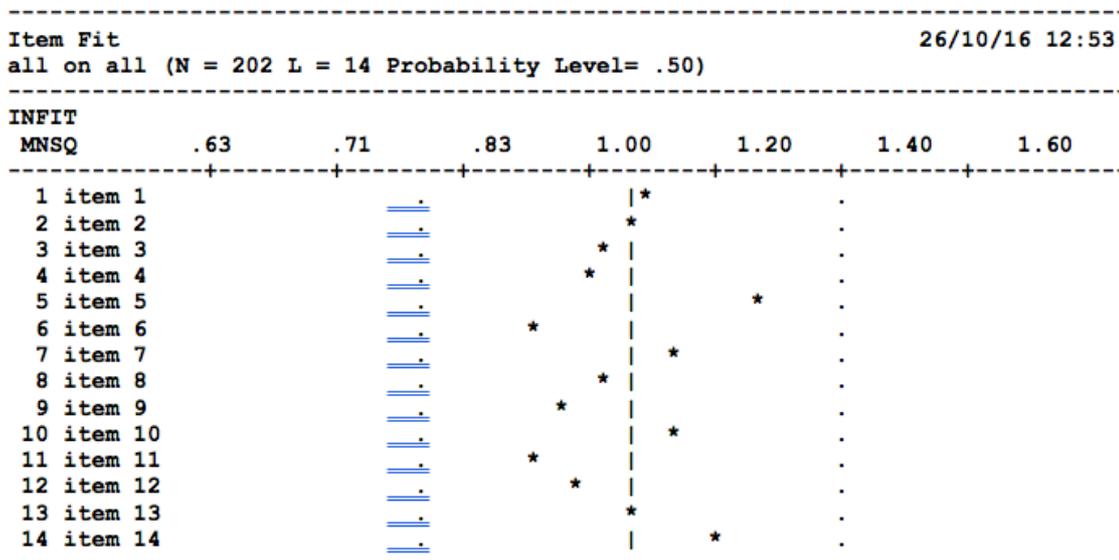


Figure 5.1. Item fit map for GNHVITAL scale showing strong results for internal validity.

*Note.* This map was migrated from the QUEST software as Winsteps does not facilitate such a map, which provides whole information at a glance.

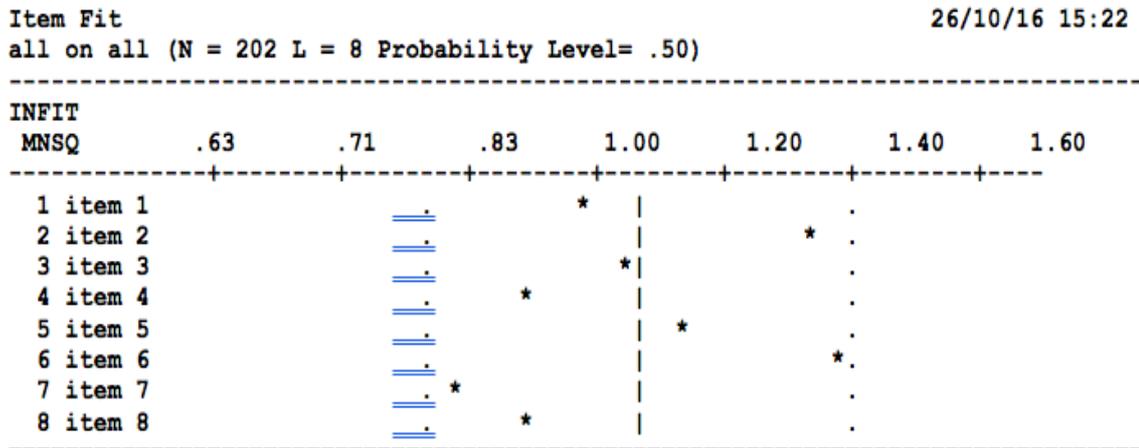


Figure 5.2. Item fit map for SR scale showing strong results for internal validity.  
*Note.* This map was migrated from the QUEST software as Winsteps does not facilitate such a map, which provides whole information at a glance.

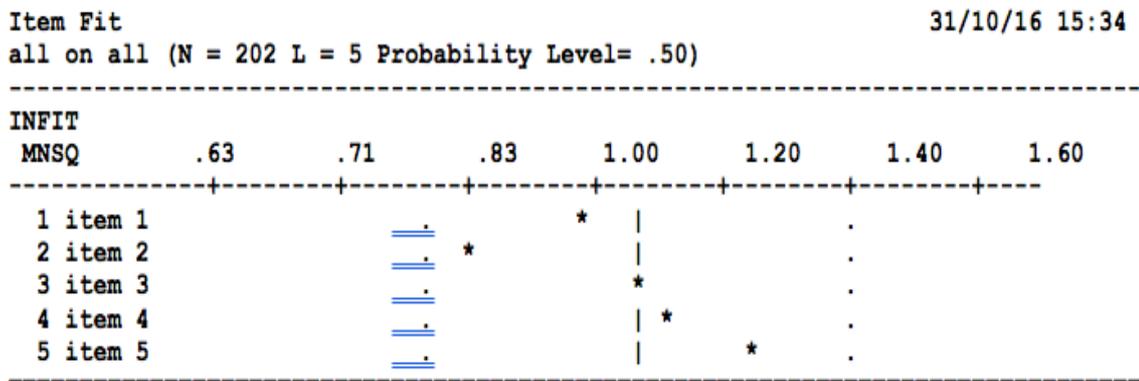


Figure 5.3. Item fit map for ISS scale showing strong results for internal validity.  
*Note.* This map was migrated from the QUEST software as Winsteps does not facilitate such a map, which provides whole information at a glance.

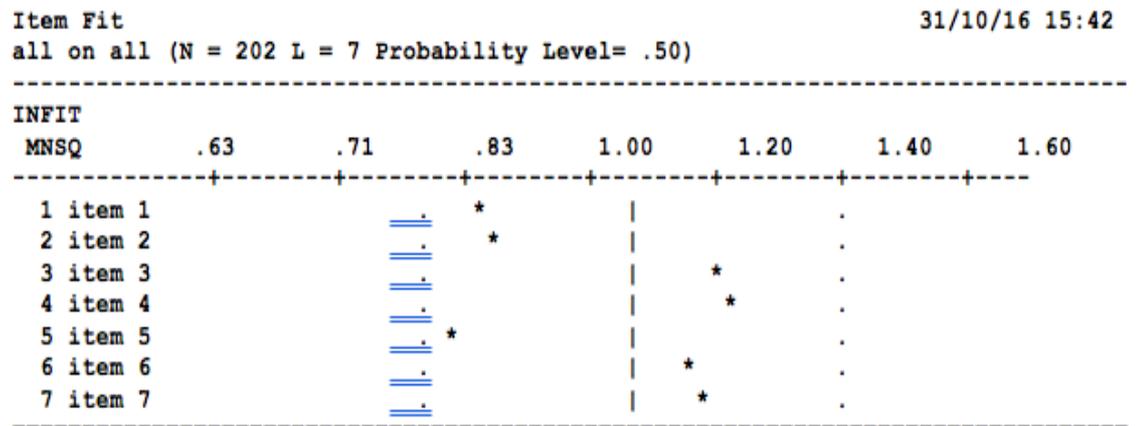


Figure 5.4. Item fit map for ESS scale showing strong results for internal validity.  
*Note.* This map was migrated from the QUEST software as Winsteps does not facilitate such a map, which provides whole information at a glance.

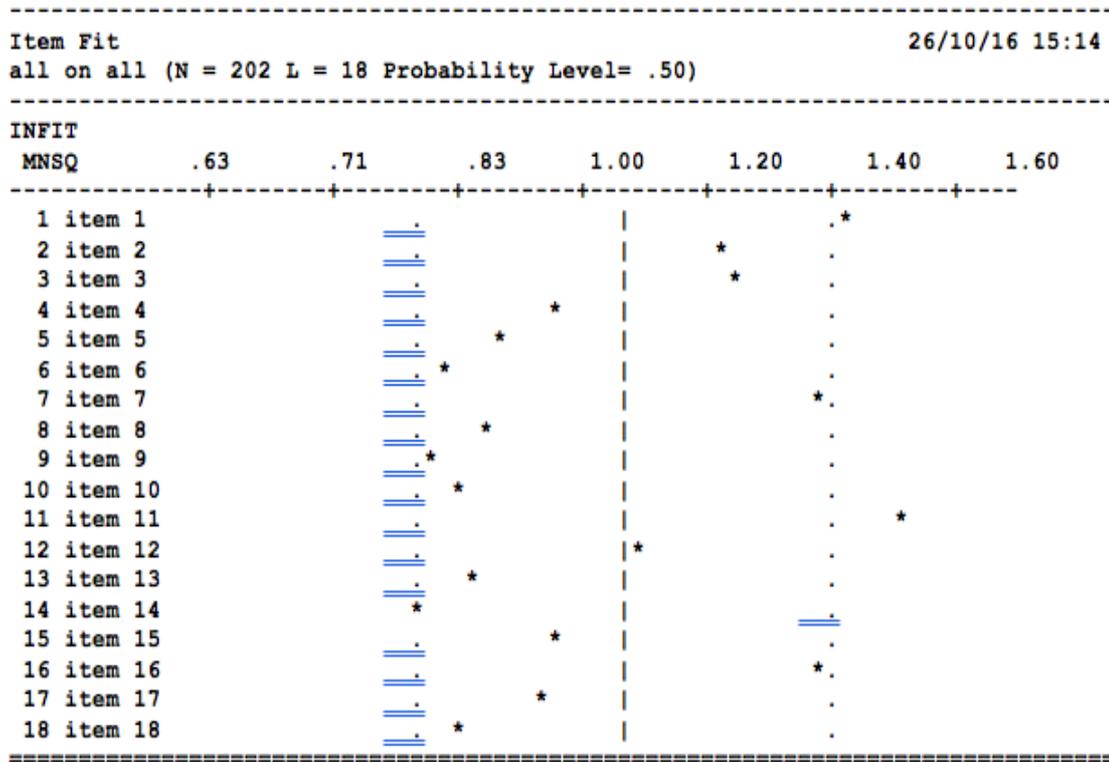


Figure 5.5. Item fit map for TAGC scale showing strong results for internal validity. Note. This map was migrated from the QUEST software as Winsteps does not facilitate such a map, which provides whole information at a glance.

It is also important to understand the correlation between the item responses and the measures of the people who made those responses. The theory is that “higher responses values to any item imply higher person measures and vice versa” (Bond & Fox, 2007, p. 6 Tutorial Chapter 6). Item correlations are used to gain an understanding of whether the response level scores make sense and whether the items are discriminating for better autonomy. An error may have occurred (either in an MCQ miskey or reversed survey item) if the observed correlations are in negative point-measure (Linacre, 2002, 2008, 2012, 2016, 2006), as the item correlations from Rasch should be in positive point-measure. The response point measurement correlation values for the GNHVITAL scale ranged from .54 to .69, which are all above the 0.3 cutoff value, indicating strong correlations between the item responses and the measures of the people. The correlation scores for the other four survey domains were all positive values and above the conventional rules of .30 or .40 values. Item autonomy

was achieved for all the data (no item overlaps), which is evident from the item difficulty analysis reported in Chapter Six.

However, correlations in general conventional rules are not so easy to interpret, because they are influenced by predictability of the data, targeting of the item on the person sample and distribution of the person sample (Jaspen, 1946; Linacre, 2002; Olsson, Drasgow, & Dorans, 1982). The predictability of the data is the main concern in Rasch analysis; it is examined directly using the mean-square fit statistics (fit of the responses to the Rasch model) rather than inadvertently via the correlations. Unlike the classical (raw score) test theory, the size of the correlation is less important than the fit of the responses as indicated by the MNSQ fit statistics (Jaspen, 1946; Linacre, 2002; Olsson et al., 1982). Both correlation and MNSQ fit statistics are shown in Table 5.4. All the survey domains accomplished ideal MNSQ fit statistics, which were displayed in Table 5.4 on page 143.

In summary, according to Wu and Adams (2007, p. 69), an item that is “working well” in an instrument may have the following characteristics:

- The (classical test theory) discrimination index is high, say above 0.4.
- The fit mean square index is close to one.
- The point-biserial correlation increases with increasing score. For the highest score category, the point-biserial correlation should be positive.
- The average measure increases with an increasing score.
- The observed item characteristic curve is close to the theoretical ideal curve.

### ***The Micro Level: Threshold/Category***

Adequate category frequency, monotonicity of average measures, threshold calibrations and category fit statistics are important features that need to be considered at the micro level to ascertain a reliable and valid category rating scale. The sample

output for all the well-functioning 4-category rating scales (the summaries of structures) are shown in Tables 5.5, 5.6, 5.7, 5.8 and 5.9.

Table 5.5. Summary of category structure for GNHVITAL scale

CATEGORY LABEL	SCORE	OBSERVED COUNT	OBSVD %	SAMPLE AVRGE	EXPECT	INFINIT MNSQ	OUTFIT MNSQ	STRUCTURE	CATEGORY MEASURE
1	1	59	2	.11	-.11	1.17	1.31	NONE	( -2.62)   1 SD
2	2	265	10	.46	.52	.95	.97	-1.31	- .89   2 D
3	3	922	34	1.39	1.41	.96	.94	-.31	.77   3 A
4	4	1428	53	2.80	2.79	.99	.99	1.62	( 2.82)   4 SA

Note: Observed average is mean of measures in category. It is not a parameter estimate.

Table 5.6. Summary of category structure for SR scale

CATEGORY LABEL	SCORE	OBSERVED COUNT	OBSVD %	SAMPLE AVRGE	EXPECT	INFINIT MNSQ	OUTFIT MNSQ	STRUCTURE	CATEGORY MEASURE
1	1	147	9	-.48	-.57	1.12	1.23	NONE	( -2.28)   1 SD
2	2	262	17	.00	.06	.91	.89	-.83	- .78   2 D
3	3	640	41	.72	.74	.91	.90	-.50	.61   3 A
4	4	527	33	1.63	1.60	1.02	1.06	1.33	( 2.54)   4 SA

Note: Observed average is mean of measures in category. It is not a parameter estimate.

Table 5.7. Summary of category structure for ISS scale

CATEGORY LABEL	SCORE	OBSERVED COUNT	OBSVD %	SAMPLE AVRGE	EXPECT	INFINIT MNSQ	OUTFIT MNSQ	STRUCTURE	CATEGORY MEASURE
1	1	31	3	-1.61	-2.16	1.54	1.91	NONE	( -4.07)   1 SD
2	2	147	16	-.75	-.47	.74	.71	-2.91	-1.72   2 D
3	3	464	50	1.85	1.79	.95	.95	-.52	1.47   3 A
4	4	283	31	3.96	3.98	1.03	1.00	3.43	( 4.55)   4 SA

Note: Observed average is mean of measures in category. It is not a parameter estimate.

Table 5.8. Summary of category structure for ESS scale

CATEGORY LABEL	SCORE	OBSERVED COUNT	OBSVD %	SAMPLE AVRGE	EXPECT	INFINIT MNSQ	OUTFIT MNSQ	STRUCTURE	CATEGORY MEASURE
1	1	55	4	-3.12	-3.23	1.18	1.18	NONE	( -5.16)   1 SD
2	2	380	29	-.91	-.88	.97	.95	-4.05	-2.07   2 D
3	3	667	50	1.79	1.79	.93	.90	-.08	2.03   3 A
4	4	228	17	4.29	4.28	1.02	.99	4.13	( 5.24)   4 SA

Note: Observed average is mean of measures in category. It is not a parameter estimate.

Table 5.9. Summary of category structure for TAGC scale

CATEGORY	OBSERVED	OBSVD	SAMPLE	INFINIT	OUTFIT	STRUCTURE	CATEGORY			
LABEL	SCORE	COUNT	%	AVRGE	EXPECT	MNSQ	MNSQ	CALIBRATN	MEASURE	
<u>1</u>	1	245	7	-.09	-.29	1.20	1.22	NONE	( -2.18)	1 SD
<u>2</u>	2	474	13	.19	.23	.94	.91	-.70	-.73	2 D
<u>3</u>	3	1363	38	.82	.91	1.03	.87	-.50	.57	3 A
<u>4</u>	4	1536	42	1.82	1.76	.95	1.07	1.20	( 2.42)	4 SA

Note: Observed average is mean of measures in category. It is not a parameter estimate.

On examining the category use statistics (Table 5.5 to Table 5.9) the scores concerning the ‘category frequencies’ and ‘average measures’ were revealed. The number of observed responses per category level are provided for categories levels 1, 2, 3 and 4. The category frequencies (i.e., the observed count) have a minimum of more than 10 responses in each category, which is the minimum count required for each level to be eligible for a well-functioning category rating scale or for undertaking Rasch statistical testing (Bond & Fox, 2007, 2015). Similarly, the average measures indicated by the scores reflected under the “Category Measure” row increased *monotonically*<sup>16</sup> across all four response categories. For example, in case of the GNHVITAL scale, the average measure for category 1 is -2.62 (i.e., the average agreeability estimate for the persons endorsing response option 1 across any item is -2.62 logits). For all persons who answered 2 on any item, the average estimate is -.89 (i.e., these persons are more agreeable on average than the persons who answered category 1). These average measures function as expected (i.e., they increase monotonically,  $-2.62 < -.89 < +.77 < +2.82$ , across the rating scale response categories 1, 2, 3, 4). The monotonic increase of average measures indicates that those survey respondents who had “higher/stronger attitudes endorse progressively higher categories, whereas those with lower abilities/weaker attitudes endorse progressively lower categories” (Bond & Fox, 2015,

<sup>16</sup> **Mathematics** (of a function or quantity) varying in such a way that it either never decreases or never increases (Apple, 2017).

p. 249). Similarly, the other four scales, namely, SR, ISS, ESS and TAGC, showed the same monotonic increase of average measures from the most able person to the least able person scores across all the rating scales (strongly disagree to strongly agree).

Threshold (or step) calibrations for well-functioning 4-category rating scale (for the GNHVITAL scale) revealed that the average Rasch Andrich thresholds were monotonically ordered (i.e., - 1.31, - 0.31 and 1.62 for the 4-category rating scale). Bond and Fox (2015, p. 250) claimed that “Guidelines recommend that thresholds should increase by at least 1.4 logits to show empirical distinction between categories but not more than 5 logits so as to avoid large gaps in the variable”. The threshold estimates (Table 5.5, structure calibration column) show that the GNHVITAL rating scale meets these criteria (i.e., a:  $-1.31 < 10.31 < +1.62$  and b:  $-1.31$  to  $-0.31 = +1$  logit;  $-0.31$  to  $+1.62 = +1.32$  logits).

However, there is a logit difference between threshold 1 and 2 of 0.4 logit (expected score divided by actual score, i.e., 1–1.4 bandwidth). However, the GNHVITAL has perfect threshold fit MNSQ and the individual item discrimination or item difficulty range is within the logits expected by the Rasch model. In other words, *fit statistics* is another criterion used to assess the quality rating scale. If the outfit mean square is greater than 2 logits, there will be more misinformation than information (Bond & Fox, 2007, 2015; Linacre, 2002, 2008, 2012, 2016, 2006). The data in Table 5.5 show that the outfit mean squares of all four category levels are under the criterion of mean square statistic less than 2.0 (Bond & Fox, 2007, 2015; Linacre, 2002, 2008, 2012, 2016, 2006), thereby indicating that the rating scale used was accurately measuring the construct under study.

One of the ways to inspect the distinctions between thresholds is by examining the probability curves. These curves show the probability of providing a response to

any category, “given the difference in estimates between any person ability and any item difficulty” (Bond & Fox, 2015, p. 251). The category characteristic curve for the GNVITAL scale in Figure 5.6 reveals that the thresholds are well estimated, ordered and evenly distributed. A distinct peak should be observed with every response category in the probability curve graph, indicating that each peak is “the most probable response category for some portion of the measured variable” (Bond & Fox, 2015, p. 250). Bond and Fox (2015) maintain that:

Categories observed to be ‘flat’ on the graph might be useful as long as they span a large portion of the variable. If, however, these flat categories are overshadowed and made redundant by other categories, they might not aid in defining a distinct point on the variable. Problematic thresholds – those that are disordered or too close – will show up on the graph, often as flattered probability curves spanning small sections of the measured variable. (p. 250)

The graph in Figure 5.6 provides information on the probability of responding to any particular category, given the difference in estimates between any person ability and item difficulty. The threshold estimates in Table 5.5 correspond to the intersections of the rating scale category curves in Figure 5.6, which is the point at which there is an equal probability (50:50 likelihood) of choosing either of two adjacent response category options. For instance, the first threshold in Table 5.5 is -1.31. A vertical line drawn from the intersection of the 1 and 2 probability curves in Figure 5.6 intersects with the x-axis at -1.31. Similarly, other intersections for thresholds 2 and 3, and 3 and 4 are observed as per the figures provided in Table 5.5 accordingly. The estimates for each threshold represent a distinct and separate point on the measured variable, and

each response category is the most probable response category for some of the continuum.

The category characteristic curves for the SR, ISS, ESS and TAGC are shown in Appendices A, B, C, D. The curves all display the expected features/outlook of the Rasch model.

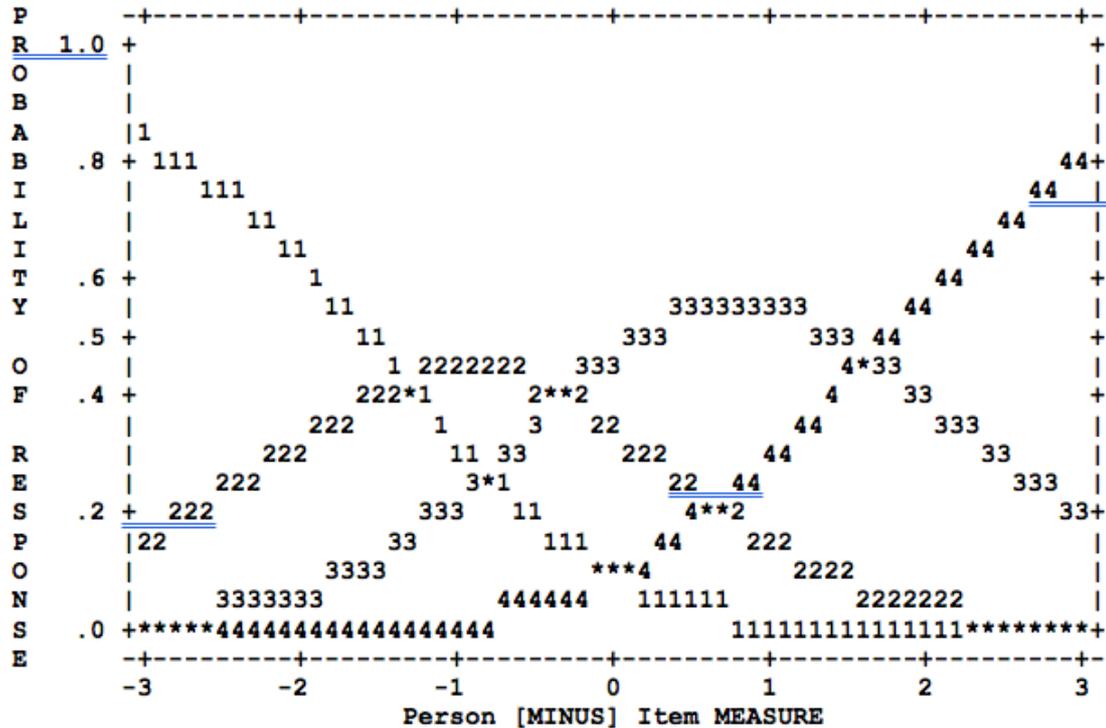


Figure 5.6. Category characteristic curves (category probabilities) for the GNHVITAL scale.

*Note.* This graph shows Andrich thresholds at the intersections.

In summary, the rating scale diagnostics discussed in the previous four paragraphs included category frequencies, average measures, threshold estimates, category curves and category fit statistics. In other words, the instruments were validated through three tiers, namely, macro level (scale), meso level (items and person fit) and micro level (threshold or category levels). These diagnostics should be used in combination (Bond & Fox, 2015) to derive a clearer meaning from the measure. Of specific note is that all these diagnostics tell the same stories in different ways.

## ***Conclusion***

It is paramount to validate the survey instruments prior to conducting any statistical testing. The validation of survey instruments is possible using Rasch embedded software. Ideally, the instruments are validated at three tiers, the macro, meso and micro levels (Curtis & Boman, 2007). At the macro or scale level, the reliability and validity of the data are ascertained. At the meso or item/person level, data infit and misfits are revealed to decide which items or cases are underfitting or overfitting. The correlations amongst items or persons are also observed from these item and person statistics. At the micro or threshold level, adequate category frequency, monotonicity of average measures, threshold calibrations and category fit statistics are analysed to expose the well-functioning category rating scale. These three levels of validation of instruments should be used complementarily to derive a logical conclusion about the reliability and validity of the data.

## **Chapter Conclusion**

This chapter provided a discussion on data screening, preliminary analyses, the rationale for the use of the Rasch analysis model and the validation of survey instruments. It is important to initiate a preliminary analysis before venturing into the main statistical analyses. Survey research entails detailed information concerning survey instruments, measurement scale and demographic features before undertaking any further research. A 6-point Likert scale was adapted to a 4-point scale due to the observation of data abnormality. The survey instruments contained both positively and negatively worded questions, which were originally designed intentionally to minimise the acquiescence bias and adoption of an automated response pattern or to guard against the possibility of laziness from respondents. The negatively worded item scores were reversed to maintain the uniformity of the response pattern before undertaking

analysis. The demographic characteristics ascertained holistic information pertaining to the research question. The level of GNHVITAL implementation and other survey scales (SR, IPR and TAGC) across different teacher and school characteristics were revealed in the chapter.

The preliminary analyses and survey instruments validation were undertaken using Rasch analysis software such as Winsteps (3.92.1). The items were strongly correlated and showed an interrelationship with the case scores. All the scales had reliability indices above .70 and validity scores of above 98%. The item and person infit mean squares were all within the acceptable range from .70 to 1.30 (Bond & Fox, 2015). The threshold infit and outfit mean squares for item response categories from one to four were within the range of .70 to 1.30. The category measures ranged from -2 to +2, which were within the expected bandwidth. The category characteristic curve showed that thresholds were evenly distributed amongst the items of all the individual scales. The results generated by each of the three tiers of data validation proved that the data were reliable, valid, unidimensional and thus usable for undertaking the item difficulty analyses and other necessary statistical tests. The next chapter provides subsequent multivariate analyses of the quantitative data using the case input data from Winsteps, which confirmed the construct validity of all the survey questionnaires. The extreme case scores were removed from the data to ascertain the valid detecting of statistical differences between the grouping variables.

## **Chapter Six**

### **Survey Data Analysis**

#### **Introduction**

The construct validity of the instrument was established in the previous chapter. Furthermore, case estimates as a measure of respondents' level of agreeability to the GNH-Infused Curriculum (GNHIC) was undertaken.

This chapter presents the final part of the quantitative data analysis using the relevant statistical tests based on the validated case and item scores. The information provided in this chapter attempts to answer the overarching research question: To what extent is the intended GNH-Infused Curriculum being taught effectively in the secondary schools of Thimphu and Samtse districts, Bhutan?

Several research sub-questions were designed to support the main research question. Discussions of each of the research sub-questions based on the relevant statistical analyses are presented in five sections.

The first section provides a discussion about the sub-question: What levels of GNHVITAL, SR, ISS, ESS and TAGC scales have been implemented by the secondary school teachers of Thimphu and Samtse districts, Bhutan?

The second section provides a discussion of the second research sub-question: Does the extent of implementation of the GNH-Infused Curriculum in the secondary schools of Thimphu and Samtse districts vary across the teacher characteristics (age, gender, qualification and number of years in service)? The third section provides information concerning the third research sub-question: Does the extent of implementation of the GNH-Infused Curriculum in the secondary schools of Thimphu and Samtse districts vary across the school characteristics (district, location, category of school and day or boarding school)? The fourth section puts forward an analysis

surrounding the relationship between GNVITAL, SR, ISS, ESS and TAGC scales in terms of overall implementation of the GNHIC in the secondary schools involved in this study, which addresses the fourth sub-question: Is there a relationship between the GNVITAL, SR, ISS, ESS and TAGC scales in terms of overall implementation of the GNHIC in secondary schools?

The final section attempts to ascertain the predictability of SR, ESS, ISS and TAGC on the GNVITAL scale, and which of the variables are the most accurate or least accurate predictors of GNVITAL, thus providing relevant information about the final research sub-question: Do survey scales such as SR, ESS, ISS and TAGC and demographic variables predict the successful implementation of the GNH-Infused Curriculum as determined by the GNVITAL scale? Which variables are more accurate or less accurate predictors of GNVITAL?

### **Research sub-question 1: Levels of implementation of GNVITAL, SR, ISS, ESS and TAGC scales in the secondary schools of Thimphu and Samtse districts, Bhutan**

This first section provides an item difficulty analysis and person ability/agreeability analysis using the Rasch analysed item and case scores. The item analysis is based on the total sample of 202 responses. For person ability/agreeability analysis, all the case scores of 0.0 and -1.0 logits were deleted from the dataset as outliers (based on the Rasch analysis). Outliers affect subsequent analyses if they remain in the data set (Vine<sup>17</sup>, personal communication, April 11, 2017). A total of 37 persons were excluded (as they were outliers) from the total of 202 participants. The remaining 165 responses were considered for the SPSS statistical tests on the person score.

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<sup>17</sup> Dr Ken Vine is the Principal Researcher of SiMERR at UNE, Armidale, NSW, Australia. He is a recognised expert in Rasch modelling, SPSS and statistical testing.

This research sub-question has been addressed, firstly, by ascertaining the item difficulty analysis based on the level of most or least agreed to responses placed on the logits scale of item difficulties and, secondly, by understanding the person ability/level of agreeability to the response options on the same calibrated scale. Vine (personal communication, April 11, 2017) pointed out that:

A major advantage of the Rasch model is that it expresses item difficulty and person ability on the same underlying, equal interval scale in units of measurement termed logits. Winsteps is calibrated so that it locates the mean of the set of item difficulties at the mid-point of the scale, 0.0 logits.

A graphical description of the item and case scores is provided for each of the analyses.

### ***Item Score Analysis***

Under the Rasch model calibration process, items were arranged from the easiest (in negative scores) to the most difficult (in positive scores) on the scales of -5 to +5. In the current research context, item difficulty indicates the extent to which respondents selected various categories of the Likert scale (from very strongly disagree to very strongly agree). A high item difficulty score (greater than 0.0 logits) indicates that most respondents selected categories 1 and 2 (strongly disagree and disagree) more frequently than categories 3 and 4 (agree and strongly agree). Similarly, a low item difficulty score (less than 0.0 logits) indicates that most respondents selected categories 3 and 4 more frequently than categories 1 and 2. The graphic presentation is outlined in Figure 6.1 to clarify and provide a better understanding of measurement in the logits scale.

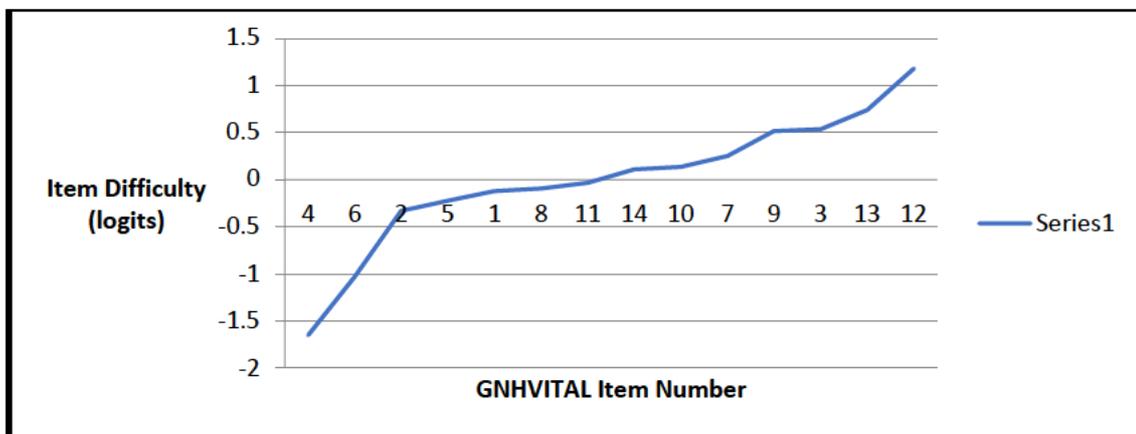


the most agreed items on the top to the most difficult or least agreed items at the bottom.

For ease of reporting the ensuing discussion, analysis is presented in terms of percentages, measure scores in logits, count agreed scores and raw score. The analysis is based on the data output from the Rasch analysis software, Winsteps Version 3.92.1.

### ***GNHVITAL item difficulty analysis***

Closer inspection of the GNHVITAL graph shown in Figure 6.2 demonstrates two extreme scores of the survey responses. Item 4 was the easiest and most endorsed or agreed to item from the total of 14 survey questions. Item 12 was the most difficult or the least agreed to item. If item scores fell below the 0.0 score of item difficulty logits, the survey questionnaires were generally easy to agree with by the respondents and vice versa (as shown in Figure 6.2).



*Figure 6.2.* GNHVITAL item difficulty hierarchy graph.

*Note.* A steady slope starting at the point -1.5 to positive 1.5 as shown in Figure 6.2 indicates the items are statistically similar. This means the GNHVITAL items are statistically different, thereby measuring the same construct, which is 14/14 (100%) internal validity and 96% internal consistency (Cronbach's alpha).

A total of 97% of the teachers agreed with Item 4 that teachers enter the class with prepared GNH lesson objectives. This endorsement clearly indicates that these teachers plan their lessons prior to teaching students in the classrooms, which is

fundamental for the effective implementation of the GNH-Infused Curriculum (DCRD, 2011). In other words, these teachers agreed that they teach learner-centred GNH lessons that are developed logically and systematically through interactive and collaborative teaching approaches (Item 6), which aligns with the constructivist teaching approach to learning and teaching.

Some of the most prominent GNHVITAL approaches incorporated by the secondary school teachers in Thimphu and Samtse districts while implementing the GNHIC were the GNH value laden lesson plans, activity-based learning, interdisciplinary GNH value integration, mindful practices, value identification, value referencing and value conversion (negative statements to the positive statements in the texts). The evidence shown in Table 6.1 following is also displayed in the form of a graphic presentation in Figure 6.2.

Analyses of the data show that teachers can experience difficulties when practising a guided silent reflection of GNH values, which occurs at the end of their lessons in the class. The level of difficulty reached 1.18 logit scores on the item difficulty scale, indicating that Item 12 was the least agreed item or the least implemented item (activity related to this Item 12) in the schools from which data were collected. Sixty-nine percent of secondary school teachers in Thimphu and Samtse districts agreed that they use a guided silent reflection of GNH values at the end of their class lessons (Item 12). However, based on the measure score (which is the key finding of the Rasch analysis model), teachers did not perform at all on this item (Item 12).

The scores about maintaining systematic records of student values development and providing feedback regularly to students also remained low. Other difficult-to-agree with test items are 14, 10, 7, 9, 3 and 13, which contained approaches such as making a values assessment record, spending more time on values lesson preparation and teaching GNH values through stories, fun and games. The increased level of difficulty required to practise these teaching approaches may have caused teachers to be reticent in the employment of these strategies. The large number of students involved and the vastness of the syllabus to be covered adds to the complexity and difficulty of instigating these approaches. The information presented in the previous paragraph is summarised in Table 6.1.

Table 6.1. The mean measure score of GNHVITAL survey items

SI#	Test Items with Original Serial Number before Deletion	Raw score	Measure Score	Count (Agreed)	Percent (%)
4	I enter the class with clear GNH lesson objectives to help students learn better.	728	-1.65	195/202	97
6	I try to develop a GNH lesson logically and systematically through an interactive and collaborative approach that ensures a learner-centred activity.	707	-1.03	193/202	96
2	I identify GNH values contained in the textbooks that can be transmitted through lesson topics.	673	-0.33	188/202	93
5	I start every class with a brief mind training session - meditation.	667	-0.22	184/202	91
1	While planning daily lessons I refer to the values listed under the nine domains of Gross National Happiness (GNH).	661	-0.12	183/202	91
8	I am aware there are a variety of strategies to teach GNH-Infused curriculum (Integrating GNH values into the existing school curriculum).	659	-0.09	178/202	88
11	I teach GNH values to my students through interdisciplinary integration (from one subject to another).	655	-0.03	189/202	94
14	The school assessment policy includes GNH value components and the students are provided feedback either written or verbally based on the assessment criteria, which is also recorded.	646	0.11	176/202	87
10	I change any content of the textbooks that has negative information into positive values statement before and while teaching a lesson concept.	644	0.14	181/202	90
7	I teach GNH values to my students by infusing through stories.	636	0.25	171/202	85
9	I teach GNH values to my students by infusing them through fun and games.	616	0.52	170/202	84
3	I spend more time since the introduction of GNH-Infused curriculum (Integrating GNH values into the curriculum) in preparing lessons so that it enables me to help students learn more in less time.	615	0.54	170/202	84
13	I maintain systematic records of student value development and regularly provide feedback.	599	0.74	159/202	79
12	I end every lesson with a guided silent reflection of GNH values learned in the class.	561	1.18	139/202	69

*Note.* In Table 6.1 there are fourteen items that represent the GNHVITAL scale. Of particular note are the numbers under the Measure Score column, which determine the level of agreeability against each survey question. The negative numbers indicate agreement with the item and positive numbers show disagreement with the survey items.

In summary, GNHVITAL survey items 4, 6, 2, 5, 1, 8 and 11 are high performing indicators of the test items, illustrating teachers' willingness and confidence to employ them. The GNHVITAL low performing items (difficulty) are 14, 10, 7, 9, 3, 13 and 12.

***School resources item difficulty analysis***

The school resources (SR) items are plotted on the scale of item difficulty logits with the origin of 0.0 in the centre of the measuring scale. Figure 6.3 shows that Item 1 is the easiest and Item 2 is the most difficult, with scores of -0.67 and 0.98 logits, respectively. Ninety-one percent of the teachers agreed that they choose relevant teaching materials to teach the GNHIC and substantiate the GNH values while teaching their daily lessons (Item 1). However, teachers also admitted that they did not receive sufficient teaching materials from the school to teach the GNHIC and supplement the GNH activities in the classrooms (Item 2). Forty-six percent of teachers indicated that they did receive enough teaching and learning materials (TLM) from the school. This figure is not sufficient for effective implementation of the GNHIC across all the schools.

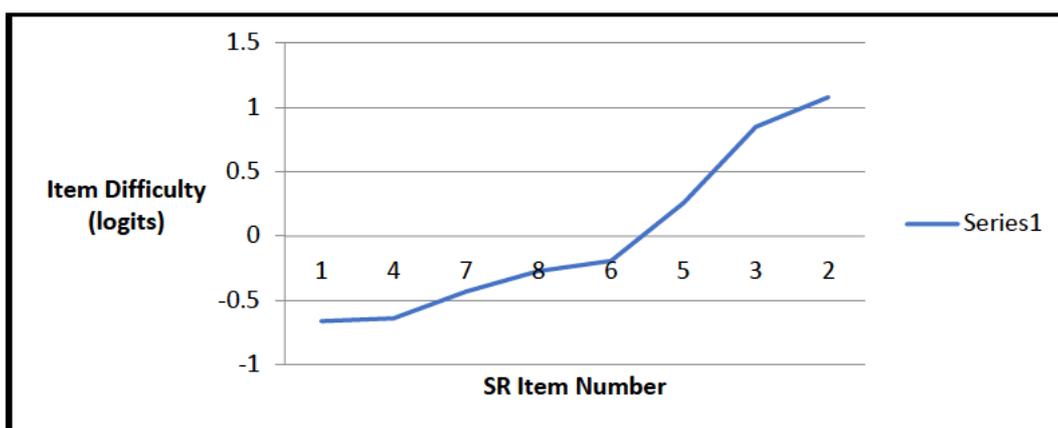


Figure 6.3. The SR item difficulty hierarchy graph.

Note. The GNHVITAL items measure the construct of the study, which comprise 8/8 (100%) internal validity and 68% internal consistency (Cronbach's alpha). However, minimum cutoff value for internal consistency is 0.70. According to Cooksey (2007, p. 299), because the survey items were self-designed, a little less than .70 is acceptable.

It should be noted that 89% of secondary school teachers in Samtse and Thimphu indicated that they teach in well-furnished classrooms (see SR Item 4 in Figure 6.3 and Table 6.2). Nevertheless, anecdotal observation of the classroom configuration seems to indicate they are not spacious and teachers may have difficulty moving freely around the classroom to individually assist students (as indicated by Item 3). Of interest, the teacher class ratios in secondary schools in Bhutan were 1:36 in 2013, 1:32 in 2014 and 1:40 in 2015 (AES, 2013, 2014, 2015) with secondary school rooms more crowded than their primary school counterparts (AES, 2015).

Table 6.2. The mean measure score of SR survey items

SI#	Test Items with Original Serial Number before Deletion	Raw Score	Measure score	Count (Agreed)	Percent (%)
1	I choose relevant teaching materials to substantiate GNH values.	657	-.66	183	91
4	I teach in classrooms that are equipped with furniture.	655	-.64	180	89
7	My school provides professional support services of teaching GNH-Infused curriculum (Integrating GNH values into the existing school curriculum).	636	-.43	170	84
8	My School library contains some books I have used based on values education and curriculum integration that may aid the successful teaching of GNH-Infused curriculum.	621	-.27	169	84
6	My school has a policy document supporting the educating for GNH in the school curriculum	613	-.19	166	82
5	I have an access to the teaching resource materials about how to integrate GNH values into the existing school curriculum.	564	.26	139	69
3	I teach in a spacious classroom that allows freedom to move around the classroom.	491	0.85	107	53
2	I receive enough teaching materials from the school to teach GNH-Infused curriculum.	462	1.08	93	46

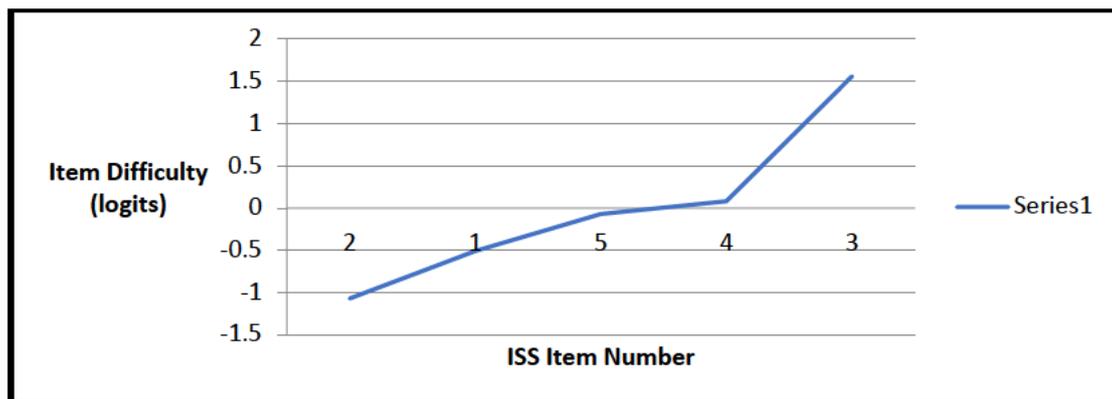
*Note.* In Table 6.2 there are eight items shown that represent the SR scale. The numbers under the Measure Score column determine the mean score of the survey items. The negative scores indicate high percentages of teachers agreeing to the survey items and the positive scores signal low percentages of teachers agreeing to the survey items.

From the information shown in the Table 6.2, it can be noted that in the pursuit of Educating for GNH (EGNH) and for the successful implementation of the Gross National Happiness-Infused Curriculum (GNHIC), attempts have been made by the schools to provide professional support services for teachers through school-based in-service programmes and by providing some GNH-related books in the school library (see Items 7 and 8). However, teachers do not seem to have good access to relevant

teaching resource materials, particularly about how to infuse GNH values into the existing curriculum content (see Item 5), though there are policy documents supporting the GNHIC (Item 6). The analysis of the data points to the fact that appropriate resource materials are a valuable investment for the progress towards the implementation of the GNHIC in schools.

***Internal support system item difficulty analysis***

This survey dimension examines the presence of internal support systems (ISS) in the sampled secondary schools. The item difficulty graph (Figure 6.4) indicates there are three easy and two difficult questions. Item 2 is the easiest and the most endorsed item, whereas Item 3 is the most difficult. There is a logit difference of 2.58 (1.56 minus -1.07) between the most difficult and easiest items.



*Figure 6.4.* ISS item difficulty hierarchy graph.

*Note.* The ISS items are statistically different, thereby measuring the same construct, which is 5/5 (100%) internal validity and 83% internal consistency (Cronbach’s alpha).

With regard to Figure 6.4, on the left-hand end of the item difficulty scale, Item 2 indicates teachers are very supportive but, on the other end of the graph, Item 3 shows that these same teachers do not find their colleagues regularly meeting to discuss how the GNHIC actually works in the classrooms. This result could be interpreted as ‘teachers are supportive but not effective’ in helping their colleagues integrate GNH

values into the existing curriculum texts or they do not know how to infuse the GNH values into the curriculum themselves.

Item 5 in Table 6.3 below shows there is support from the school leaders to integrate the GNH values into the school curriculum. In addition, Item 5 indicates that secondary schools in Thimphu and Samtse have policies supporting the implementation of GNHIC. Furthermore, in statistical terms, the number .08 as shown in the Measure Score column for Item 4 indicates that the school does not necessarily mandate teachers to undertake ‘team teaching’ for the successful teaching of GNH values to their students. Consequently, a regular scheduled meeting amongst teachers is not observed in the sampled schools as pointed out by Item 3.

Table 6.3. The mean measure score of ISS survey items

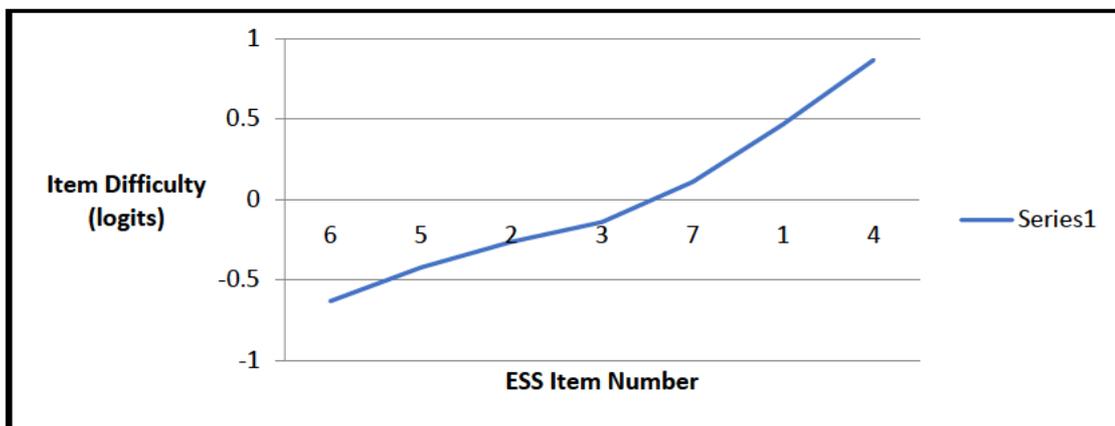
SI#	Test Items with Original Serial Number before Deletion	Raw Score	Measure Score	Count (Agreed)	Percent (%)
2	My teaching colleagues are supportive of integrating GNH values into the existing school curriculum.	619	-1.07	186	92.1
1	Supportive leadership exists in the school in which I teach that encourages the integration of GNH values into the existing school curriculum.	595	-.51	178	88.1
5	My school has a policy of teaching GNH values through a curriculum implementation.	575	-.07	170	84.1
4	My school requires 'team teaching' for the successful teaching of GNH values to students.	568	.08	169	83.7
3	I can see teachers meeting on a regular scheduled basis to discuss how GNH-Infused curriculum actually works in the classrooms.	492	1.56	124	61.4

*Note.* In Table 6.3 five items are shown that represent the ISS scale. The scores above 0.00 logits in the Measure Score column indicate the existence of internal support services in the schools, and the scores below the 0.00 logits indicate lesser or an absence of internal support services in the schools for the effective implementation of the GNHIC.

#### *External support system item difficulty analysis*

The external support system (ESS) domain is aimed at understanding the level of support the schools seek and receive from the concerned agencies that are directly or indirectly involved with implementing the GNHIC. In Figure 6.5, Item 6 is the easiest to agree with and the most agreed to item in the survey. Item 4 is the most difficult and the least agreed to item.

Schools do seek professional assistance from the Education Monitoring and Support Division (EMSD). A total of 154 respondents (76%) of the 202 sampled agreed that they receive support from the EMSD. Similarly, schools receive support services from the district education officials (DEO) or the town education officials (TEO); however, teachers ( $n=152$ ) claim that their schools do not seek help from the DEOs or TEOs, particularly in the area of implementing the GNHIC into schools (see Items 5 and 1, Figure 6.5 and Table 6.4).



*Figure 6.5.* ESS item difficulty hierarchy graph.

*Note.* The ESS items are statistically different, thereby measuring the same construct, which is 7/7 (100%) internal validity and 92% internal consistency (Cronbach's alpha).

Under the decentralised management policy, the schools are monitored by the DEOs /TEOs based on the school performance management system (PMS). These officers assess the schools twice a year based on the preset criteria provided by the EMSD. The DEOs/TEOs monitor the school through interviews and record checking a random selection of teachers, students and official files (EMSSD, 2013). After monitoring, reports are filed with the EMSD, which then analyses the reports and announces the 10 best performing schools. This mode of assessment could be counterproductive, because the schools receive their reports in the following year when information has become obsolete. The survey items and the measure scores are provided in Table 6.4.

Table 6.4. The mean measure score of ESS survey items

SI#	Test Items with Original Serial Number before Deletion	Raw Score	Measure Score	Count (Agreed)	Percent (%)
6	My school receives supports from EMSD, MoE in implementing GNH-Infused curriculum.	560	-.63	154	76
5	My school receives supports from the DEOs/TEOs in implementing GNH-Infused curriculum.	551	-.42	152	75
3	My school seeks a parental support in implementing GNH-Infused curriculum.	544	-.26	142	70
2	My school seeks support from the Education Monitoring Service Division (EMSD, MOE).	539	-.14	139	69
7	My school receives supports from DCRD (Royal Education Council) in implementing GNH-Infused curriculum.	528	.11	136	67
1	My school seeks help from the District /Thromdey Education Officers in implementing the GNH-Infused Curriculum.	512	.47	126	62
4	My school seeks support from the Colleges of Education, Royal University of Bhutan, in implementing GNH-Infused curriculum.	494	.87	109	54

*Note.* In Table 6.4, seven items are shown that represent the ESS scale. The highest score is Item 6 as opposed to the lowest score, which is Item 4.

The schools also seek parental support in implementing the GNHIC but the effectiveness of their support may need a thorough investigation as many of the parents are either half literate or illiterate. The International Monetary Fund reported an adult literacy rate of 53% in 2005 (IMF, 2010). However, the schools usually maintain a culture of conducting parent-teacher meetings at least once a year. During this meeting, the school informs the parents about the support required from them for their children and for the school (MoE, 2005).

Of note, one finding with regard to Item 4 as shown in Table 6.4 is that schools do not necessarily seem to solicit help from the teaching colleges under the Royal University of Bhutan. The teaching colleges of education (COE) train future teachers and in-service teachers through full-time and mixed mode study. Ignoring the advice of the most learned educators may hinder the effective implementation of the GNHIC in schools. According to the reports for Item 7, the schools receive little in the way of professional support services about the GNHVITAL and the GNHIC from the curriculum officials from the Royal Education Council (REC). REC is the most influential agent of the school as the REC frames the national school curriculum of

Bhutan. Disregarding the REC could impact on schools and the efficient implementation of the GNHIC.

**Teachers’ attitudes towards GNHIC item difficulty analysis**

The teachers’ attitudes towards the GNH-Infused Curriculum (TAGC) domain discusses the attitudes of teachers with regard to the enabling factors, namely, teaching approaches (GNHVITAL), teaching resources (SR), support services (ISS and ESS) and other input characteristics that would influence the effective implementation of the GNHIC in secondary schools. The most agreed to item plotted on the item difficulty graph (Figure 6.6) is Item 8, with a raw score of 738 and a measurement of -1.18. This item accounted for 96% of endorsement by the teachers. The surveyed teachers agreed that students become more respectful of Bhutanese social etiquettes (*Driglam Namzha*) if they have teachers who promote respect and embody what they preach.

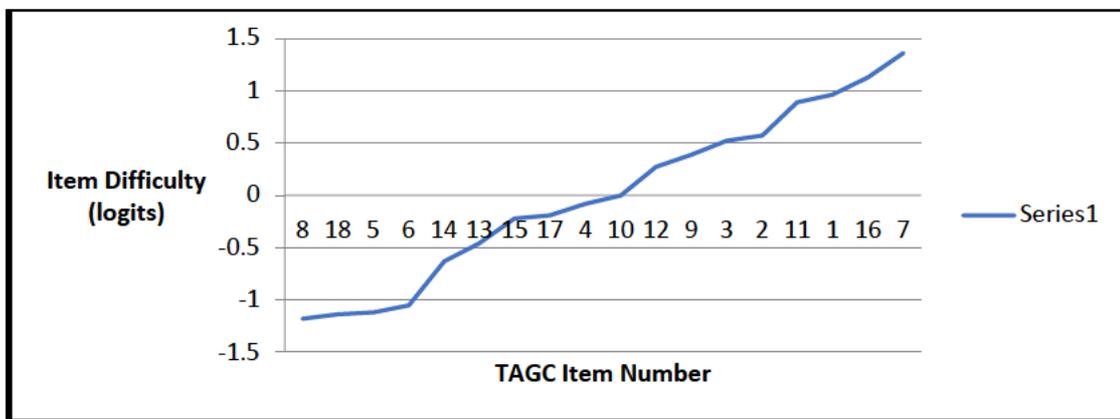


Figure 6.6. TAGC item difficulty hierarchy graph.

Note. The TAGC items are statistically different, thereby measuring the same construct, which is 16/18 (89%) internal validity and 76% internal consistency (Cronbach’s alpha).

The following discussion pertains to information contained in Figure 6.6 and the following Table 6.5. A total of 96% of the teachers agreed that the teacher ought to be a role model and embody the values that are being transmitted to students (see Item 5). This assumption means that for teachers to embody what they espouse is of paramount

importance when they teach GNH values to their students. This role modelling is part of the hidden curriculum in schools, which means that teachers need to be mindful of their actions. Teachers may need to be aware, embody what they preach and practise what they say to their learners.

However, Item 7 is the least agreed to item reported by the teachers, with 48% of them endorsing this item. These teachers said that understanding all GNH-related values is not crucial for the effective teaching of GNH values to students. Analysis of the survey information indicated that continuous professional development programmes about how to effectively implement the GNH-Infused Curriculum is necessary for students to achieve GNH values (Item 18). Instead of having to understand all the indicators of GNH and the multitude of values, 99% of teachers claimed that understanding of certain values, including seeking values clarification and gaining insight into one's own values, is essential for the culmination of Gross National Happiness (Item 6). Teachers also strongly agreed that school principals and vice principals need to support the implementation of the GNH-Infused Curriculum (Item 14). Having a school policy (Item 13) about the implementation of the GNHIC is also imperative if GNH values are to be taught successfully. Items 14 and 13 accounted for 96% and 95%, respectively, of participants' item endorsement.

Table 6.5. *The mean measure score of TAGC survey items*

SI#	Test Items with Original Serial Number before Deletion	Raw Score	Measure score	Count (Agreed)	Percent (%)
8	Students become more respectful of Bhutanese social etiquettes (Driglam Namzha) if they have teachers who promote respect and embody what they preach.	738	-1.18	195	96
18	Continuous professional development programmes for teachers about how to effectively implement GNH-Infused curriculum are necessary in order to achieve GNH values and principles by students.	736	-1.14	196	97
5	The teacher has to be a role model and embody the GNH values that are being transmitted to students.	735	-1.12	194	96
6	Understanding of certain GNH values, including seeking values clarifications and gaining insight into one's own values is essential towards the culmination of Gross National Happiness.	731	-1.05	200	99
14	Principal and Vice Principal's supports in GNH-Infused curriculum are imperative if GNH values are to be taught in the classrooms.	704	-.63	193	96
13	It is essential for my school to have policy of GNH-Infused curriculum if GNH values are to be taught successfully in the classrooms.	691	-.46	192	95
15	Integrating or infusing GNH values into the existing school curriculum has been the most appropriate approach to teaching values to students.	670	-.22	180	90
17	The GNH-Infused curriculum has the potential to improve students' academic achievements.	667	-.19	182	90
4	The changing negative statements contained in any prescribed texts to positive values statement is a useful approach to integrating GNH values into the existing school curriculum.	657	-.08	179	89
10	Students will practice GNH values more if there is weighting in the internal assessment of student's progress report card.	649	.00	161	80
12	Content of the text that I teach from needs to be revised so as to achieve GNH values via curriculum implementation.	620	.27	165	81
9	GNH values need to be assessed using formative assessment criteria.	605	.39	148	74
3	I would prefer to teach values education as a separate subject.	589	.52	137	68
2	GNH education may be taught as a separate subject	583	.57	137	68
11	The curriculum text that I use to teach has Bhutanese inspired values or GNH values.	540	.89	126	62
1	GNH education is as important as an academic education.	530	.96	124	62
16	Integration of GNH values into the existing school curriculum enhances the effectiveness of the teaching and learning process.	507	1.13	111	55
7	Having an understanding of all GNH related values is crucial for effective teaching of GNH values to students.	474	1.36	97	48

*Note.* In Table 6.5 there are 18 items that represent the TAGC scale. The highest score is Item 8 and the lowest agreed is Item 7. Of particular interest are the scores shown in the Measure Score column, which provide information about the level of participants' agreeability against each of the survey questions.

In addition, 89% of teachers endorsed the idea of changing negative statements contained in any prescribed texts to positive values statements while teaching GNH values to their students (Item 4). They also agreed that integrating or infusing GNH values into the existing school curriculum has been the most appropriate approach to teaching values to students (Item 15). However, this integrative approach to teaching values does not necessarily enhance the understanding about how to infuse GNH values across subjects and the effectiveness of the GNH teaching and learning process (as

indicated by Item 16). This issue may be compounded by a lack of appropriate teaching materials, teacher guidelines and professional programmes as indicated by Item 18 and the other least endorsed items of the SR, ISS, ESS and GNHVITAL domains. Though 90% of teachers agreed that the GNH-Infused Curriculum has the potential to improve students' academic achievements (Item 17), 38% of teachers still perceive that a GNH education is not as important as an academic education (Item 1).

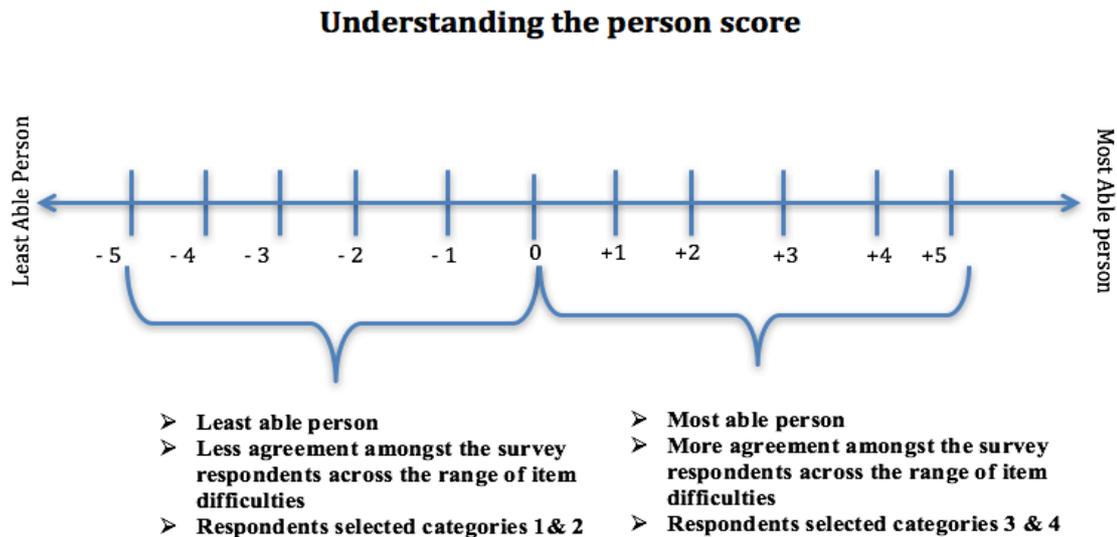
Item 10 sits on the item mean value of 0.0 logits, which is the reported user-set mean of item measures (UIMEAN), and therefore implies that the teachers are uncertain whether students will practise GNH values more if the questions are weighted in the internal assessment. However, 161 out of the 202 respondents agreed on this item. Teachers also did not favour using formative assessment to evaluate students' performances regarding GNH values (Item 9). Furthermore, the teachers claimed that the existing curriculum texts do not contain Bhutanese-inspired values or GNH values. The teachers do not prefer to teach values education as a separate subject (Items 2 and 3). This analysis of the data aligns with the findings of Jones (2009), as alluded to in Chapter 3 in relation to discourses found elsewhere, but especially in Australia's national values education policy.

Item 12 is greater than 0.0 logits (the point of origin for item difficulty separation) by 0.27, indicating that Item 12 is 27% more difficult for teachers to agree with than Item 10. Based on this result, teachers do not agree on whether content of the text needs to be revised to achieve GNH values via curriculum implementation.

### ***Person Score Analysis***

As described previously for item score analysis, a person score that has a case mean score below 0.00 logit indicates there are less or least able persons, indicating more respondents selected rating categories 1 and 2 (strongly disagree and disagree)

and vice versa. Since the mean scores were derived based on the interval scales, the *case (person) ability* analysis was undertaken to determine the implementation levels of case scores on each of the five scales. The interpretation of case scores is provided in Figure 6.7.



*Figure 6.7.* Understanding the person score.

*Note.* Categories are strongly agree (1), agree (2), disagree (3) and strongly disagree (4).

In the present context, person ability indicates the likelihood that a person would select higher categories than lower categories on the Likert scale for both “easy” and “hard” items. Hence, a high person ability score (greater than 0.0 logits) on the GNHVITAL scale indicates a respondent who selected categories 3 and 4 across the range of item difficulties. That person would be expected to use a wide range of GNHVITAL approaches to teaching the GNH-Infused Curriculum. In contrast, a low person ability score (less than 0.0 logits) on the GNHVITAL scale indicates a respondent who selected categories 1 and 2 across the range of item difficulties. That person would be expected to use a narrower range of GNHVITAL approaches to teaching the GNH-Infused Curriculum (Vine, personal communication, April 11, 2017).

### *Descriptive Statistics*

The descriptive statistics for the five survey scales were produced through the use of SPSS Version 24 statistical package and Winsteps Version 3.92.1, using the case input data from the Rasch analysed results. The descriptive figures are shown in Table 6.6.

Scale	Average		N	Average Category Measure				Remarks
	Case Score	Standard Deviation		Strongly Disagree	Disagree	Agree	Strongly Agree	
GNHVITAL	1.8798	1.22504	165	-2.62	-.89	.77	<b>2.82</b>	Strongly Agree
SR	.6832	.91878	165	-2.28	-.78	<b>.61</b>	2.54	Agree
ISS	1.7599	1.97565	165	-4.07	-1.72	<b>1.47</b>	4.55	Agree
ESS	.8945	2.33832	165	-5.16	-2.07	<b>2.03</b>	5.24	Agree
TAGC	1.0000	.71509	165	-2.42	-.73	<b>.57</b>	2.42	Agree

Table 6.6. *Descriptive statistics of five survey scales*

*Note.* Mean scores are displayed in logits based on the Rasch measurement scale. The mean values of GNHVITAL, SR, ESS, ISS and TAGC were all above the 0.00 logits on the Rasch measurement scale, indicating positive agreement by the respondents against each of the five scales.

The average score for the GNHVITAL scale as determined by the person measured score (1.88 logits) revealed that the level of GNHVITAL practices in the sampled schools is robust. This conclusion was obtained based on the average measure scores provided under each of the rating scale labels employed to collect the data. Closer examination of Table 6.6 confirmed that the average case score of 1.88 logits sat closer to 2.82 logits, which was the average score for the ‘strongly agree’ category. A person whose scale level was equal to 1.88 logits would be predicted to endorse / agree / answer correctly an item/stimulus at the “average” level of zero with a probability of  $.87$  ( $\exp^{18}(1.88) / [1 + \exp(1.88)] = 6.55 / 7.55 = .87$ ). It is concluded that the average GNHVITAL performances of the teachers in the sample schools is strong (with a

<sup>18</sup> ‘exp’ stands for exponent, e.g.,  $\text{Exp}(1.88)$  is 6.55.

probability of 87%). In other words, the case score analysis revealed that 87% of teachers implement the GNHVITAL approaches recommended by the Department of Curriculum and Research Development (DCRD, 2011).

Similarly, for the SR, ISS, ESS and TAGC scales, the average case mean scores were all closer to the scores under the 'agree' category, which indicated that in this study, on average, all persons agreed with each of the survey dimensions.

The SR scale has the lowest mean score and the GNHVITAL scale has the highest score, revealing that the sample of secondary school teachers do well in GNHVITAL approaches. Teachers of the sample secondary schools implement the GNHIC satisfactorily as determined by the GNHVITAL scale. These teachers also agreed that they have access to required support services both from the school and significant others for effective implementation of the GNHIC. Similarly, teachers in the sampled schools have a positive mindset about the implementation of the GNHIC in their schools.

The analysis was further expanded to ascertain a comprehensive understanding of the case of the taught GNH-Infused Curriculum implementation in the sample secondary schools. The in-depth statistical analyses were initiated to ascertain if there were any significant differences between the demographic variables (teacher and school characteristics) on the combined and individual scales. MANOVA, Pearson correlations and regression tests were performed on the demographic characteristics to obtain further information about the GNHIC implementation in the targeted secondary schools.

In summary, this section answered the first research sub-question by presenting item difficulty analyses and case descriptive statistics. The item analyses of

GNHVITAL, SR, ESS, ISS and TAGC were presented. In addition, the case scores of all five scales were reported.

### ***Conclusion***

The item difficulty analyses showed the item position level on the item difficulty graph. The least and most endorsed items were reported against each of the scales. The case descriptive statistics indicated that teachers performed well in GNHVITAL and SR scales compared to the ESS, ISS and TAGC scales. However, all case scores of these five scales were greater than 0.0 logits, indicating that an overall performance against each of the scales was positive. In other words, on average, teachers in the 22 sampled secondary schools initiated a successful infusion of GNH values into their daily teaching lessons and have access to the required resources and support services to aid them in the implementation of the GNHIC in schools. The teachers' attitudes towards the implementation of the GNHIC was positive.

### **Research sub-question 2: Level of implementation of GNHVITAL, SR, ISS, ESS and TAGC scales across the teacher characteristics**

The number of samples for between-subject factors was ascertained using the SPSS Version 24 software prior to conducting a one-way MANOVA and factorial MANOVA tests for the teacher characteristics. Table 6.7 provides the number of sample counts (N) in each of the groups.

Table 6.7. *Between-subject factors showing the value label and the sample figures*

<b>Variable</b>	<b>Code Number</b>	<b>Value Label</b>	<b>N</b>
Gender	1	Males	76
	2	Females	89
Qualification	1	PTC/ZTC/Diploma	15
	2	Bachelors	89
	3	Masters	44
	4	Any other	17
Age	1	Less than 25 years	13
	2	26 – 30 years	37
	3	31 – 35 years	46
	4	36 – 40 years	38
	5	41 years and above	31
Number of years of teaching	1	Less than 5 years	38
	2	6 – 10 years	50
	3	11 – 15 years	33
	4	16 – 20 years	21
	5	21 years and above	23

*Note.* The numbers to the right of column one are the input codes used on SPSS to undertake the data analysis on the teacher characteristics. The value labels in column three are the descriptions of each grouping variables.

### ***MANOVA Test***

The MANOVA test not only compares two or more groups in terms of their means on a group of dependent variables but also tests the null hypothesis that the population means on a set of dependent variables do not vary across different levels of a factor or grouping variable (Pallant, 2005). It needs to be noted, however, that MANOVA is sensitive to outliers. Undertaking a multivariate normality test prior to conducting the actual multivariate test is crucial to understanding the data normality. SPSS (24) was employed to calculate *Mahalanobis distances* using the regression menu for multivariate normality test. The Mahalanobis distance “is the distance of a particular case from the centroid of the remaining cases, where the centroid is the point created by the means of all the variables” (Pallant, 2005, p. 250). The residual statistics generated by SPSS provided the Mahalanobis distance value of 20.761. The Mohalanobis distance value was compared with the critical value to ascertain whether a case was an outlier. Different numbers of dependent variables have different critical

values. Since there were five dependent variables for this research, the critical value provided is 20.52 (Pallant, 2005). Pallant (2005, p. 251) put forward that the critical value is based on a critical values of chi-square table, with the total number of dependent variables as the degrees of freedom (df) value. The alpha value used was .001. Pallant (2005) also purports that if the value “is larger than the critical value”, there are “multivariate outliers” in the data file (Pallant, 2005, p. 151). The multivariate value (20.76) was slightly more than the critical value (20.52), which accounted for a difference of 0.24, suggesting the presence of multivariate outliers. On further investigation of the data, it was confirmed that case identification number (ID) 139 had values higher than the critical values, making it an outlier. However, since there was only one person who had values higher than the critical value and the score was within acceptable limits for inclusion (Pallant, 2005), the person was still considered for the multivariate analysis.

A one-way MANOVA was conducted because the factorial MANOVA did not generate the values for the multivariate tests and between-subject effects tests for the fourth factor, especially its interactions with other factors when there are more than three independent/fixed demographic variables. Each of the teacher and school characteristics has four independent variables. However, a factorial MANOVA was conducted for the selected demographic characteristics (age, gender and qualification for teacher characteristics and type of school, location and district for school characteristics).

#### ***One-way MANOVA comparing gender with all survey dimensions***

A one-way MANOVA was conducted using the five scales as dependent variables and teacher characteristics as the fixed factors. The Box’s Test of Equality of Covariance Matrices generated a significance value of 0.542. The test for the null

hypothesis to ascertain if the observed covariance matrices of the dependent variables were equal across groups showed that the significance value was larger than .001, indicating that there was no violation of assumption of equality of covariance. The Levene's Test of Equality of Error Variances revealed that none of the five dependent variables had significance values less than the cutoff value of 0.05, implying there was no violation of assumptions of equality of variance by any of the dependent variables (see Table 6.8). The SR variable was equal to or a little more than .05, but when the stringent cutoff value was reset to .01 (to avoid the Type 1 error), the SR variable did not violate the assumption of equality of variance.

Table 6.8. *Levene's Test of Equality of Error Variances*

	F	df1	df2	Significance (Sig)
GNHVITAL	2.627	1	163	.107
SR	3.793	1	163	.053
ESS	.434	1	163	.511
ISS	.376	1	163	.541
TAGC	.837	1	163	.362

*Note:* The linear combination of five dependent variables showed a set of multivariate tests for significance regarding gender.

Wilks' Lambda and other tests all showed the same value of .488, which was greater than .05; therefore, there was statistically no significant difference between males and females in terms of overall implementation of the GNHIC in the sample schools. The multivariate tests are shown in Table 6.9.

Table 6.9. *Multivariate tests*

	Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Gender	Pillai's Trace	.027	.891a	5.000	159.000	.488	.027
	Wilks' Lambda	.973	.891a	5.000	159.000	.488	.027
	Hotelling's Trace	.028	.891a	5.000	159.000	.488	.027
	Roy's Largest Trace	.028	.891a	5.000	159.000	.488	.027

*Note:* Wilks' Lamda (WL) test scores have been used to determine the MANOVA results:  $F(5,159)=.891$ ,  $p=.488$ ,  $\eta^2=.027$ ,  $WL=.973$ .

Tests of between-subject effects confirmed that there was no significant difference between the groups (males and females) on all the individual dependent variables. The values are interpreted in the same way as a normal one-way analysis of variance (ANOVA). The test results of between-subject effects are shown in Table 6.10.

Table 6.10. *Tests of between-subjects effects for gender*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Gender	GNHVITAL	.712	1	.712	.473	.493	.003
	SR	1.610	1	1.610	1.918	.168	.012
	ESS	1.027	1	1.027	.187	.666	.001
	ISS	.688	1	.688	.175	.676	.001
	TAGC	.205	1	.205	.400	.528	.002

*Note.* The results generated would be the same if a one-way ANOVA test was initiated for each of the dependent variables; however, there would be a high chance of committing a Type 1 error. If there are more dependent variables, a MANOVA would be the reliable test choice.

The analyses provided two main findings: (i) There was no statistically significant difference between the males and females on the overall implementation of the GNHIC in secondary schools of Thimphu and Samtse districts, (ii) There was no significant difference between the males and females on the GNHVITAL, SR, ESS, ISS and TAGC scales.

### ***One-way MANOVA comparing age levels with all survey dimensions***

A one-way between-groups multivariate analysis of variance was performed to investigate age differences on the implementation of the GNHIC. Five dependent variables were used: GNHVITAL, SR, ESS, ISS and TAGC. The independent variable was expressed in age groups, which were of necessity the same groups used when collecting the data (less than 25 years, 26–30 years, 31–35 years, 36–40 years, 41 years

and older). Preliminary assumption testing showed that there was no violation of assumptions. The significance value for the Box's Test of Equality of Covariance Matrices was .659. The significance values of the Levene's Test of Equality of Error Variances for between-subject effects were all greater than .025. The stringent cutoff alpha value was reset after the GNHVITAL value was found to be .035, which was lower than .05 (a standard significance cutoff value). A Bonferroni new alpha was applied to avoid a Type 1 error.

There was no statistically significant difference between the age on the combined dependent variables (a MANOVA test):  $F(20,618)=1.176$ ,  $p=.270$ , Wilks' Lambda=.863, partial eta squared=.036. The test value ( $p=.270$ ) was larger than .05, indicating no significant difference between the age groups on the overall implementation of the GNHIC. When the results for the dependent variables were considered separately, there were no noteworthy differences between the different age groups on all five dependent variables measured based on the adjusted alpha (.025).

There were two findings: (i) There was no statistically significant difference between the age levels on the overall implementation of the GNHIC in secondary schools, (ii) There was no significant difference between the age levels on each of the dependent variables (GNHVITAL, SR, ESS, ISS and TAGC).

#### ***One-way MANOVA comparing teacher's qualification with all survey dimensions***

A one-way between-groups multivariate analysis of variance was conducted to establish if there were any differences between the different teacher's qualification groups. The dependent variables were GNHVITAL, SR, ESS, ISS and TAGC. The independent variable was the teacher's qualification. Box's Test of Equality of Covariance Matrices produced the significance value of .242, indicating no violations of assumption (test of the null hypothesis that the observed covariance matrices of the

dependent variables were equal across groups – no significant difference between the groups).

There was no significant difference between the teacher's qualification groups on the combined variables:  $F(15,434)=1.683$ ,  $p=.051$ , Wilks' Lambda=.855, partial eta squared=.051. The tests of between-subject effects revealed that there were no significant differences between the teacher's qualification groups on GNHVITAL, SR, ISS and TAGC as their significance values were greater than .05. However, the ESS scale had a value less than .05 (i.e.,  $p=.007$ ), which suggested the existence of significant differences between the qualification groups on the ESS scale. The post-hoc Tukey HSD test revealed that the actual difference was between the groups, namely, diploma and bachelor's, and bachelor's and master's degrees. However, the magnitude of the difference was a small effect of .072.

#### ***One-way MANOVA comparing the number of years' teaching service with all survey dimensions***

A one-way between-groups multivariate analysis of variance was conducted to ascertain if there were any differences between the number of years in teaching service of teachers when implementing the GNHIC in Thimphu and Samtse districts. The dependent variables were GNHVITAL, SR, ESS, ISS and TAGC. The independent variable was the number of years' service. There were no violations of the homogeneity of variance-covariance matrices and the equality of error variance. No significant differences between the number of years' service were noted on the combined variables:  $F(20,518)=1.039$ ,  $p=.413$ , Wilks' Lambda=.878, partial eta squared=.032. The tests of between-subject effects revealed that there were no significant differences between the years of service groups on each of the scales (GNHVITAL, SR, ESS, ISS and TAGC); the significance values were greater than .05.

***Factorial MANOVAs comparing interactions between gender, age and qualification***

A factorial MANOVA was initiated to examine the interactions between gender, age and qualification on the combined dependent variables and between-subject effects of the dependent variables. There were no violations of equality of covariance (evident from Box's test with a significance value of .857). The factorial MANOVA test results generated for the interaction effects of gender and age were  $F(20,435)=.534$ ,  $p=.952$ , Wilks' Lambda=.923,  $\eta^2=.020$ ; the results of the interaction effects of gender and qualification were  $F(15,362)=.901$ ,  $p=.564$ , Wilks' Lambda=.904,  $\eta^2=.033$ ; the results of the interaction effects of age and qualification were  $F(45,589)=1.017$ ,  $p=.445$ , Wilks' Lambda=.716,  $\eta^2=.065$ ; and the results of the interaction effects of gender, age and qualification were  $F(25,488)=.611$ ,  $p=.932$ , Wilks' Lambda=.892,  $\eta^2=.023$ . The test results of between-subject effects are provided in Table 6.11. There were no statistically significant differences between the integrated teacher characteristics on the five dependent variables (GNHVITAL, SR, ESS, ISS and TAGC).

Table 6.11. *Tests of between-subjects effects for gender, age and qualification*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Gender and Age	GNHVITAL	5.823	4	1.456	1.010	.405	.029
	SR	1.168	4	.292	.321	.864	.009
	ESS	21.061	4	5.265	1.013	.403	.029
	ISS	10.403	4	2.601	.646	.631	.019
	TAGC	.769	4	.192	.350	.844	.010
Gender and Qualification	GNHVITAL	9.507	3	3.169	2.199	.091	.047
	SR	2.647	3	.882	.969	.410	.021
	ESS	14.590	3	4.863	.936	.425	.020
	ISS	19.664	3	6.555	1.628	.186	.035
	TAGC	.333	3	.111	.202	.895	.004
Age and Qualification	GNHVITAL	26.318	9	2.924	2.029	.041	.119
	SR	3.010	9	.334	.367	.949	.024
	ESS	34.889	9	3.877	.746	.666	.047
	ISS	21.612	9	2.401	.597	.798	.038
	TAGC	1.982	9	.220	.400	.933	.026
Gender, Age and Qualification	GNHVITAL	4.192	5	.838	.582	.714	.021
	SR	1.727	5	.345	.379	.862	.014
	ESS	25.083	5	5.017	.965	.441	.035
	ISS	23.309	5	4.662	1.158	.333	.041
	TAGC	1.297	5	.259	.472	.797	.017

*Note.* Age and qualification groups had significant differences on GNHVITAL variables; however, when the Bonferroni alpha was reset to .01, the significance value of GNHVITAL was greater than the adjusted alpha cutoff value, implying there were no statistically significant differences between the interacted groups (age and qualification). A line graph was generated (Figure 6.8) to clarify the differences between the interaction of age and qualification on the GNHVITAL scale.

Further analysis was undertaken to ascertain why the age and qualification interaction was significantly different. A discussion about the information shown in Figure 6.8 is discussed in the following paragraph.

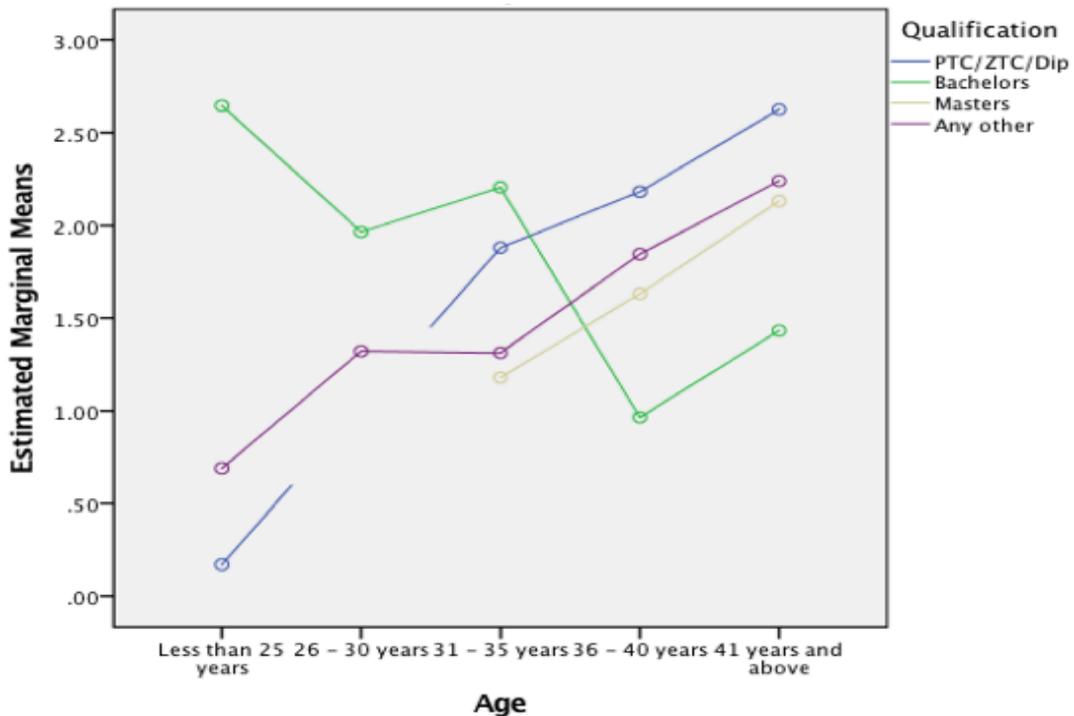


Figure 6.8. Estimated marginal means of GNHVITAL (Mean scores of interactions between qualification and age on GNHVITAL scale).  
 Note. Non-estimable means are not plotted. There are contrasting interactions between teachers with diploma and bachelor’s degrees who are less than 25 years of age.

The teachers who are less than 25 years of age with a diploma qualification performed very low compared to teachers 40 years of age and 41 years of age and older with the same qualification. However, the teachers with a bachelor’s degree who were in the same age group (less than 25 years) did well in GNHVITAL scale compared to the teachers of 41+ years of age with the same qualification. Teachers with a master’s degree and another qualification such as PGDE/PGCE tended to do increasingly well on the GNHVITAL scale as they mature and become more senior in the teaching service. The non-significant result may have been produced by the conflicting score differences observed between the teachers who have diploma and bachelor’s degrees, although their age categories were the same (< 25 years).

In summary, the second section in this chapter provided discussion of the level of implementation the secondary school teachers have undertaken concerning the

GNHVITAL, SR, ISS, ESS and TAGC scales across the teacher characteristics (gender, qualification, age and teaching experience). One-way MANOVA and factorial MANOVA tests were undertaken to ascertain whether there were statistical differences between the teacher characteristics grouping variables.

### ***Conclusion***

Though data were Rasch analysed and did not warrant any further undertaking of normality tests before conducting a multivariate analysis (MANOVA), these additional calculations were undertaken to confirm whether there were any MANOVA outliers. SPSS Version 24 was used to calculate Mahalanobis distances using the regression menu for multivariate normality test. As noted in the analysis, no data outliers were observed.

Wilks' Lambda test score was used to determine statistical differences between the grouping variables. There was no statistically significant differences between the grouping variables of gender (males and females), age (less than 25 years, 26–30 years, 31–35 years, 36–40 years, 41 years and above), teacher qualification (PTC/ZTC/diploma, bachelor's, master's, any others) and teaching experience/number of years in service (less than 5 years, 6–10 years, 11-15 years, 16–20 years, 21 years and above) on the overall implementation of the GNHIC in secondary schools of Thimphu and Samtse districts. There were also no significant differences between these grouping variables on the GNVITAL, SR, ESS, ISS and TAGC scales.

The factorial MANOVAs comparing interactions between gender, age and qualification revealed that there were no significant differences between the interactions effects of gender and age, gender and qualification, age and qualification, and gender, age and qualification on the overall scales (MANOVA). However, the test results of between-subject effects (ANOVA) revealed that age and qualification has a

significance value of less than .05 on the GNHVITAL scale. When Bonferroni was applied (which reset the significance value to .01), age and qualification interactions were not significantly different. Nevertheless, the mean scores of interactions between age and qualification on GNHVITAL revealed a small nonsignificant difference between the teachers who have a diploma and those who have a bachelor's degree, although their age categories were the same (less than 25 years).

### **Research sub-question 3. Level of implementation of GNHVITAL, SR, ISS, ESS and TAGC scales across the school characteristics**

A group comparison across all the school characteristics was initiated for each of the five survey scales. The preliminary assumption tests about the data normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices (Box's Test and Levene's Test) and multi-collinearity were conducted against all the school characteristic grouping variables, and an analysis of the results indicated no violations of preliminary assumptions.

#### ***One-way MANOVA comparing two districts with all survey dimensions***

The multivariate test showed that there was a significant difference between the two districts in implementing the GNHIC:  $F(5,159)=2.335, p=.045$ , Wilk's Lambda=.932, partial eta squared=.068. The alpha ( $p=.045$ ) was less than or equal to .05, informing that there was a small significant difference between the districts by one or two percent in terms of their overall implementation of the GNHIC in secondary schools.

Comparisons were made between the dependent variables to ascertain whether Thimphu and Samtse districts differed on all the dependent variables or on some, and how the result affected the MANOVA. The Levene's Test of Equality of Error Variances significance values for GNHVITAL, SR, ESS and ISS were larger than .05.

However, TAGC had a  $p$  value of .007, which was lower than .05. The TAGC significance value ( $p=.29$ ) met the criteria of the Bonferroni adjusted alpha level (alpha .025), which indicated that the violation had been adjusted and, consequently, there was no significant difference between the districts in terms of the TAGC scale. For justification, the MANOVA test was rerun excluding the TAGC variable. The new results revealed that:  $F=1.183$ ,  $p=.320$ , Wilk's Lambda=.971, and partial eta square=.029. The new test showed that the difference was created by the TAGC variable but adjustment was made when Bonferroni alpha was considered, thereby confirming that there was no statistically significant difference between the districts on the overall implementation of the GNHIC in schools.

***One-way MANOVA comparing category of school with all survey dimensions***

Analysis of the multivariate test result indicated that there was a statistically significant difference between the three categories of school (LSS, MSS and HSS) on the combined dependent variables:  $F(10,316)=2.415$ ,  $p=.009$ , Wilks' Lambda=.863, partial eta squared=.071. An inspection of the separate results for each of the dependent variables found that the significance values for GNHVITAL, ESS, ISS and TAGC were greater than the significance cutoff value of .05. However, the SR significance value was less than the standard cutoff value. A Bonferroni adjusted alpha level was set to .0166 (.05 divided by three grouping variables) to explore and to avoid the Type 1 error if the SR variable met the stringent significance criteria. The SR significance value ( $p=.016$ ) was equal to or slightly different from the adjusted cutoff alpha value ( $p=.0166$ ). Therefore, there was a small statistically significant difference between the categories of school in terms of SR scale. However, the eta squared value (.050) supported that there was a small effect of differences between the groups on the SR scale. Nonetheless, the mean differences between the three categories of school were

examined on the SR scale to ascertain where exactly the small differences existed. The test for the between-subject effects is provided in Table 6.12.

Table 6.12. *Tests of between-subjects effects for school category*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Significant	Partial Eta Squared
School Category	GNHVITAL	4.646	2	2.323	1.558	.214	.019
	SR	6.898	2	3.449	4.247	.016	.050
	ESS	5.419	2	2.710	.492	.612	.006
	ISS	10.844	2	5.422	1.396	.251	.017
	TAGC	.965	2	.482	.943	.392	.012

*Note.* MANOVA test of between-subject effects is interpreted just like the ANOVA, where each individual scale is interpreted or analysed separately against a group.

On further scrutiny, differences were found between LSS and HSS, and between MSS and HSS. The mean difference between the LSS and HSS was 0.47 with a corresponding significance value of .026. The mean difference between the MSS and HSS was 0.41 with the corresponding significance value of .040. As noted from the tests of between-subject effects, the significance value ( $p=.016$ ) of the SR variable fit the Bonferroni adjusted alpha ( $p=.0166$ ). The significance values showing the differences between the LSS and HSS, and MSS and HSS were all greater than the new adjusted alpha cutoff value (.0166), demonstrating that there was no statistically significant difference between the categories of school on the SR scale.

#### ***One-way MANOVA comparing school location with all survey dimensions***

The multivariate test results showed a significant difference between the three locations (remote, semi-urban and urban):  $F(10,316)=2.261$ ,  $p=.015$ , Wilk's Lambda=.871, partial eta squared=.067. The alpha ( $p=.015$ ) was less than .05, suggesting a difference between the locations in terms of the overall implementation of

the GNHIC. However, the magnitude of difference was small as evident from the partial eta squared score (.067).

Further investigation was initiated to ascertain whether remote, semi-urban and urban differed on all the dependent variables. The tests of between-subject effects revealed that there were significant differences between the locations on the SR and TAGC variables. The SR variable significance value was rectified when the Bonferroni alpha was adjusted to .0166 (this adjustment was completed to avoid a Type 1 error); however, the TAGC variable did not meet the newly adjusted alpha criterion, signalling that there was a statistically significant difference between the locations on the TAGC scale. Nevertheless, the magnitude of difference was a small effect as evident from the partial eta squared value (.088). The tests of between-subject effects displaying the significance values for all five survey dimensions are shown in Table 6.13.

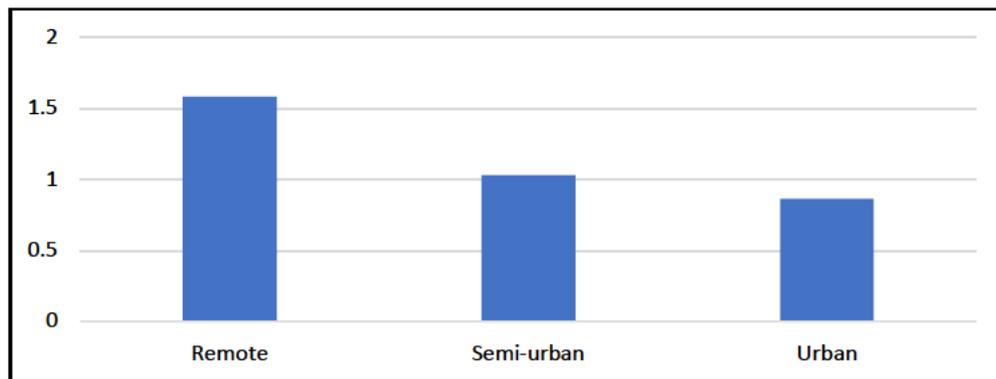
Table 6.13. *Tests of between-subjects effects for school location*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Significant	Partial Eta Squared
Location	GNHVITAL	5.635	2	2.817	1.898	.153	.023
	SR	5.181	2	2.591	3.149	.046	.037
	ESS	.712	2	.356	.064	.938	.001
	ISS	7.559	2	3.779	.968	.382	.012
	TAGC	7.375	2	3.687	7.810	.001	.088

*Note.* The MANOVA test of between-subject effects points out a scale that causes a significant difference in the test. For example, the significance value for TAGC is .001, which is less than the adjusted cutoff value.

A post-hoc Tukey HSD test revealed that the differences were between remote and urban locations on the TAGC scale. The means of remote, semi-urban and urban were 1.58, 1.03 and 0.86 on the TAGC variable. The average mean of TAGC was 1.00. The mean difference was 0.72 with the significance value of .000 (less than the adjusted alpha, .0166). The significance value determined the difference between the remote and urban locations in terms of teachers' attitudes towards the GNHIC. The

mean differences between the remote and urban on the TAGC scale are shown in Figure 6.9. The mean score of respondents on the 18 survey items differed between the teachers in remote and urban secondary schools. In Rasch terms, this result indicates that teachers in urban schools found the items on TAGC scale easier to endorse than the remote teachers. The graphical presentation of the school location on the TAGC scale is provided in Figure 6.9.



*Figure 6.9.* Mean score showing the significant difference between the remote and urban locations on the TAGC scale.

In summary, there was a significant difference between the three locations on the combined variables. However, there were no differences between the remote, semi-urban and urban locations in terms of GNVITAL, SR, ESS and ISS scales. The actual significant difference between the locations was on the TAGC scale. The difference was between the remote and urban location in terms of the teachers' attitudes towards the implementation of the GNHIC in secondary schools of Thimphu and Samtse districts.

***One-way MANOVA comparing day/boarding schools with all survey dimensions***

There was no statistically significant difference between the day and boarding schools on the composite or combined variables:  $F(5,159)=.493, p=.781$ , Wilk's Lambda=.985, partial eta squared=.015. The results for each of the dependent variables revealed that there were no significant differences between the day and boarding

schools on each of the scales. The  $p$  values were greater than .05. Table 6.14 displays the statistics of between-subjects test results.

Table 6.14. *Tests of between-subject effects for day/boarding schools*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Significant	Partial Eta Squared
Day/ Boarding School	GNHVITAL	.001	1	.001	.001	.980	.000
	SR	.009	1	.009	.011	.917	.000
	ESS	.083	1	.083	.015	.903	.000
	ISS	.721	1	.721	.184	.669	.001
	TAGC	1.099	1	1.099	2.165	.143	.013

*Note.* MANOVA test of between-subject effects is interpreted just like the ordinary ANOVA, where individual scale is interpreted or analysed separately against a group.

In summary, there were no significant difference between the groups (day and boarding schools) on the overall implementation of the GNHIC in schools. The significance was not observed in each of the dependent variables (GNHVITAL, SR, ESS, ISS and TAGC).

#### ***Factorial MANOVA comparing interactions between district, school category and location***

A factorial MANOVA was undertaken to ascertain the interactions between district, school category and location on the combined dependent variables and between-subject effects of the dependent variables. There was a violation of equality of covariance (evident from Box's test with a significance value of .015); consequently, the robust test titled Pillai's Trace was used to ascertain the MANOVA result. The factorial MANOVA test results revealed no significant interaction effects for district and school category:  $F(10,294)=.595, p=.818$ , Pillai's Trace=.040,  $np2=.020$ , and school category and location:  $F(15,444) =.931, p=.529$ , Pillai's Trace=.091,  $np2=.030$ . Significant interaction effects were found for district and location:  $F(10,294)=2.406, p=.009$ , Pillai's Trace=.151,  $np2=.076$ . Significant interaction effects were revealed for

district, school category and location:  $F(10,294)=1.675$ ,  $p=.086$ , Pillai's Trace=.108,  $\eta^2=.054$ . The test results of between-subject effects are provided in Table 6.15.

Table 6.15. *Tests of between-subject effects for district, school category and location*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Significant	Partial Eta Squared
District and School Category	GNHVITAL	.257	2	.128	.087	.917	.001
	SR	.572	2	.286	.409	.665	.005
	ESS	16.408	2	8.204	1.478	.231	.019
	ISS	3.690	2	1.845	.471	.625	.006
	TAGC	.399	2	.199	.457	.634	.006
District and Location	GNHVITAL	4.494	2	2.247	1.520	.222	.020
	SR	4.610	2	2.305	3.295	.040	.042
	ESS	3.303	2	1.651	.298	.743	.004
	ISS	6.579	2	3.290	.840	.434	.011
	TAGC	2.563	2	1.282	2.937	.056	.038
School Category and Location	GNHVITAL	3.356	3	1.119	.757	.520	.015
	SR	.636	3	.212	.303	.823	.006
	ESS	13.842	3	4.614	.831	.479	.016
	ISS	.515	3	.172	.044	.988	.001
	TAGC	2.413	3	.804	1.843	.142	.036
District, School Category and Location	GNHVITAL	.493	2	.247	.167	.847	.002
	SR	2.161	2	1.080	1.545	.217	.020
	ESS	2.336	2	1.168	.210	.810	.003
	ISS	19.218	2	9.609	2.453	.089	.032
	TAGC	.935	2	.468	1.072	.345	.014

*Note.* District and location groups have significant differences on the SR variable; however, when the Bonferroni alpha was reset to .01, the significance value of SR was greater than the adjusted alpha cutoff value, implying there was no statistically significant difference between the interacted groups (district and location).

The interactions between district and school category, between school category and location, and between district, school category and location were not significant. However, there was a significant difference between the interactions of the district and location groups on the SR scale; however, when the Bonferroni alpha was reset to .025, the significance value of SR was greater than the adjusted alpha cutoff value, implying there was no statistically significant difference in the interaction between the groups (district and location).

In summary, the third section in this chapter provided an analysis of the GNHVITAL, SR, ISS, ESS and TAGC scales across the school characteristics (district,

location, school category, day/boarding school). One-way MANOVA and factorial MANOVA tests were undertaken to ascertain the statistical differences between the school grouping variables.

### ***Conclusion***

Using SPSS Version 24 software, a multivariate normality test (Mahalanobis distances using the regression menu) was undertaken. No data outliers were observed. The Box's Test of Equality of Covariance Matrices and the Levene's Test of Equality of Error Variances were initiated to the test for the null hypothesis to ascertain if there were violations of assumptions of equality of variances by any of the dependent variables. A Bonferroni new alpha was applied to avoid a Type 1 error. No violation of equality of variances was found.

There were no significant differences between the school grouping variables, namely, district (Thimphu and Samtse), school category (LSS, MSS and HSS), school location (remote, semi-urban and urban) and day/boarding school (day school and boarding school) on overall/composite scales. However, there was a significant difference between the school location grouping variables on the TAGC scale. A post-hoc Tukey HSD test revealed that the differences were between remote and urban locations on the TAGC scale. There were no significant differences in the interactions between groups such as district, school category and school location.

### **Research sub-question 4: Relationship between the GNHVITAL, SR, ISS, ESS and TAGC scales in implementing the GNH-infused curriculum in secondary schools**

Preliminary inspection of histograms and scatter plots revealed that there was no breach of the assumptions of data normality, linearity and homoscedasticity. The relationship between the GNHVITAL, SR, ISS, ESS and TAGC scales (as measured by

the individual scale using the Pearson product-moment correlation coefficient) was investigated to ascertain how each of the domains/scales influence the other in successfully implementing the GNHIC in the secondary schools in the two school districts.

### ***Pearson Product-moment Correlation Coefficient Test Analysis***

The size of the value of the Pearson correlation ( $r$ ) ranges from -1.00 to 1.00 (Pallant, 2005). The strength of the relationship between the two variables is indicated by the  $r$  values. Pallant (2005, p. 126) pointed out that “A correlation of 0 indicates no relationship at all, a correlation of 1.0 indicates a perfect positive correlation, and a value of -1.0 indicates a perfect negative correlation”. The strength of the relationship was determined as a small correlation from  $r=.10$  to  $.29$  or  $r=-.10$  to  $-.29$ , a medium correlation from  $r=.30$  to  $.49$  or  $r=-.30$  to  $-.49$ , and a large correlation from  $r=.50$  to  $1.0$  or  $r=.50$  to  $-.0$  (Pallant, 2005, p. 126).

There was a large positive correlation between the GNHVITAL and the SR variables [ $r=.556$ ,  $n=165$ ,  $p<.01$ ], with high levels of GNHVITAL approaches associated with more levels of SR. The variables were significantly different ( $p<.01$ ). The percentage of shared variance between the two variables was explained. For instance, the  $r$  value for GNHVITAL and SR was  $r=.556$ . When squared,  $r=.556 \times r=.556$ , the shared variance between the two variables was 30.9%. The GNHVITAL scale helped to explain nearly 31% of the variance in respondents’ scores on the SR scale. Pallant (2005, p. 127) claimed that percentages in the 30s are reasonably “a respectable amount of variance explained when compared with a lot of the research conducted in the social sciences”.

A positive relationship also existed between the GNHVITAL and ESS variables [ $r=.334$ ,  $n=165$ ,  $p<.01$ ] and between the GNHVITAL and ISS variables [ $r=.473$ ,  $n=165$ ,

$p < .01$ ], with medium levels of GNHVITAL associated with more levels of external support system (ESS) and internal support system (ISS) in implementing the GNHIC in schools. The variables achieved statistically significant levels ( $p < .01$ ). The variances explained were 11.2% between GNHVITAL and ESS and 22.4% between GNHVITAL and ISS. However, there was a small correlation between the GNHVITAL approaches used to teach GNH values and the teachers' perspectives about the GNH-Infused Curriculum (TAGC) [ $r = .273$ ,  $n = 165$ ,  $p < .01$ ]. The variance explained was 7.5%. The relationship between SR, ESS, ISS and TAGC are provided in Table 6.16.

		GNHVITAL	SR	ESS	ISS	TAGC
GNHVITAL	Pearson Correlation	1	.556**	.334**	.473**	.273**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	165	165	165	165	165
SR	Pearson Correlation	.556**	1	.424**	.381**	.286**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	165	165	165	165	165
ESS	Pearson Correlation	.334**	.424**	1	.489**	.169*
	Sig. (2-tailed)	.000	.000		.000	.030
	N	165	165	165	165	165
ISS	Pearson Correlation	.473**	.381**	.489**	1	.318**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	165	165	165	165	165
TAGC	Pearson Correlation	.273**	.286**	.169*	.318**	1
	Sig. (2-tailed)	.000	.000	.030	.000	
	N	165	165	165	165	165

Table 6.16. *Pearson Correlations for SR, ESS, ISS and TAGC*

*Note.* Sig. means significant, \*\* means correlation is significant at the 0.01 level (2-tailed), \* means correlation is significant at the 0.05 level (2-tailed).

In summary, the fourth section provided an examination of the relationship between the GNHVITAL, SR, ISS, ESS and TAGC scales in implementing the GNHIC in secondary schools in the Thimphu and Samtse districts. A Pearson product-moment correlation coefficient test analysis was undertaken.

## ***Conclusion***

A Pearson product-moment correlation coefficient test analysis was conducted to examine how each of the scales influences the other in successfully implementing the GNHIC. Of particular note, this test is not a cause and effect test. For example, the higher correlation between SR and GNHVITAL does not indicate that SR causes an effective implementation of the GNHIC. There is a large correlation between the GNHVITAL and SR scales. The correlation between the SR, ESS and ISS scales was at the medium level (Pallant, 2005), indicating that there was an association between them in influencing the implementation of the GNHIC in schools. Except for ISS and TAGC (which were at the medium level), the correlation between SR and TAGC and between ESS and TAGC (the *r* values) were within the category of a small correlation, indicating a small association between the variables in influencing the implementation of the GNHIC in the secondary schools of the two districts.

The next sub-question examines the predictability of both demographic and scale variables for the successful implementation of the GNH-Infused Curriculum. The most reliable and the less reliable predictors of effective implementation of the GNHIC are identified by undertaking a standard multiple regression analysis.

### **Research sub-question 5: Determining the predictability level of SR, ESS, ISS and TAGC and demographic variables for the effective implementation of GNH-infused curriculum (GNHIC as determined by the GNHVITAL scale)**

Prior to initiating a standard multiple regression test on the predictability of independent variables for the successful implementation of GNHVITAL, the assumptions tests were undertaken. A multicollinearity test was undertaken to ascertain whether there were some relationships between the dependent and independent variables (*r* value of above 0.3 preferably). The test was undertaken to confirm whether

the bivariate correlations between the independent variables were less than or equal to 0.7 in the same analysis (Pallant, 2005).

The correlations between the dependent variable (GNHVITAL) and independent variables (SR, ESS, ISS, TAGC) were all  $\geq 0.30$  and  $\leq 0.70$ . The test results revealed that there were no violations of regression assumptions. However, the correlation between the TAGC and ESS variables had values less than 0.30 ( $r=.69$ ). This score would indicate a breach of multicollinearity assumption if the dependent variable was one of the SR, ISS and ESS variables. Since the dependent variable for this test was GNHVITAL (which had values greater than 0.30), all the variables were retained for the regression analysis. Furthermore, the variance explained by each independent variable provided evidence that all the variables for the regression analysis should be retained. The correlations between the dependent and independent variables are provided in Table 6.17.

Table 6.17. *Correlations table for regression analysis*

		GNHVITAL	SR	ESS	ISS	TAGC
Pearson Correlation	GNHVITAL	1.000	.556	.334	.473	.273
	SR	.556	1.000	.424	.381	.286
	ESS	.334	.424	1.000	.489	.169
	ISS	.473	.381	.489	1.000	.318
	TAGC	.273	.286	.169	.318	1.000

*Note.* The relationship between the scales are strong, with GNHVITAL variable and weak with TAGC variable.

As part of the standard multiple regression procedure, a collinearity diagnostic test was also performed. This test enabled the revelation of the problems with multicollinearity, which may not have been ascertained in the correlation matrix. The tolerance and variance inflation factor (VIF) scores determine the assumption test for multicollinearity.

The presence of multicollinearity is found if the tolerance value is less than .10 or a VIF value is above 10 (Pallant, 2005). The tolerance values for independent variables, namely, SR, ESS, ISS and TAGC, were .752, .694, .685 and .866, respectively, which were not less than .10, consequently, the multicollinearity assumption was not violated. The VIF values of 1.329, 1.442, 1.460 and 1.155 (for SR, ESS, ISS and TAGC) were all below the cutoff value of 10, indicating the absence of multicollinearity. The Pearson correlation coefficients between the independent variables were all  $< 0.70$  (see Table 6.17). In addition, the normal probability plot of the regression standardised residuals (that were initiated as part of the analysis) showed that the points were on the straight line that stretched from the bottom left to top right, showing no major deviations from normality.

### ***Standard Multiple Regression Analysis***

Evaluating the Model Summary box (see Table 6.18), the value under the heading 'R Square' indicated how much of the variance in the dependent variable (GNHVITAL) was explained by the model comprising the independent variables of SR, ESS, ISS and TAGC. The R Squared value was .392, which indicated that the model explained 15.4% of variance in GNHVITAL. The statistical significance of the result from the null hypothesis test about establishing if multiple R in the population equals 0 provided a significance value of .000, underscoring a significant result ( $p < .0005$ ).

Table 6.18. *Model summary for regression analysis*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.626a	.392	.377	.96689

*Note.* a. – Predictors: (Constant), TAGC, ESS, SR, ISS. b. – Dependent Variable: GNHVITAL. Figure under R Square explains the amount of variance predicted by the predictors.

Examining each of the independent variables provided standardised coefficients. Comparing the contribution of each independent variable using the beta values revealed which variable made the strongest contribution to explaining the dependent variable. The beta values for SR, ESS, ISS and TAGC were .429, .000, .292 and .058, respectively (see Table 6.19 Column 4 (Beta)). The SR variable had the largest value, which meant that this variable made the strongest unique contribution to explaining the dependent variable “when the variance explained by all other variables in the model is controlled for” (Pallant, 2005, p. 153). The lowest contributing variable was ESS, with a value of .000. The teachers’ attitudes towards the GNH-Infused Curriculum (TAGC) as determined by the GNHVITAL scale was the second lowest contributing variable. Internal support system (ISS) was the second most contributing factor explaining the dependent variable.

Table 6.19. *Coefficients table showing the regression outputs of SR, ESS, ISS and TAGC scales (predictors).*

Scales	Unstandardised Coefficients		Standardised Coefficients Beta	t	Sig.	Zero-order	Corr. Partial	Part	Collinearity Tolerance	Stat. VIF
	B	Std. Error								
(Constant)	1.072	.136		7.882	.000					
SR	.572	.095	.429	6.032	.000	.556	.430	.372	.752	1.329
ESS	.000	.039	.000	-.006	.995	.334	.000	.000	.694	1.442
ISS	.181	.046	.292	3.921	.000	.473	.296	.242	.685	1.460
TAGC	.099	.113	.058	.873	.384	.273	.069	.054	.866	1.155

*Note.* Dependent variable: GNHVITAL. Standardised coefficient beta values reveal the magnitude of the predictions the model explains about the dependent variable (GNHVITAL).

The significance values for the SR and ISS variables were less than .05, implying that these two variables were making a significant unique contribution to the prediction of the dependent variable. However, ESS and TAGC had significance values of .995 and .384, respectively, which were greater than .05, indicating no significant contribution in explaining the dependent variable (GNHVITAL). The part correlation coefficients or semi-partial correlation coefficients, when squared, provide the

contribution of that variable to the total R squared. Pallant (2005, p. 154) explained that these squared part correlation coefficients would inform how much of the total variance in the dependent variable is uniquely explained by that variable and how much R squared would drop if these variables were not included in the model. The part correlation coefficients of SR, ESS, ISS and TAGC were .372, .000, .242 and .054, respectively. If all of these part correlation coefficients were squared (multiplied by themselves), the new values, which explain the dependent variable (GNHVITAL) in percentages, would be 13.84, 0.00, 5.86 and .29=19.99.

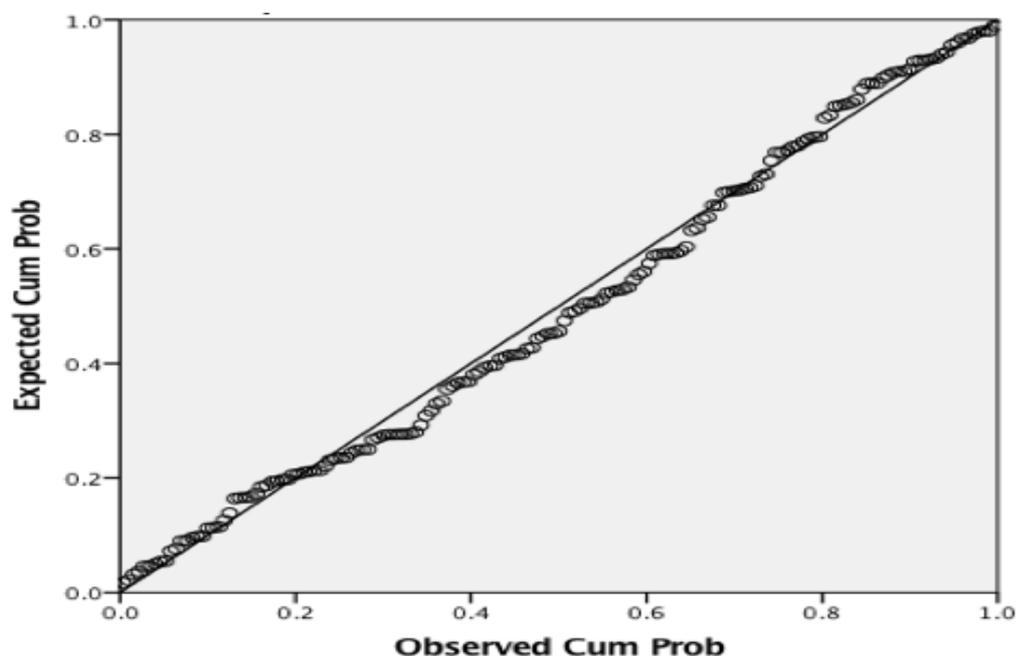
The R Squared value for the model was 15.4 (or 15.4 explained variance), which did not achieve the total part correlation coefficients value of 19.99. This part correlation value represented only the unique contribution of each variable with any overlap or the shared variance removed or partialled out (Pallant, 2005). In other words, independent variables were equally correlated and the shared variance was statistically removed when they were included in the model. The model, which included SR, ESS, ISS and TAGC, explained 15.4 of the variance in the implementation of GNHVITAL.

To reiterate, the beta values were .429, .000, .292 and .058 for SR, ESS, ISS and TAGC, respectively. Of these five independent variables, SR makes the largest contribution (beta=.429) followed by ISS (beta=.292). ESS and TAGC did not contribute to predicting the GNHVITAL implementation in schools. Pallant (2005, p. 154) claimed that “Standardised beta values indicate the number of standard deviations that scores in the dependent variable would change if there was a one standard deviation unit change in the predictor”. For instance, if the SR scores could be increased by one standard deviation (which is .92 from the descriptive statistics in Table 6.6), then the implementation of the GNH-Infused Curriculum (GNHIC as determined by GNHVITAL scale) scores would be likely to drop by .429 standard

deviation units. When the value .429 is multiplied by 1.23 (standard deviation of GNHVITAL), the score would be  $.429 \times 1.23 = 0.528$ . This figure informs how much the success of the GNH-Infused Curriculum scores would be likely to increase if more physical resources (SR) were put into effect. Similarly, .292 (beta value of ISS) multiplied by 1.23 (standard deviation of GNHVITAL) provides the score of 0.359, which is the expected increase in value for GNHVITAL implementation for every increase in ISS inputs from the school. This analogy also applies to other independent variables; however, the analyses were not undertaken as the beta values for ESS and TAGC were low, indicating low predictability scores.

### ***Prediction of Demographic Variables on GNHVITAL***

An inspection of the residuals scatterplot and the normal probability plot of the regression standardised residuals of demographic variables showed no violations of data normality and linearity assumptions. The normality plot is provided in Figure 6.10.



*Figure 6.10.* Normal probability plot (P-P plot of regression).

*Note.* Dependent variable: GNHVITAL. The points lie in a reasonably straight diagonal line from the bottom left to the top right, suggesting no major deviations from

normality.

The demographic variables also achieved the linearity and homoscedasticity assumption tests, suggesting no outliers or outlying residuals. In addition, there was no presence of multicollinearity in the demographic data, as the tolerance values were all greater than .10 and the VIF values were all less than 10 (see Table 6.20 under collinearity statistics).

Evaluating the regression model provided an R Square value of .064, indicating that only .41% of GNHVITAL variance was explained by the demographic variables. Scrutiny of the results showed that a statistically significant level was not achieved. The ANOVA significance value (.234) was greater than .0005, implying that the multiple R in the population did not equal 0, meaning a lesser contribution to predicting the dependent variable.

Each of the demographic variables were examined to ascertain the predictor values. The standardised coefficient beta values for district, gender, age, school category, day or boarding school, location, qualification and teaching experience were -.185, .022, -.003, .095, -.050, -.252, -.129 and .010, respectively. There were no good predictors of GNHVITAL, as the corresponding significance values were all greater than .05, suggesting that these demographic variables were not making a significant unique contribution to the prediction of the dependent variable (GNHVITAL).

In summary, this final sub-section examined the regression test analysis of the GNHVITAL, SR, ISS, ESS and TAGC and demographic variables. A standard multiple regression analysis was undertaken to ascertain the predictability level of SR, ISS, ESS, TAGC and the demographic variables on the GNHVITAL variable.

## ***Conclusion***

A multicollinearity test was undertaken to establish if there was some relationship between the dependent and independent variables ( $r$  value of above 0.3 preferably but not greater than .70). The results suggested that there were no violations of regression assumptions. The R Squared value was .392, which indicated that the model explained 15.4% of variance in GNHVITAL. The beta values for SR, ESS, ISS and TAGC were .429, .000, .292 and .058, respectively, revealing which variable made the strongest contribution to explaining the dependent variable. The SR variable had the largest value, which indicated that this variable made the strongest contribution to explaining the dependent variable. School resources (SR) and internal support systems (ISS) in schools predict more contributions towards the implementation of the GNHIC in schools if these variables are accessible to the teachers. ESS and TAGC did not explain factors pertaining to the dependent variable (GNHVITAL), suggesting teachers can still achieve the GNHIC even without external support systems (ESS) and with low efficacy or poor attitude towards the GNHIC if robust internal support services and adequate resources are readily available in schools. Similarly, none of the demographic variables explained any likely influence on the dependent variable.

## **Chapter Conclusion**

This chapter presented a discussion of the main survey data analysis based on the item and case scores. The level of implementation of the GNH-Infused Curriculum (GNHIC) as determined by the GNHVITAL scale was ascertained using Rasch analysed scores and SPSS software (Version 24). The GNHVITAL survey items 1, 2, 4, 5, 6, 8 and 11 were the items agreed to by the secondary school teachers of Thimphu and Samtse districts, and Items 3, 7, 9, 10, 12, 13, and 14 were the items disagreed to by the sample of teachers (which were the causes of concern). The least agreed to items

for the SR scale were Items 2, 3 and 5. For the ISS scale, the focus should be on Items 3 and 4 as those were the least agreed to items by the survey participants. Similarly, the ESS scale's least agreed to items were 1, 4 and 7. The sample of teachers also agreed less to Items 1, 2, 3, 7, 9, 10, 11 and 16 on the TAGC scale. The test items are provided in Table 6.20.

Table 6.20. *Agreed and disagreed survey items in difficulty hierarchical order*

<b>Scales</b>	<b>Agreed Items</b>	<b>Disagreed Items</b>
GNHVITAL	4, 6, 2, 5, 1, 8, 11	14, 10, 7, 9, 3, 13, 12
SR	1, 4, 7, 8, 6	5, 3, 2
ISS	2, 1, 5	4, 3
ESS	6, 5, 2, 3	7, 1, 4
TAGC	8, 18, 5, 6, 14, 13, 15, 17, 4, 10	12, 9, 3, 2, 11, 1, 16, 7

*Note:* Items are separated into agreed and disagreed items based on the logit scores. Negative scores represented the agreed items and vice versa.

There was no significant difference between gender, age, qualification and teaching experience both on the combined variable (MANOVA) and between-subject variables (ANOVA on GNVITAL, SR, ESS, ISS and TAGC). There were also no statistically significant differences for the interactions between gender and age, gender and qualification, and gender age and qualification on each of the survey scales; however, there was a significant difference between age and qualification on the GNHVITAL scale as its significance value was less than .05.

The level of GNHIC implementation across the school characteristics was also ascertained by conducting a MANOVA test. There was a statistically significant difference between the districts (Thimphu and Samtse) on the TAGC scale and between three categories of schools (LSS, MSS, HSS) on the SR scale. The differences were found between LSS and HSS, and between MSS and HSS. However, when the Bonferroni adjustment was made to avoid a Type 1 error, both district and school category met the new significant cut-off criteria; that is, the new values were greater

than .01(adjusted alpha), indicating no statistically significant difference between the district groups and the school category groups. Nonetheless, there was a significant difference between the school location groups on the TAGC scale. The post-hoc Tukey HSD test showed that the difference was between remote and urban locations. There was no implementation difference between the boarding and day schools on both the combined and individual scales.

There was a strong positive correlation between the GNHVITAL and SR, ESS, and ISS scales; however, there was a small correlation between the GNHVITAL approach and the TAGC scale. The regression analysis showed that the SR scale was the best predictor of GNHVITAL implementation. The ISS scale was also a predictor of the GNHVITAL scale but the beta value was .292, which accounted for only 6% variance explained. The least successful predictor of GNHVITAL implementation was the ESS scale, with a 0.00 beta value. Demographic characteristics did not make a significant contribution to the prediction of the dependent variable (GNHVITAL) as the predictors' significance values were all greater than .05.

## **Chapter Seven**

### **Analysis of Qualitative Data**

#### **Introduction**

A discussion of the analysis of the qualitative data is presented in this chapter. The data were collected from the participants using semi-structured interviews. The analyses were initiated after segregating the interview texts into different groups based on the five research sub-questions. The analyses are presented in five sections. Section one provides the premise of the qualitative study and Leximancer analysis (Smith, 2000, 2003; Smith & Humphreys, 2006). Section two presents the discussion on the Gross National Happiness Values Integrated Teaching and Learning (GNHVITAL) interview text analysis. Section three entails information concerning the school resources (SR), and section four pertains to internal and external support system (ISS and ESS) analyses. The final section examines the interview texts pertaining to teachers' attitudes towards the GNH-Infused Curriculum (TAGC).

#### **Premise of the Qualitative Phase of Research**

The aim of this phase of the research was to ascertain what the experiences of teachers were while they attempted to infuse GNH values into the existing school curriculum in secondary schools of Thimphu and Samtse districts, Bhutan. A total of 12 participants, comprising six male and six female teachers from the secondary schools (two Higher Secondary Schools, two Middle Secondary Schools and two Lower Secondary Schools) participated in the interviews. The schools and participants were

identified based on the willingness and interest of school principals and individual teachers (a voluntary sampling<sup>19</sup>) to volunteer for the interviews.

Prior to the data analysis, the punctuation in the raw interview transcripts was adjusted to align with the language requirement of the Leximancer software programme used in this study.

### ***Leximancer Analysis***

The interview text analysis was initiated using Leximancer Version 2.25 interview text-mining software (Smith, 2000) for all the research sub-questions. A. Smith and Humphrey (2006, p. 262) described Leximancer as “a method for transforming lexical co-occurrence information from natural language into semantic patterns in an unsupervised manner ... the software uses algorithms which are statistical, but employs nonlinear dynamics and machine learning”. The frequency of words and co-occurring data are aggregated to identify the families of words that underpin the semantic field and relational aspects of word terminology. The words that co-occurred most are segregated as concepts. The co-occurring words are then captured and analysed within the clusters of concepts, which ultimately produce themes. The themes emerging from the Leximancer software are provided in rank order from the most connected to the least associated within the list of concepts.

The themes and concepts are displayed in the form of a concept map. The map contains coloured circles that show the defined themes. These coloured circles relate to the frequency of the concept referred to by the participants and the vicinity of the maps to each other signifies the concepts in similar contexts. Concept words are shown within the coloured circles in coloured dots. Several other characteristics, such as

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<sup>19</sup> Participants were selected based on their availability, interest and willingness to participate in interviews. This process of selecting the sample was attempted to mitigate the ethical issues surrounding social research today and participants' right to withdraw from the interview at any time.

“concept frequency, total concept connectedness (in a hierarchical order of appearance), direct inter-concept relative co-occurrence frequency and total (direct and indirect) inter-concept co-occurrence (shown as proximity of one concept to another in the map)” are also displayed in the concept map for interpretation (Ho, Lo, & Teo, 2013, p. 2).

One of the advantages of Leximancer is that no a priori identification of words is required because this text-mining software automatically processes sets of texts and concepts to be naturally coded in a grounded design (Ho et al., 2013, p. 2). Leximancer is not only capable of analysing large amounts of text and generating defined concepts and themes but can also modify the concepts or themes as driven requirements change to fulfil the research question (Smith, 2003). In addition, Kivunja (2013, p. 53) indicated that “The researcher is able to mine the data deeply to discover the meaning embedded in its digital structures through conceptual (thematic) analysis as well as relational (semantic) analysis in a manner which can be a great time saver for the researcher”.

Data cleaning was performed prior to generating the final data (concept maps and textual evidence) for each of the interview texts grouped under the five different research sub-questions. Words such as teacher and teachers (either singular or plural words) were merged and general terms and codes (such as et al., participant’s code, etc.) were removed from the concept seeds<sup>20</sup>. The cutoff value for all the concept word percentages in different domains of interview texts was set at 19.5% to ensure inclusion of 10 concepts, thus more detailed evidence.

In summary, the interview texts were collected from 12 teachers who were teaching at six different secondary schools. Leximancer Version 2.25 was employed to

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<sup>20</sup> A term used in the Leximancer Version 2.25 software, which provides a list of concept words.

analyse the interview texts. Concept words and themes provided by the software enable the researcher to search for the evidence to understand the research question.

### ***Conclusion***

This section presented a rationale for the qualitative study and its preliminary analyses using the text-mining software Leximancer Version 2.25. The premise for using the Leximancer software was that this qualitative phase of the research aimed to ascertain what the experiences of teachers were while they infused GNH values into the existing school curriculum.

## **Gross National Happiness Values Integrated Teaching and Learning: Interview Text Analysis**

GNHVITAL interview texts were analysed using the Leximancer software to determine the type of responses provided by the participants for the research sub-question: What teaching methods have been deployed by the teachers to engage the students in the GNH-Infused Curriculum? Of the total texts ( $N=372$ ), 84 texts were segregated based on the relevancy of the research question to GNHVITAL. Leximancer Version 2.25 produced several concepts based on the ranked concept count in numbers and relative word count in percentages. The concept point percentage was set at 37% and the theme size was set at 71%, which generated 27 concepts as displayed in Appendix E. These cutoff points were set to generate the maximum level of concepts and to maintain the top 10 concepts on the map for convenient analysis. However, these cutoff points took into account the 10 most prominent concepts with the aim of further investigating their properties. The concept map of 10 GNHVITAL concepts and three main themes are shown in Figure 7.1.

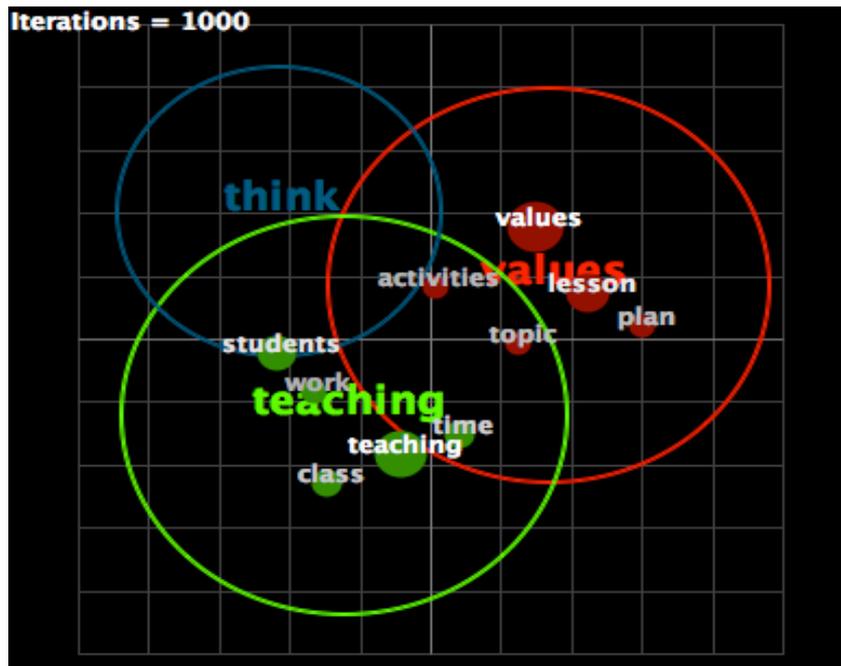


Figure 7.1. GNHVITAL concept map.

Note: This map shows the main themes (in circles) and prominent concepts (in dots) pertinent to the GNHVITAL approaches undertaken by secondary school teachers in the sample schools for all GNHVITAL responses ( $n=84$ ). These concepts remain associated or co-occurring throughout the text or in similar contextual settings.

Figure 7.2 shows the absolute counts and relative counts against each of the chosen concepts. The strength of the themes can be determined using the ‘absolute count’ tool, which refers to the number of times concepts are found in the text. Furthermore, the ranked concept list (as shown in Figure 7.2) tends to indicate that the smaller the percentages, the fewer the word count, the lesser the weighting for thematic interpretations or the fewer the concept cross-references and vice versa. Ranked concepts were cross-referenced against other concepts and the texts generated pertaining to each cross-referenced category were examined.

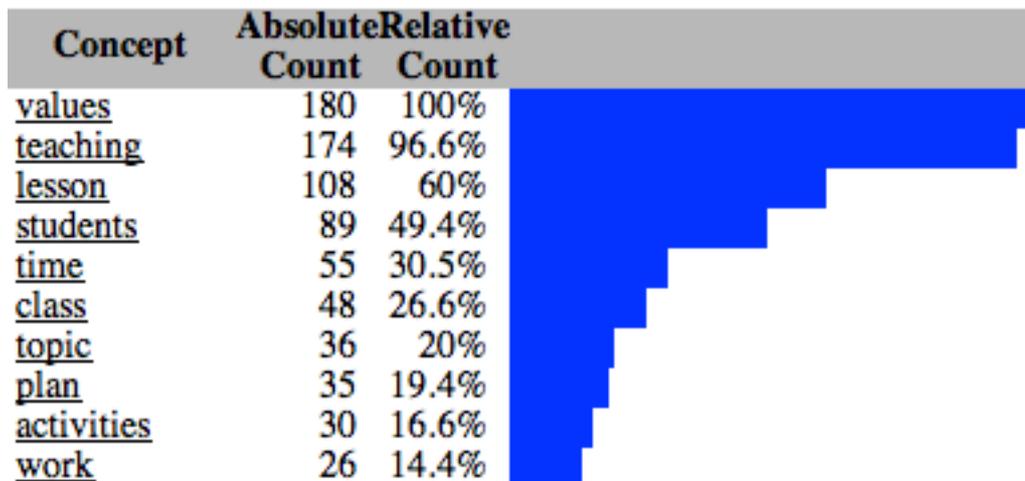


Figure 7.2. GNHVITAL ranked concept graph.

Note: This graph shows the absolute word count (in numbers) and relative word count (in percentages to indicate the relevance) against each of the prominent concepts.

### *Cross-referenced Concepts*

The Leximancer text browser allows examination of the relevant concepts and provides support in extracting the references pertaining to the selected concepts.

Thematic and conceptual analyses and semantic analysis between the concepts were initiated. The cross references for all 10 concepts were manually undertaken to ascertain some of the approaches undertaken by secondary school teachers in the sample schools to implement the GNH-Infused Curriculum into their practices.

The values, teaching and lesson concepts were the most co-occurring concepts and provided the maximum absolute word counts and relative count percentages. These three concept words are the concepts most associated with maximum references for evidence and findings. The analysis of the concepts of ‘values’, ‘teaching’ and ‘lesson’ revealed that teachers attempt to plan the GNH lessons to infuse GNH values into their daily lesson topics; however, they predicated this notion on the fact that there was a lack of any clear idea about how to integrate the GNH values into existing topics. A discussion of the possible reasons for this assertion is provided in Chapter 8.

The following analyses disclose the status quo of the GNHVITAL and the

GNHIC in sample schools, whereby teachers plan GNH lessons by mentioning a GNH value in the lesson plans to be taught in the class, either as a reminder to the teacher during the teaching process or to fulfil the mandate of the school policy. The following paragraphs provide samples of components of the interview questions that are relevant to GNHVITAL text.

In the following statements gleaned from the interview data, the participants are identified via a code, with ‘TP’ representing teacher participant, a number that is the participant identification number and ‘m’ or ‘f’ for male or female, respectively.

Some teachers (TP7m and four others) asserted that they were pressured by the school authority to compulsorily reflect a GNH value in their lesson plans. Teachers use the GNH values provided by the school either in the form of electronic copies or hard copies and whatever GNH values the individual teacher knows (TP1f). However, some schools have left GNH value lesson planning purely to the teachers’ discretion (TP1f, TP2m, TP7f & TP8m). Accordingly, respondent TP1f commented:

We must find them on our own and we must try and implement whatever values we can integrate. If we had a readymade inclusive curriculum then it would be very convenient for the teachers, but since it is not, the teachers do not have a lot of time to reflect on what they are going to teach and how they are going to incorporate these values. Sometimes it becomes quite difficult for us to incorporate values into the lessons.

Whenever possible, some teachers start the class with a short mind training exercise through meditation (TP9m, TP4m, TP10f, TP11m). TP8f claimed that GNH refers to wellbeing and a balance between spiritual and material happiness:

The very first thing we as teachers do in the class is about GNH ... we enter into the classroom and engage in mindfulness practice that is something that is associated with teaching and is conducted before the start of every lesson. In morning assembly, we have one student who comes to the front and makes us practise mindfulness prior to going to the classroom. The environment is a cause of concern and we do practise through morning social work (SUPW). We engage students in cleanliness. In our school, we have a school agriculture programme (SAP) that involves discussions about

sustainability. After school hours, we introduce the *Driglam Namzha* (social etiquette) programme. That is how we promote GNH.

Teachers infuse the GNH values into the lesson topics wherever possible (TP9m, TP4m, TP10f, TP11m). However, some participants noted that infusing GNH values into some science and mathematics lessons is not possible unless clearly written guidelines about how to infuse GNH values in all the lesson topics are provided (TP2m, TP4m, TP9m, TP11m). To cite an example, TP10m opined that:

Including GNH into higher classes is a little impractical. But in lower classes it is feasible because we can provide advice that relates to the GNH concepts, but in the higher classes we do not get that much time to give them advice... As soon as we enter the class, we start teaching.

However, respondents TP12f and TP7m postulated that teaching values in higher classes is possible. For example, TP12f said that she teaches GNH values through songs, rhymes and stories, and argued that these approaches are very effective as her students learn more quickly. TP7m also supported this claim:

When we teach class X for example, when we teach short story analysis, there is a story on “Hey Come on Out”, which is totally about environment conservation. If you see one of the pillars of GNH is the conservation of the environment and that whole story is about that and this is how we make links. We just must say this story teaches us about how we should take care of our environment. It is taught in a form of story. The first story in class X is “The Day of the Butterfly”, where we teach the value of friendship. It is very important for each person to be happy in one’s life. Especially for teachers who teach English and literature, there are so many values to teach.

Teachers reported employing explanations, demonstrations, discussions, dramatisations, role plays, field trips, reflections, critical thinking, questioning and answering, problem solving, inductive and deductive methods, audio-visually, mindfulness practice, debates, group presentations, action research, quizzes, stories, poems, story webbing, collaborative learning and project work to teach the GNH-infused lessons. Teachers claimed to use student-centred learning activities including pair activities, group activities, whole class activities and brain storming activities.

Nonetheless, the time constraints of the immense syllabus that has to be covered in a year seem to impede teachers from undertaking student-centred activities and GNH-related activities (TP12f, TP11m, TP9m, TP4m, TP7f, TP8m & TP3m).

Teachers claimed to infuse into the lesson content values such as conservation of the environment, preservation of culture, interdependence, circle of Karma<sup>21</sup>, equitable economic development, importance of public goods, taking care of their own goods as well as government properties, empathy, sharing, differences between GNH and GDP, personal hygiene, identity, justice, corporations, wellbeing, happiness, mindfulness, importance of water and morality.

Furthermore, respondent TP3m commented that the GNH lesson content should not be “too detailed, too boring or monotonous and students should be taking part and given a chance to express their views and opinions” in the class if teachers seriously want to infuse GNH values in classroom teaching. TP11m put forward the notion that when the potential for teaching a value presents itself, he does not leave it to chance, but imparts the GNH value to the students instantly. An interesting response received from TP7m (evident from the values and students’ concepts) when asked if students were serious about learning the GNH values in the school was:

For students to take it seriously I think an exam might help them. We can make this a compulsory subject, which might help because we Bhutanese have an attitude that if something is not given a weighting of value via an examination, people do not care much about it.

However, TP8f and TP5f put forward that one of the purposes of introducing Educating for GNH in Bhutanese schools is to make the classroom conducive and a better place to learn, thus allowing students to talk freely in the class. The respondents

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<sup>21</sup> (In Hinduism and Buddhism) the sum of a person’s actions in this and previous states of existence is viewed as deciding their fate in future existences.

pronounced that students should not be restricted by the subject's rules and bookish knowledge all the time. Educating for GNH could be the panacea to remedying the demerits of an academic education such as exam stress, rote learning, heavy summative assessments and so on (TP1f, TP2m, TP3f, TP8m & TP10f). The positive impact of introducing Educating for GNH into Bhutanese schools was commendable for some participants. TP7m commented:

We have a group of students helping and supporting these special needs students... someone who is really interested in just coming forward to assist. It is exceptional and this in itself means they are displaying some quality values. These events make us happy and it is beneficial for the needy students.

Furthermore, TP7m noted that because of teaching and infusing the GNH values into the daily lessons, students showcase the values learned in the class through their actions. He (TP7m) narrated:

For example, a story, "A Day of the Butterfly", teaches the value of friendship. The story is about helping a student who gets sick. A student who was thought to be discriminated against in the class, when she gets sick, all the students go to the hospital to see her, and we did the same thing in our class. Our girl class captain was sick, other students suggested that we must go and see her once. With some small items, we went to the Basic Health Unit (BHU) to see her. We saw that she was so happy and she was getting better. Just teaching and talking about GNH is not important but it has to get infused and acted upon. Unless we practise whatever we learn, I think GNH has no value.

In summary, section two provided analyses of GNHVITAL interview texts. The Leximancer concept map in Figure 7.1 shows the main themes and prominent concepts generated. Cross-referencing of the concepts provided evidence of the themes and associated concepts.

### ***Conclusion***

Interview respondents provided a glimpse of their ideas about teaching approaches and strategies, as well as their ideas about the implementation of the whole

process of GNHIC, specifically with reference to the guidelines and support. Specific mention regarding the infusion of GNH in mathematics and science was made. However, there was general support for the idea of implementing the GNHIC uniformly in all the schools.

### **School Resources (SR) Interview Text Analysis**

SR interview texts were analysed using Leximancer data-mining software Version 2.25. A total of 24 interview texts were considered for the analysis based on the research sub-question: What are some of the structural and physical resources available for the successful implementation of the GNHIC in schools? The Leximancer software generated 19 concepts based on the inbuilt thematic and semantic analyses of 24 interview texts. The concept map, which is displayed in Figure 7.3, was generated by the software after the number of conceptual points and thematic sizes were set at 54% and 65%, respectively, to maintain three broad themes and 10 concept words for easier analysis. Sotiriadou, Brouwers and Le (2014, pp. 225-226) noted, “the concepts are clustered to weight and relationship to create a concept cluster map”. The concept map was produced at 1000 iterations with the rotation of 12 points. The most co-occurring and associated concepts are shown in bright colours – larger coloured dots and brightly coloured circles.

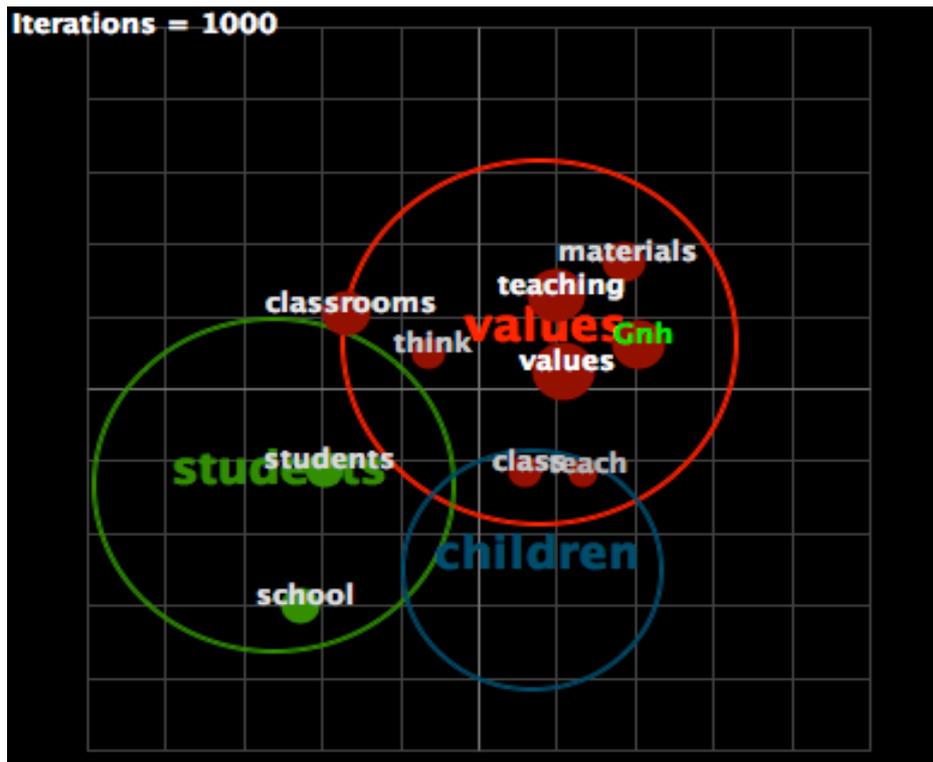


Figure 7.3. School resources (SR) concept map.

Note: This map shows the main themes and concepts about the SR interview texts. The concepts, such as values, teaching, GNH, classrooms and materials have the brightest colours, indicating the most occurred and associated concepts from the SR interview texts.

The choice of concepts for data analysis was made based on the cutoff point set at 23.6% or rounded up to 24%. The relative count percentage, when considered at 24%, provided 10 main concepts within the three prominent themes (values, students and children). Miller and Haynes (2016, p. 4) claim that “This process narrowed the number of themes and concepts to the two to three most highly ranked and provided a consistent lens on the emergent themes and concepts for comparison purposes”.

The full ranked concept list is provided in Appendix F and the highest ranked 10 concepts are shown in Figure 7.4 with specific absolute count numbers and relative count percentages.

Concept	Absolute Count	Relative Count
<u>values</u>	38	100%
<u>teaching</u>	32	84.2%
<u>Gnh</u>	30	78.9%
<u>classrooms</u>	25	65.7%
<u>school</u>	20	52.6%
<u>materials</u>	19	50%
<u>students</u>	18	47.3%
<u>think</u>	13	34.2%
<u>class</u>	13	34.2%
<u>teach</u>	9	23.6%

Figure 7.4. SR ranked concept graph.

Note: The concept word ‘Gnh’ in green stands for Gross National Happiness (GNH). Leximancer Version 2.25 software generates any prominent abbreviated concepts (e.g., GNH) in green font. The SR ranked concept list displays the individual concept count number and relative word count percentage. As the concept word count decreases, the relative word count percentage also decreases, thereby indicating the lesser semantic reliability of the texts.

The concept word ‘values’ is the most frequent word in the SR ranked concept list. The evidence from the texts that support the score can be found when the cross references between the concepts are examined

### ***Cross-referenced Concepts***

The conceptual and semantic analyses between the 10 selected concepts were manually undertaken to gain an understanding about what physical resources are available to the teachers to aid the effective implementation of the GNHIC in the sample schools. Values and teaching concepts provided 32 textual references to support the numerically scored values. The textual evidence pertaining to values and teaching and the remaining concepts of GNH, classrooms, school, materials, students, think, class and teach are provided in Figure 7.4 under the absolute count column. On examining the references between the values and teaching, seven respondents claimed that their schools had enough furniture, enough classrooms and other necessary physical structures to accommodate the students and teachers to teach the GNH-Infused curriculum. However, TP4f refuted this fact by indicating that her school does not have

spacious classrooms and adequate furniture, which hinders the quality delivery of GNH-infused lessons. According to three teachers, TP9f, TP2m and TP5m, their schools do not have adequate information and communication technology (ICT) facilities, adequate teaching aids for mathematics and adequate fans in the school located in places with high temperatures. TP3m supported this claim:

We have a big problem in our school. We do not have enough classrooms or old buildings being maintained and we have temporary classrooms in makeshift buildings. We need additional resources and I am sure this will help to implement the curriculum and values smoothly.

TP4f agreed, stating, “we have classroom problems, lack of furniture and non-spacious teaching rooms, which hinder the quality delivery of lessons”.

Nonetheless, half of the respondents indicated that specific teaching and learning materials (e.g. posters, charts, instruments) may not be necessary if classrooms, furniture and GNH-related books and guidelines are adequately available in schools (TP8f, TP10m, TP9f, TP11m, TP1f, TP3m & TP5m). For instance, TP3m said that “maybe we need books on GNH, GNH charts or models, so students will be reminded of values every day”. TP8f supported this notion, stating, “I do not think we need more teaching and learning materials to infuse GNH values... Talking about and inculcating the concept in a convincing way is more important than having teaching materials”. However, materials like charts, wallpaper containing the GNH values, projectors and television facilities may enhance the implementation of the GNHIC in schools (TP4f, TP5m, TP6f, TP10f, TP11m & TP2m). Nevertheless, all the respondents ( $n=$  seven) agreed that there was a lack of relevant books, congested and insufficient classrooms and lack of guidelines about infusing the GNH values into the existing curriculum. TP11m was of the opinion that the classrooms must be spacious and there must be fewer students if teachers are to have the space and time to infuse GNH values into

their daily teaching lessons. There is also an apparent lack of expertise in human resources and professional support services operating within and outside the schools.

TP1f noted:

If there is someone who could and whom we could always look upon as a GNH teacher and who could always guide us and remind us on the activities that are carried out in the school; if there is one person, who is expert in GNH values, then that person or teacher could always conduct school-based in-service programmes, thereby revitalising the values and insisting teachers carry out the lessons based on the GNH curriculum.

One of the components of Educating for GNH in schools is maintaining a positive physical ambience through a programme titled “Green School for Green Bhutan” (TP1f). Two of the participating schools (one each in Thimphu and Samtse districts) are inclusive schools, where physically challenged students come to school in wheelchairs. These two schools prioritise maintaining the supportive physical ambience through Green School initiatives and thus the structures of the school are designed in a child friendly and accessible way (TP1f, TP2m, TP7m & TP8f). Besides daily teaching in class, the GNH values are infused and taught through various co-curricular activities such as cultural programmes, games and sports, morning and evening prayers, meditation, scouting programmes, clubs (law, nature, social etiquette, media) and everyday socially useful productive work, for example, being involved in greening the school (DCRD, 2011). For these co-curricular activities and programmes, specific materials may be required (TP2m, TP9f). One of the pillars of GNH is the preservation of culture. TP9f reported that a prayer hall should exist in schools if the Bhutanese culture is to be preserved and promoted. Conversely, TP11m pointed out that the implementation of the GNHIC is possible in Bhutanese schools even without the physical resources – GNH can be taught even in open spaces – if there is enough time for the teachers to plan and teach the curriculum. He said, “only thing is, there should

be sufficient time. Time is the only factor hindering the implementation of GNH teaching in classrooms”.

In summary, section three provided an analysis of teachers’ views of the school resources required for implementation of GNHIC in schools. Concepts such as values, teaching<sup>22</sup>, GNH, classrooms, school, materials, students, think, class and teach were considered for analysis as they had the top 10 count percentages (23.6% to 100%). Thematic discussions were provided based on three themes and 10 concepts.

### ***Conclusion***

The analysis of the data showed that the sample schools possess the basic resources necessary for the implementation of the GNH-Infused Curriculum in schools. However, as per the interview participants’ reports, the GNHIC could be implemented more effectively if teachers have enough time, fewer students in their class, supporting materials such as GNH guide books/guidelines, GNH textbooks and teachers who have expertise in how to infuse GNH values into the curriculum. Though 50% of the respondents put forward that teaching and learning materials may not be needed for teaching values to students, the other half of the participants opined that resources such as adequate classrooms, ICT, internet, GNH chart boards, GNH models and materials required for the co-curricular programmes may enhance the effective implementation of the GNH-Infused Curriculum in the sample secondary schools.

### **Internal Support Services (ISS) and External Support Services (ESS) Interview Texts Analyses**

The interview data were gathered to ascertain what the interpersonal factors were that pertained to the internal and external support systems that may influence the

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<sup>22</sup> Here the concept ‘teaching’ is related to describing teaching materials as the texts pertaining to school resources, though ‘teaching’ and ‘teach’ concepts seem similar.

effective implementation of the GNHIC in the sample secondary schools. A total of 60 interview texts were analysed using Leximancer Version 2.25. The software generated four themes (school, GNH, parents and teaching) and 28 concepts (see Appendix G for concept words). The data count number was set at 35% and the theme size at 55% to maintain the 10 concepts on the map. The four themes and the top 10 concepts are shown in Figure 7.5. The school, GNH and teachers are the top three concepts, which contain the maximum referential texts and evidence.

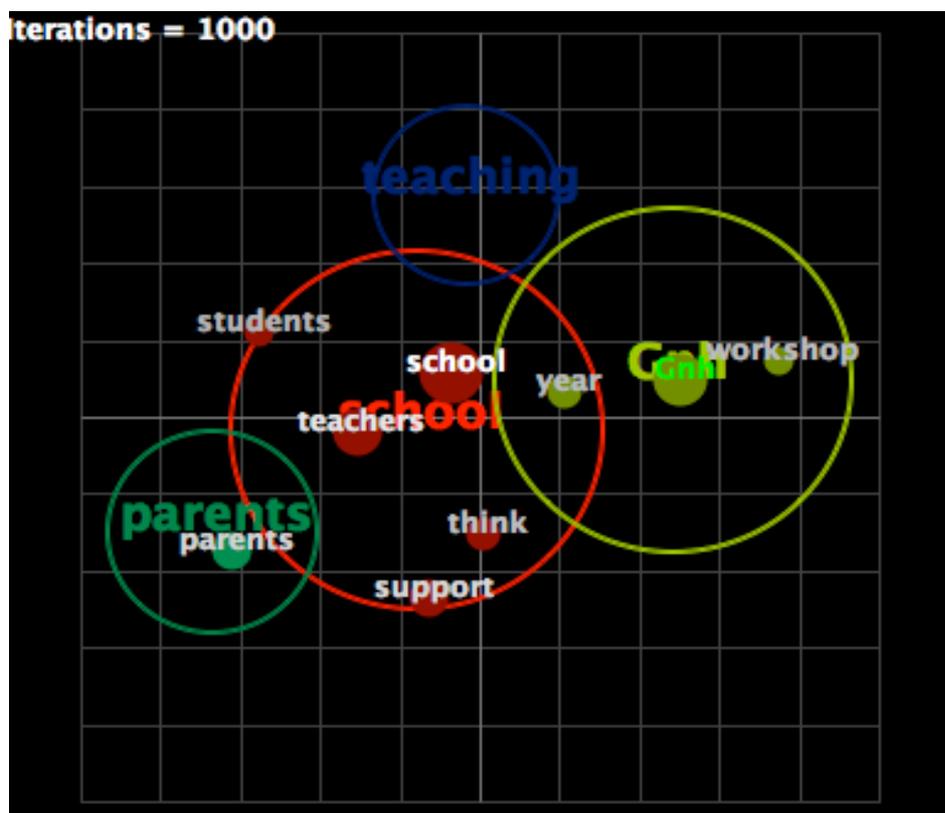


Figure 7.5. ISS and ESS concept map.

Note: The concept map pertaining to ISS and ESS interview texts displaying the four prominent themes and 10 concept words. The school, GNH and teachers are the top three concepts, which are shown as coloured dots. The font of the circles and the size of the dots indicate the most co-occurring concepts surrounding words such as school, GNH, teachers and think (the most prominent concepts).

The top 10 concept words comprising the absolute word count in numbers and relative concept word count in percentages are shown in Figure 7.6. The cutoff percentage to determine the minimum concept word was set at 20.6% (to maintain the

top 10 concepts), as lower percentages provide fewer relative word counts. The concept ‘school’ had the highest word count ( $n=87$ ) and relative count of 100%. The concept ‘students’, which is the last of the ten selected concept words, had an absolute word count of 18 and a relative word count of 21%.

Concept	Absolute Count	Relative Count
<u>school</u>	87	100%
<u>Gnh</u>	73	83.9%
<u>teachers</u>	50	57.4%
<u>support</u>	37	42.5%
<u>parents</u>	34	39%
<u>think</u>	23	26.4%
<u>year</u>	21	24.1%
<u>workshop</u>	21	24.1%
<u>time</u>	20	22.9%
<u>students</u>	18	20.6%

Figure 7.6. ISS and ESS ranked concept graph.

Note: The top 10 ISS and ESS ranked concept list displays the individual concept count number and relative word count percentage. The word percentage scores decrease as the word count number decreases, thereby indicating that smaller figures provide less evidence and lower inter-concept relationships.

The analysis of cross-referenced concepts is provided in the succeeding paragraphs. Direct quotes are used to substantiate the claims for the identified themes and concepts.

### *Cross-referenced Concepts*

On examining the cross-referenced concepts and textual evidence provided by the top five concept words (school, GNH, teachers, support and parents), a minimum of one third of concepts up to 100% relevance percentage was accounted for. The bottom five concepts (think, year, workshop, time and students) explained a fifth of the evidence. More than half of the references contained in the bottom concepts were duplicated in the top scored concept texts.

References surrounding the concept word ‘school’ comprise the most prominent

evidence. This evidence is directly quoted from the transcripts and includes school-based in-service programmes (SBIP or SBIP), school curriculum, school principal, school management, initiative from inside the school, GNH workshops in school, school meetings, GNH professional development by person within the school, situations that occur in school, in previous school support, school management, assessment in the school, relationships between the school and parents and adoption of one child by a teacher in the school (the school mandates for an individual teacher to look after the wellbeing of a child who needs academic and financial support). The evidential texts (phrases) pertaining to the concept word 'GNH' are: incorporate GNH in school, slowly GNH is dying out, we did not have SBIP on GNH/GNHIC, GNH workshop, GNH values, PD on GNH, infuse GNH values in the lessons, GNH-infused lessons, GNH activities, training of GNH-Infused Curriculum and facilitating GNH implementation. Cross referencing the evidence provided by the concepts of school, GNH, teachers, support, parents, think, year, time, workshops and students generated thematic results and are discussed in the following paragraphs.

The school based in-service programmes (SBIP) on GNH were active and vigorous when first introduced into schools in 2010 through the employment of a train the trainer model. Many schools incorporated the GNH values into different school activities; however, the practising of GNH in school is “slowly dying out” (TP1f). Furthermore, this respondent claimed that “these days I think many teachers have started to forget the GNH curriculum”.

Cluster-based in-service programmes (CBIP) pertaining to GNH were provided to only a small number of teachers. Some of these trained teachers could not deliver the information to their fellow teachers in schools (TP1f). TP3m noted, “Every year we get PD about GNH, life skills, etc. for about two to three hours but unfortunately we could

not do any PD on GNH because of the time limitations”. In addition, for those teachers who were able to attend training in their schools, there was no follow-up action evident from the school authority.

The analysis also revealed that schools conduct numerous workshops on other co-curricular activities but fail to organise SBIP or workshops about infusing GNH values into the existing school curriculum. For example, TP6f confirmed, “No we did not have SBIP on GNHIC. There is no one as a resource person. Neither is there any initiative from the school side so far”. Some schools have GNH PD coordinators or focal people to organise refresher courses for teachers but due to ‘many other programmes’ in school, the SBIP has not been effective for the year. TP8f noted, “I do not know whether it is in the school diary or not but every year we have been doing a course”. However, the respondent TP7m, who is also from the same school, reported a slightly different view:

Last year we were so busy we could not have this SBIP programme in the school. Before last year and the year before that we always had a course at least once a year because we needed to remind our teachers time and again. We keep forgetting.

These contentions align with the claim alluded to above that Educating for GNH in schools via curricular activities is slowly dissipating. A book on GNH has been provided by the Education Monitoring and Support Division (EMSD, 2013), nonetheless TP10m claims that this book is a little confusing. He argued that “some kind of SBIP is needed for the book, how to use that book. We need professional support from the concerned agency because the GNH workshop only happened once”. Furthermore, respondents TP5m and TP10m claimed that they did not attend any workshops in their school about GNH. Another 10 respondents have received GNH training only once since 2010. TP9f affirmed:

I attended one and it is required more. For instance, since this year (2016) it was made mandatory saying that we must infuse GNH values in the lessons but to be honest, so many years passed we are lost in not knowing how to infuse GNH values and if there is some sort of PD programme, give us a little bit of idea that will be helpful. Science teaching has become concept based, so I, myself, get lost about how to put the GNH value in a topic.

One of the significant discussions is around how some school principals are very supportive in terms of providing professional support and resources and mandate that teachers infuse GNH values into their lessons. However, some principals leave everything in the hands of the teachers. TP1f shared the anecdotes of two school principals based on their support rendered for the promotion of Educating for GNH in schools. She narrated, “In my previous school, I attended the SBIP. That training was very useful because it was conducted by the principal of my school who is very much interested and he himself is motivating”. Yet, her new school principal leaves the implementation of GNH solely to the discretion of the teachers without offering them any professional support. She pointed out that her new principal verbally instructs teachers to be 21<sup>st</sup> century teachers who need to perform the task on their own without having him come after them “asking them to do this and that”. This participant went on to say that many teachers forget and do not respect the principal’s views, thus do not carry out the GNH-infused lessons seriously. There is no proper guidance and direction for the teachers from the principal about how to execute the GNH activities in their classrooms.

The majority of the school principals are supportive of infusing the GNH values into daily lessons; however, the appropriate guidance and professional support services on GNHIC are missing, which hinders effective implementation of the GNH-Infused Curriculum (TP1f). When asked if the principal was supportive about the GNHIC in the school, TP3m responded:

It is very difficult to say actually. Of course, the principal and the supporters are trying to help us as far as possible from their own limited level but we need more than that because the problem is the classrooms are overcrowded, there is a shortage of teachers... The number of enrolled students should be minimised.

Furthermore, the teachers identified the lack of appropriate support from the concerned agencies such as the Royal Education Council (REC), Education Monitoring and Support Division (EMSD), District Education Office (DEO), *Thromdey* Education Office (TEO) and teaching colleges. The cause for concern is that these affiliated agencies do not particularly render professional support by facilitating training about how to integrate the GNH values into the existing school curriculum. Teachers see district education officers coming into their schools, checking the lesson plans and interviewing them about the overall management of the school; however, teachers do not receive any professional support services from SBIP on GNH during the monitoring period (TP6f, TP4f, TP9f & TP10m).

Respondent TP11m claimed that there were mismatches between the curriculum content learned at the teacher training colleges by the trainees and what had been prescribed in the school curriculum. He claimed that at the college, he learned that students' performances should not be solely judged by mere external examination results; however, he could see the students were burdened with summative assessments such as board examinations, class tests, term tests and unit tests. He maintained that two hours of examinations could not test or determine the overall development of a student. There is a need to consider assessing the holistic development of the child formatively, inclusive of life skills, values and attitude developments (TP11m), indicating that there is no assessment taking place in schools pertaining to GNH values.

The deeper reading of textual evidence in the text browser of the software provided the reasons for maintaining relationships between the school and parents for the successful infusion of GNH values in schools. For instance, a parent's support for GNH is important if children are coming from separated or divorced families (TP10m). Respondent TP10m also pointed out that the children might not have a positive outlook on life if they belong to a separated family. During parent-teacher meetings, the school should let the parents know about the importance of GNH and how the GNH values can impact on the lives of their children (TP10m, TP9f). However, the teachers stated that there is a lack of parental support in bringing up their children in relation to teaching values, despite a host of parent-teacher meetings held annually. Despite the effort put in by the stakeholders and teachers to bridge the gap between the parents and the school, the support from parents is still minimal. The teachers insisted that an effective ongoing parenting programme – both group and individual – should be initiated by the school, in contrast to the current practice of organising an abrupt and once only parent-teacher meeting in large groups (TP10m, TP9f).

It is also important to acknowledge the initiatives put into effect by the school to teach GNH values to students through co-curricular activities. Activities such as the adoption by one of the teachers of a child who is academically weak and financially poor (TP7m, TP8f) demonstrates a GNH-related initiative undertaken by the school community. TP8f claimed that “in this case there is support from the school heads. Here teachers should look after the academic wellbeing, financial and moral support of the child they adopted”. Furthermore, “special education teachers just have to teach half of the loads carried out by other teachers” so they can provide extra care to those needy students (TP2m). Co-curricular activities, such as a “power saving period, a time where we had to put off the light for some time and no one was allowed to use electricity for a

few minutes” and observation of Green Day where teachers and students could only bring vegetable curry and fresh fruits to school and eat along with the students, are practised in the school essentially to promote and aid in enhancing the teaching of GNH values to students (TP1f). The school principals and school counsellors also provide value talks, advice and counselling programmes to those students who are susceptible to becoming the victims of peer pressure. TP5m claimed that “before students leave for vacation, counsellors and principals give lots of advice about how to engage in meaningful activities during the vacation and stay safe and refrain from ill habits and bad friends (the dos and don’ts of students)”.

In summary, section four examined the interview texts for whether the internal and external support systems are put in place in schools while implementing the GNHIC. The nature of these support initiatives was also examined. Concept words were generated for further analysis. Discussions ensued as per the references provided by each of the top 10 concepts.

### ***Conclusion***

The analysis of GNHVITAL, SR, ISS and ESS revealed that Educating for GNH, particularly about the teaching of GNH values through curricular-based activities in Bhutanese schools, is slowly disappearing. The professional support services pertaining to the integration of GNH values into the daily lessons, both from the internal (school) and external (affiliated agencies) stakeholders, are also minimal and “fading away” (TP1f), if not completely absent in some schools. However, GNH values are infused in students via co-curricular activities in some schools. The support from the children’s parents is also negligible despite organising annual parent-teacher meetings about the promotion of GNH values. The interpersonal relationships amongst the stakeholders (teachers, principals, concerned education officers and parents) is at an all-time low vis-

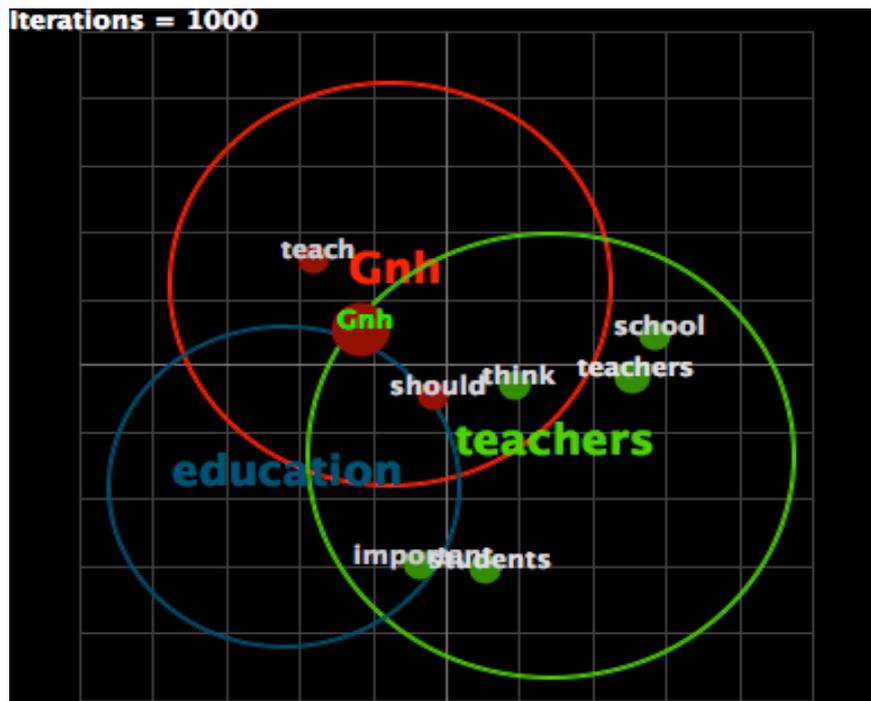
à-vis the integration of GNH values in the secondary schools of Thimphu and Samtse districts.

### **Teachers' Attitudes towards the GNHIC (TAGC) Interview Texts Analysis**

Although the discussions deliberated upon in relation to the preceding three research sub-questions were about the perspective of teachers, the interview questions set for those three topics were about whether the teachers were implementing the GNHIC and receiving the relevant support services in terms of both human and material resources. The TAGC was aimed at ascertaining the teachers' attitudes towards the effective implementation of the GNH-Infused Curriculum. The interview questions were framed with the intention of gaining an understanding of the enabling and inhibiting factors contributing to the effective implementation of the GNH-Infused Curriculum in the sampled secondary schools.

A total of 31 questions were provided for the 12 respondents to complete. Participants responded to all 17 questions related to TAGC, providing a total of 204 responses, which were analysed using Leximancer text-mining software Version 2.25. The interview texts entailed the participants' responses pertaining to the research sub-question: What are the attitudes of teachers towards the implementation of the GNH-Infused Curriculum in the schools? Three main themes (GNH, teachers and education) and 32 concept words (see Appendix H) were generated by the software. While trying to consider the top 10 concepts for analysis, the cutoff point for the relative count percentage was reduced to 17.9% from 20%, while the number of points for the absolute word count was set at 27% and the theme size at 74%. However, the word count number against the tenth concept was 69, which still embodies a considerable amount of evidence. The results were generated at 1000 iterations and the concept map

was positioned at 119 rotations. The concept map comprising three themes and the top 10 concept words is shown in Figure 7.7. All the concepts are in bright, colourful circles with larger dots indicating the most prominent and associated concepts of the TAGC texts.



*Figure 7.7.* The concept map of TAGC.

*Note:* The interview texts display three prominent themes and the top 10 concept words (in dots). The TAGC ranked concept list, which is provided in Figure 7.8, displays the scores pertaining to the thematic or conceptual word count and the semantic or relative concepts associated word count against each of the top 10 concepts.

The concept ‘GNH’ accounted for the highest absolute word count ( $n=385$ ) and relative concept word count percentage (100%). The concept ‘subject’ accounted for 69 concept word counts (frequency) and 17.9% relative concept word counts, and was the tenth ranked concept.

Concept	Absolute Count	Relative Count
<u>Gnh</u>	385	100%
<u>teachers</u>	151	39.2%
<u>students</u>	136	35.3%
<u>think</u>	111	28.8%
<u>should</u>	106	27.5%
<u>school</u>	105	27.2%
<u>important</u>	86	22.3%
<u>teach</u>	83	21.5%
<u>infuse</u>	77	20%
<u>subject</u>	69	17.9%

Figure 7.8. TAGC ranked concept graph.

Note: Top 10 ranked concept list displaying the individual concept count number and relative word count percentage.

### *Cross-referenced Concepts*

Closer reading of the 10 cross-referenced texts generated by the text browser, which were hyperlinked to the concepts, provided a substantial amount of evidence. The evidential texts in relation to the values and GNH concepts revealed that the GNHIC is an issue of concern for the mathematics, ICT and science teachers. TP2m asserted that “when we teach mathematics, when we teach IT/ICT, I do not feel it is that comfortable to infuse GNH in the curriculum ... I hardly have any ideas about how to infuse with the topic of mathematics”. TP2 also explained that GNH values can be more easily infused in subjects such as English, Dzongkha, Commerce, Accountancy, Economics, History, Geography and Environmental Science. Thus, due to the lack of readily available guidelines, relevant curriculum texts and appropriate training, teachers rarely hold clear ideas and relevant skills about how to teach the GNHIC.

All teachers that were interviewed agreed that time for planning was a barrier to teaching GNH values to their students. Consequently, these teachers started to lose interest in teaching GNH values. Teachers were mandated to reflect the GNH values in their lesson plans; however, many respondents expressed their concerns that the GNH

values remain on lesson plans only, not actually taught in the class. Therefore, there appears to be a gap between the planning and implementation of the GNH-Infused Curriculum. TP11m pointed out that Educating for GNH is a national policy and if integration of GNH values into the curriculum were to happen in the schools, “Firstly, the teachers are the main tools who will be working with the GNH and children ... Teachers should be oriented properly”. The evidence provided in the following examples reflects the present situation of the GNHIC in the secondary schools of Thimphu and Samtse:

TP5m: Without any training, we are trying our best; and if the ministry / government or any agencies can train us I think we can impart GNH values in a better way. I am sure it will benefit all the teachers.

TP9f: I think the PD programme is important and we need it and it will encourage the teachers. As of now, it is mandatory and we should do it, but all of us are not able to do it and we lose interest. If there is no support, we also know that it is just for the sake of doing and maybe sometime just for the sake of writing it down in the lesson plans, which may not exactly happen in the classroom.

More than half of the respondents had knowledge about the four pillars of GNH (sustainable and equitable socioeconomic development, conservation of environment, preservation of culture and good governance); nevertheless, all the respondents claimed that all types of values (both GNH and moral values) are GNH values. TP4f purported that “all values are GNH values ... like sharing, respect for another person ... cleanliness, performing your duty properly and your responsibilities”. As per TP11m, “respecting the elders, teachers, cooperation amongst friends, taking care of things, peer learning, time management, decision making and critical thinking” are the other forms of GNH values. However, phrases such as “time management, decision making and critical thinking” fall under the category of 10 core life skills. This evidence

suggests that teachers are not aware of exactly what the GNH values are, and this may hinder them from infusing GNH values while planning and teaching.

The research participants held the strong view that teachers should be trained well in Educating for GNH, particularly in integrating the GNH values into the existing school curriculum. The inhibiting factors, such as the vast syllabus, irrelevant topics, some obsolete aspects of the curriculum, teachers' extreme workloads and large numbers of students in classes, further aggravate the problem of not being able to implement the GNHIC effectively in schools. TP7m argued that the teachers should not be overburdened with so many things and other activities. However, the once dynamic and vigorous nature of the implementation of the GNH-Infused Curriculum in schools seems to have been lost due to the lack of orientation and professional development that the teachers have received from the GNH-Infused Curriculum developers and the trainers (since 2010 onwards). TP10m pointed out that:

So far, Educating for GNH in schools (what we understood from the way and how the principal reminds us and what we have learned from the workshop) is to infuse GNH values into the existing curriculum wherever and whenever possible when the concept is related.

The phrase “infuse GNH values into the existing curriculum wherever and whenever possible” seems to encourage complacency in some teachers, as this phrase may encourage teachers who are protective of their comfort zone (subject disciplines) not to implement the GNHIC. This phrase seems to create the discrepancies between the schools, as the EGNH in some schools is very vibrant whereas in other schools the application of EGNH is sluggish. For instance, TP6f narrated:

I think Bhutanese children must have the same knowledge. If preference is given [to implementing EGNH] in some schools [they] will not do so. I came from Phuntsholing and in that school we were not asked to put GNH values in the lessons but after reaching here [another school] the academic head asked the teachers to put GNH values into our daily

lesson plans. The principal asked us to put in the lesson and I had a tough time doing that but now I got used [to] and I am doing it.

TP10m advocates that infusing GNH is required in all Bhutanese schools and throughout the nation because the GNH values and life skills uphold our Bhutanese values. However, TP4f suggested that there could be a standardised GNH curriculum but the implementation should be left to the teachers in relation to how to infuse the GNH values. She asserted that if schools were forced to implement the GNHIC, then teachers could rebel and not enact the plan. Nevertheless, 11 other respondents strongly supported that EGNH and the GNHIC should be uniformly implemented in all the schools in Bhutan.

In addition, 10 of the 12 respondents believed that if teachers were well trained and appropriately monitored, a separate GNH subject is not required (TP2m, TP3m, TP5m, TP11m, TP12f, TP9f, TP10m, TP1f, TP6f & TP7m). This group presented the idea that if teachers were provided with the right tools, the integrative approach to teaching GNH values to students should address the need for introducing the EGNH into Bhutanese schools. TP11m claimed that Bhutanese schools have expatriate teachers from India and other countries and these teachers should also be well trained about how to infuse GNH values into the existing curriculum. The integrated approach adopted thus far by the Ministry of Education to teach GNH values to the Bhutanese students was interpreted by TP11m as “relevant but not effective as many teachers do not exactly know how to infuse it into their daily lessons”.

Conversely, participants TP8f, TP4f, TP1f, TP6f and TP10m supported the notion of teaching GNH values separately in separate subjects. This group of teachers maintained that if GNH values are taught through a separate subject, students would be in the position to relate the values learned in the GNH value classes to other subjects,

and teachers need not necessarily infuse them into every discipline. However, TP10m supported both the ideas of a separate GNH subject and an integrative approach through the GNH-Infused curriculum:

If GNH is taught as a separate subject, then it will be good because we will assess on what are the things they have learned. But teaching GNH in separate subjects and totally delinking from other subjects will hamper achieving the GNH values by our students. It should be taught separately but at the same time it should also be infused in all the subjects.

Like any other mainstream subjects, TP8f stated there should be a marking or grading system, irrespective of the approaches adopted to teach GNH values to students. The same respondent claimed that if there is no assessment, the students will not take it seriously (TP8f). The integrative approach to teaching the GNH values does not have any means of assessment to measure and to ascertain what students know about the GNH values. TP8f informed that “there are no scores, there is no proper assessment. This way we feel that it is not seriously implemented”. TP3m supported the claim:

I think [assessment of GNH values] is required. I was told that in India, some schools have to write papers on values. If we had such papers maybe our students would improve, because out here until and unless we compel them by doing an exam, they will not follow it strictly.

Students give importance to programmes and activities only if there is assessment (TP9f, TP10m & TP11m). TP10m complained:

There is no exam, no assessment, no oral test and nothing to measure the taught lesson outcomes. From my view, at least we need some kinds of test, exam, so that we can assess them and find out what students’ understanding levels are when it comes to the GNH values.

Furthermore, the GNH values should also be reflected in various ways and means, like displaying relevant wall posters in the class and formatively assessing students by asking them what values they have learned on a daily basis. Other points

maintained by other respondents were that there should be follow-up actions by the person in-charge. After follow-up, there should be a certain level of assessment and scores (TP1f, TP9f, TP10m). TP12f narrated the importance of having a separate GNH value laden book. “When I was a student (you know I have spent 39 years in the teaching service and as a student means more than 40 years back), we had a book on moral science. That time we had a separate book”. Amid the mixed feelings of the respondents, TP1f provided a very robust point:

With change of leadership (principal), the practice is also diminishing. It would be better if there is a particular GNH teacher in each school and a curriculum for GNH or if we had to integrate GNH values through the lessons daily there should be certain provision which states this value is going to be taught in this lesson, which is clearly spelt out in the lessons. We can have what we have now and values can be engrained in the teaching as we have now but if there is another teacher who could teach only GNH values separately that would add to whatever we have in the curriculum.

Many respondents opined that GNH education is as important as an academic education. GNH education would help students build their characters, be disciplined and become a good human being with the right speech, thoughts and actions (TP1f, TP3m, TP8f, TP10m). TP9f suggested:

Sometimes I feel that GNH should be more than an academic education, because even if you excel academically, later if we do not have certain values, for instance, being a responsible person, a sense of responsibility if you like, I think it would have more use. I think if we have to weigh them, GNH education is more important. But, of course, the system demands the academic marks, that’s why output is more because you are getting to higher classes based on your academic output.

One of the approaches for teaching GNH values to students is through role modelling by teachers. TP9f asserted that in whatever teachers say to students, there should be values and GNH concepts embedded, as “role modelling is one of the

determining factors influencing the successful implementation of the GNH values infused curriculum in school”. For example, teachers should place importance on the morning assembly by not talking and playing with their mobile in front of the students (TP9f and TP7m), and by not disturbing their colleague who is teaching in the class by talking to the students through the classroom windows (TP9f). Respondent TP7m also questioned the role modelling of teachers who come to the school drunk or drink in front of students, chew tobacco and litter the school campus by throwing the chewed tobacco. What is more, he strongly opined that teachers should model their role by using good language in front of the students, behaving properly and being honest and punctual with school duties. Of particular note, TP1f contended that “whole schools should be engaged in the role modelling of GNH values to kids”, and maintained that “a single teacher who is a role model cannot bring about a change in students”.

Further, respondents TP1f, TP2m, TP7m and TP8f doubted if their schools had any policy on how to implement the GNH-infused Curriculum. TP6f supported this point that for teachers to be accountable, they required a policy and to be briefed by the school about how to infuse GNH values in their teaching. TP1f, TP2m, TP7m and TP8f noted that a policy can be the backbone of the school with regard to successful implementation of any educational innovations in the school.

One of the inhibiting factors contributing to the lack of appropriate implementation of GNHIC, as pointed out by TP7m, is the limited professional support from stakeholders, both within and outside the school domain (principals, DEOs, EMOs & REC). Every year new teachers who lack knowledge about GNHVITAL approaches to GNHIC arrive in schools, and the aged and senior teachers lose interest in teaching values if there is no professional development about new educational innovations such as EGNH (TP7m). On this account, respondent TP7m maintained that

a professional development programme is crucial for the effectiveness of any school innovations. Furthermore, TP5m stated that due to this lack of training, teachers sometimes experienced difficulty in identifying the GNH values embedded in texts, particularly in subjects like mathematics, computer science, physics and chemistry. However, TP1f posited:

We feel that though these [GNH] values were already there in the lessons but declaring that education system will be based on GNH values was quite ad hoc [commencement of EGNH in schools]. Most of the teachers were not prepared and even now also many teachers feel that the idea is quite vague. They do not know how to implement and some of our friends may not even know what the values are that are incorporated by the term GNH and most of all we do not get a lot of time.

In summation of this evidence, appropriate professional support is missing, and this may create the gap between the intended and taught curriculum. Some schools mandate teachers to mention in their daily lesson plan the GNH values to be taught (TP7m). In contrast, many teachers do not have the efficacy to identify GNH values and infuse them into their daily lessons (TP1f, TP7m, TP5m & TP4f). Consequently, respondents TP1f, TP4f, TP5m, TP7m and TP9f called for initiatives from the curriculum writers to design reference materials such as teacher manuals, prescribed textbooks, books on standardised GNH values to be taught by teachers and GNHVITAL curriculum guidebooks. TP5m commented that teachers are burdened with the crowded curriculum that must be covered in a year, which barely leaves time for teachers to develop resources such as GNH lesson plans and teach them to their class effectively. This claim was supported by TP9f:

One of the challenges is that now we have a prescribed syllabus, which is time bound and within that timeframe we have to complete the syllabus. So, in a way what happens is many times we become more focused on the completion of the syllabus. That is more important at the end as if you do not complete the syllabus, the children will complain.

When interviewed about what the respondents would do to minimise the factors that inhibit their implementation of the GNHIC if they were appointed as the teacher-in-charge of the GNH-Infused Curriculum, TP1f purported that she would “discuss with staff about how to go, how to take up activities that would align with the GNH values”. TP6f suggested that the school should find knowledgeable teachers who integrated GNH into their lessons and use them as a resource person. TP10m postulated that if he was the teacher-in-charge, he would appoint somebody to look after GNH and see whether GNH was being implemented in the class by the teachers. This would provide the message that the school was serious about its implementation and to aim to increase accountability.

Similarly, if the respondents (TP1f, TP4f, TP5m, TP7m & TP9f) were appointed as the EGNH focal person in the school, they would execute a list of plans and activities:

- (i) Call a meeting at the beginning of the academic year for detailed planning and executing of the GNH-Infused Curriculum.
- (ii) Mandate that all teachers plan lessons with a GNH value.
- (iii) Insert the planned activities into the teacher’s day plan.
- (iv) Monitor whether the teachers are incorporating the GNH values into their lessons.
- (v) Interview students about the implementation of GNHIC in the classes.
- (vi) Provide teachers with the results from the students’ evaluations.
- (vii) The focal person will report to the principal on the enabling and inhibiting factors pertaining to the GNHIC and seek further support services in terms of policy delivery and the undertaking of reward and support mechanisms.

- (viii) Provide professional support services to address the difficulties teachers face with implementation.

In summary, this section provided the analyses of TAGC interview texts. A total of three themes and 10 concepts were considered for analysis. Each of the concept words provided textual evidence to support the prominent concepts of the texts. Supporting points were provided in quotes and paraphrases.

### ***Conclusion***

The TAGC interview texts' analyses revealed that teachers in the sample schools were over burdened with too many co-curricular activities, a crowded curriculum and high numbers of students in a class. This resulted in the teachers being unable to plan appropriate lessons and teach the lessons effectively. Further, the existing curriculum is not GNH inspired and, consequently, teachers had to spend most of their time, firstly identifying the GNH values in the prescribed texts and secondly aligning the values-oriented texts with the allotted GNH values. The participants reported that no guidelines and references about how to infuse the GNH values into the lessons were provided to teachers by the schools. This report indicated that insufficient support from the school leaders and the concerned agencies (REC, DEO, EMOs) hindered the effective implementation of the GNHIC. Gaps between the planning and implementation of GNH lessons were attributed to an absence of school policy and lack of proper monitoring and assessment surrounding the GNHVITAL processes. A lack of motivation from the principals, absence of role modelling by teachers and lack of uniform implementation of GNHIC are some of the other inhibiting factors. The respondents claimed that appointing a teacher-in-charge is the cornerstone to reviving and maintaining continuous and sustained practices of EGNH via the GNHIC in Bhutanese schools.

## Chapter Conclusion

This chapter attempted to understand the experiences of teachers while implementing the GNH-Infused Curriculum in schools. The interview texts were grouped under five sections comprising a rationale for preliminary analysis and the Leximancer software and GNHVITAL, SR, ISS and ESS and TAGC interview text analyses. The texts were analysed using the text-mining software Leximancer Version 2.25.

Discussions concerning GNHVITAL provided the information that it is necessary to infuse the GNH values into the existing school curriculum using a child-centred GNHVITAL approach. However, teachers contended that they needed clear guidelines and professional support services from the relevant educational stakeholders. Teachers maintained that heavy workloads hindered the effective planning and implementation of the GNH-Infused Curriculum in schools. Some teachers claimed that they needed additional support for the mathematics and science teachers as it is difficult to integrate the GNH values into these lessons. In addition, teachers supported the idea of uniformly implementing the GNHIC in all Bhutanese schools.

Around 50% of the respondents claimed that schools possess the basic resources necessary for the implementation of the GNH-Infused curriculum in schools. Nevertheless, resources such as adequate classrooms, ICT, internet, GNH chart boards, GNH models and materials are required to effectively implement the GNH-Infused Curriculum.

Of grave concern is that Educating for GNH through GNH curricular-based activities is slowly disappearing. Professional support services on GNHIC, from both the internal (school) and external (affiliated agencies) stakeholders, were found to be “fading away” (TP1f) and were observed to be completely absent in some schools.

Furthermore, support from the children's parents was also negligible despite organising parent-teacher meetings about GNH values promotion annually. Consequently, the interpersonal relationships amongst the stakeholders (teachers, principals, concerned education officers and parents) have reached an all-time low vis-à-vis the integration of GNH values into the secondary schools of Thimphu and Samtse districts.

A gap between the planning and implementation of lessons was observed. The TAGC interview texts analyses revealed that teachers were burdened with school co-curricular activities, a vast or obsolete syllabus, irrelevant content, high teacher-student ratios and lack of ideas (planning and approaches) about how to implement the GNHIC. There was poor support from the school leaders and the concerned agencies, lack of motivation from the school heads, lack of uniform implementation of GNHIC in the different schools, lack of teacher motivation and lack of role modelling by the leaders and teachers. Analyses also revealed that there were no assessments of students with regard to the GNH values and no proper monitoring and follow-up actions in relation to implementing of the GNHIC. In the same vein, guidelines and references about how to infuse the GNH values were absent, in addition to an absence of school policy about the GNHIC, absence of a teacher coordinator for the EGNH and GNHIC and absence of displays and sign boards about the GNH values.

# **Chapter Eight**

## **Discussions of Results and Implications**

### **Introduction**

Chapters Six and Seven provided the data analyses and findings of the quantitative (QUAN) and qualitative (QUAL) research approaches used in this study. This chapter is presented in five sections. Section one provides discussion of the QUAN and QUAL results. Section two presents a revision of the conceptual framework designed for this study. Section three provides information concerning the theoretical underpinnings, practical, policy and methodological implications and the recommendations of the study. Section four contains a description of the limitations of the study, and the final section provides directions for future research, the chapter conclusion and reflection on the results.

### **Discussion of Results**

Discussion of the QUAN and QUAL results are provided for five prominent themes: (i) Gross National Happiness Values Integrated Teaching and Learning (GNHVITAL) Approaches, (ii) School resources (SR), (iii) Internal support system (ISS), (iv) External support system (ESS), and (v) Teachers' attitudes towards the GNH-Infused Curriculum (TAGC). These themes were generated based on the theoretical and conceptual framework, and QUAN and QUAL data were collected and analysed to answer the two major research questions: (i) To what extent is the GNH-Infused Curriculum being effectively taught in the secondary schools of Thimphu and Samtse districts, Bhutan? (ii) What are the experiences of teachers infusing Gross

National Happiness values into the existing school curriculum for secondary schools in Thimphu and Samtse districts, Bhutan? Discussion of the correlations and regressions test for these five themes are also included in this section.

### ***Application of GNHVITAL Approaches***

The quantitative data analyses revealed that the average score for the Gross National Happiness Values Integrated Teaching and Learning (GNHVITAL) scale indicated that the teaching practices in the sample schools were meeting the Royal Education Council's (previously the Department of Curriculum and Research Development) implementation requirements. This assertion is backed by the fact that 87% of the teachers indicated they executed the GNHVITAL approaches, and consequently the average GNHVITAL performance of the teachers in the sample schools is described as strong.

The results analysis from the survey item difficulty analysis indicated that teachers are implementing the GNHVITAL approaches by framing of clear lesson objectives, referring to GNH values while planning the lesson, identifying the GNH values for infusion into the lesson and commencing the lessons with a short meditation. The findings from the qualitative data analysis supported this result, namely, that teachers attempt to plan and teach the GNH lessons as deemed necessary. For example, while planning the lessons, teachers use both the GNH values provided by the school, either in the electronic or hard copy form, and those with which the individual teacher is acquainted. Subsequently, teachers plan GNH lessons by including a GNH value in the lesson plans to be taught in the class. This practice of planning a GNH lesson aligns with the Lesson Plan Model (LPM) recommended by the Royal Education Council (REC).

In addition, four interview participants claimed that they start their daily lesson with a short mind training exercise through meditation. Mind training is one approach employed to teach GNH values to Bhutanese (DCRD, 2011).

Teachers indicated that GNH values can also be taught to students through role modelling. One participant asserted that whenever teachers address students, values and GNH concepts need to be embedded in the conversation, as the teachers claimed that role modelling determines the successful implementation of the GNH-Infused Curriculum in schools. This same participant maintained that the whole school should be engaged in the role modelling of GNH values to students.

The DCRD (2011) recommended that the GNH values be infused and taught through various co-curricular activities such as cultural programs, games and sports, morning and evening prayers, scouting programs, clubs (law, nature, social etiquette, media) and everyday socially useful productive work, for example, being involved in greening the school through Green School initiatives. Interview data analysis revealed that, as well as their normal daily teaching, teachers infuse GNH values of conservation of the environment, preservation of culture, interdependence, cause and effect (a karmic action), and equitable socioeconomic development into the lesson content.

The analysis of the QUAN results towards GNHVITAL approaches showed that teachers are aware of a variety of strategies to teach the required values and are skilled in using interdisciplinary integration and in teaching the lesson logically and systemically through an interactive and collaborative approach (as per survey item 6). The QUAL data supported this claim that teachers employ a variety of student-centred teaching strategies to teach the GNH-infused lessons, including explanations, demonstrations, discussions, dramatisations, role plays, field trips, reflections, critical

thinking, questioning and answering, problem solving, inductive and deductive methods, mindfulness practice, debates, group presentations, action research, poems, collaborative learning and project work. These approaches align with the progressive, liberal, critical, constructionist and post-modernist's educational ideology (Jones, 2013). These positive findings were possibly due to the adoption of a child-centred policy, known as the New Approach to Primary Education (NAPE), by the Ministry of Education in 1985 (MoE, 2014a), whereby teachers were supported and encouraged to incorporate student-centred teaching approaches.

However, Sherab's (2014) findings differ from the results in this study, as Sherab found that teachers did not infuse the GNH values into the classroom lessons. These variations may be attributed to the methodological differences between the studies, in that Sherab used observation to collect the data and determine the findings, as opposed to this study, which used a more statistical approach (Rasch measurement model) to analyse survey and interview data.

A closer inspection of item measure scores showed that of the 15 validated survey items, Item 4, "I enter the class with clear GNH lesson objective to help students learn better", was the most practised or the easiest to implement. The least practised approach or the most difficult for teaching the GNH-Infused Curriculum was Item 12, "I end every lesson with guided silent reflection of GNH values learned in the class". That is, teachers could go to the class with prepared GNH lesson objectives but not end the lesson on GNH appropriately.

Although there is a level of implementation of the GNH-Infused Curriculum in schools, as pointed out by the data analyses results concerning the GNHVITAL case scores, it is notable that the findings seem to indicate a lack of concluding and follow-

up activities being initiated by the teachers. This finding points to a gap between the teachers' intentions and implementation of the GNH-Infused Curriculum, which reflects a gap that may exist between theory and practice. This resultant gap supports the findings of Yangki (1998), English (1984), UNICEF (2000) and Gobby and Walker (2017), who all suggested there would be a gap between any intended curriculum and the taught curriculum. This gap needs to be addressed if one of the goals of Educating for Gross National Happiness (EGNH), that is to produce GNH graduates, is to be fully achieved.

The item difficulty analysis revealed that the least practised and difficult approaches to implement for teachers are assessment of values achievement, changing the curriculum texts containing negative information to positive statements, teaching GNH values through stories, teaching GNH values through fun and games, spending more time in values lesson planning, maintaining systematic records and providing regular feedback on values achievement, and closing the lesson with a guided silent reflection of GNH values learned in the class. In other words, teachers do not employ these GNHVITAL teaching approaches as recommended by the DCRD (DCRD, 2011).

The Ministry of Education (DCRD, 2011; EMSSD, 2013) published two texts related to teaching GNH values in schools; however, the majority of interview participants claimed there are no appropriate guidelines, teachers' manuals or guidebooks for how to effectively teach GNH values through a curriculum integration. Furthermore, one individual claimed that these books are a little confusing. Moreover, Ura (2009) indicated that the prescribed curriculum does not contain GNH-inspired texts, which might have contributed to the problem of implementing GNHVITAL approaches.

The interview data analysis showed that a lack of clear ideas about how to integrate the GNH values into the existing topics, the crowded syllabus, time constraints and work overload with curricular and co-curricular activities hinder the effective implementation of the GNHIC in schools. This finding aligns with the reports presented by the National Council of Bhutan (2016), which noted that teachers in Bhutan are overloaded with co-curricular and extra-curricular activities.

Moreover, some schools make the implementation of the GNHIC discretionary. The interview data from the six schools revealed that three schools leave lesson planning (concerning the GNH values integration into the lesson) to the discretion of teachers. This practice provides the teachers with an option as to whether or not to teach GNH values. This discretionary option by some schools seems to denote that there is no appropriate monitoring and support services provided to the teachers by both the school leaders and significant others. The GNHIC guidelines in relation to the integration of GNH values into the existing curriculum prescribed by the EMSD (2013, p.38) posits a similar notion, stating to “include activities on values wherever relevant to academic goals”. If the guidelines contain such a discretionary option, the mission of promoting and strengthening EGNH via the GNHIC in schools is in jeopardy.

### ***School Resources***

The average school resources (SR) available in the sample schools to aid the effective implementation of the GNHIC through GNHVITAL approaches were considered to be adequate (with a probability score of 66%) but this figure is not considered robust. The item response analysis (IRA) revealed that teachers choose relevant teaching materials, teach in a class that is equipped with furniture, receive professional support from the school human resources, including the principals and

GNHIC teacher-in-charge, can find books related to values education in the school library and agreed that the school has a policy document supporting the GNHIC. The QUAL data analysis supported these findings. Seven interview respondents claimed that their schools have furniture, classrooms and other necessary physical structures to accommodate the students and teachers.

However, the survey sample of teachers provided a contrasting perspective about the availability of teaching resource materials, specifically with regard to integration of GNH values into the school curriculum and teaching in spacious classrooms that allow freedom to move around the classroom during the activities, as well as receiving enough teaching materials from the school authority. One participant commented that her school does not have spacious classrooms and adequate furniture, which she claimed hinders the quality delivery of GNH-infused lessons. In addition, three participants asserted that their schools lack adequate information and communication technology (ICT) facilities, have inadequate teaching aids for mathematics and have insufficient cooling devices in the schools located in places with high temperatures. More than 50% of the interview respondents agreed that there is a need for relevant Bhutanese inspired books, spacious and sufficient classrooms and guidelines about infusing the GNH values into the existing curriculum.

Research conducted by Lee and Barro (2001) found school resources impacted on students' test scores and that student achievement in any test is better when the class sizes were smaller. Furthermore, students' class repetition and dropout rates are negatively associated and affected by school resources. UNESCO (2005) also noted that providing training and continual support to teachers on newly introduced school resources should be a vital aspect of teaching and learning. The International Monetary

Fund Development Committee's (2004) evaluation of schools in Ghana indicated that an efficient school infrastructure is important for effective teaching and learning processes.

### ***Internal Support System in Schools***

The analysis of the QUAN results indicated that, on average, the internal support system available in the sample schools that is designed to strengthen the effective implementation of GNHIC is robust (with a probability score of 85%). The results of the item difficulty analysis revealed that the teachers in the sample schools receive appropriate support from their teaching colleagues and school leaders while implementing the GNHIC. However, interview data analysis showed that these school-based in-service programs (SBIP) concerning the teaching of GNH were only vigorously enacted when the programme was first introduced into schools in 2010 through the employment of a train-the-trainer model.

According to one participant, the practising of GNH in school is “slowly dying out”. One participant commented that the cluster-based in-service programs (CBIP) for the GNHIC were provided to only a small number of teachers. This same individual maintained that some of these train-the-trainer teachers did not deliver the information effectively to their colleagues in schools. This participant also reported there was no follow-up action evident from the school authorities.

Another participant cautioned that Bhutanese schools that employ expatriate teachers from India and other countries should be aware that these teachers need additional training about how to infuse GNH values into the existing curriculum. Furthermore, this participant intimated that with changes in school leadership (principal), the implementaton of the GNHIC was also diminishing, claiming that

recently appointed principals fail to follow up on the proper dissemination of information. This situation also applies to those teachers who had attended the cluster-based in-service programmes (CBIP) or national-based in-service programmes (NBIP) through a school-based in-service programme. Some schools do not have a professional development coordinator to disseminate information through a school-based in-service programme (SBIP) within schools.

The QUAN data analysis (item difficulty analysis) pointed to the notion that team teaching and regularly scheduled staff meetings amongst the teaching staff need to be strengthened for the effective implementation of GNHIC to occur. Teachers endorsed the idea that teaching colleagues are supportive of integrating the GNH values into the school curriculum. The least endorsed item was for teacher meetings on a regularly scheduled basis to discuss how the GNH-Infused Curriculum works in the classroom.

The interview data analysis revealed that there are no appropriate support mechanisms instituted in the schools. For example, one participant commented, “No we did not have a school-based in-service programme on GNHIC. There is no one appointed as a resource person, and there is a lack of initiative from the school side so far”. This observation may be interpreted as there being support from the staff and principals but the support system put into effect by the school is not organised and monitored appropriately. A small number of school principals leave the implementation of the GNHIC to the discretion of teachers and a few others engage the teachers on a more structured basis. This inconsistency can create a dissonance when teachers are transferred between different schools.

Based on the information gleaned from the research findings, a recommendation can be made that additional regularly scheduled meetings and meaningful discussions about what works well and what does not in regard to the integration of GNH values may enhance the quality of the GNHVITAL process and may ultimately lead to an effective implementation of the GNHIC in the schools. This recommendation is supported by the findings of Cantrell and Hughes (2008), who found a promising means of rendering support for teachers include collaboration and mentoring practices. According to Eaker and DuFour (2002), Fullan (2006), Houston, Blankstein, and Cole (2007), Huffman, Hipp, Pankake, and Moller (2001), Little, Gearhart, Curry, and Kafka (2003) and McLaughlin and Talbert (2006), effective professional learning amongst teachers occurs by collaborating with one another. Similarly, Lieberman and Miller (2000) suggested that enhanced confidence and self-esteem are experienced by a teacher when mutual support is offered by other colleagues.

### ***External Support System in Schools***

The external support received from the significant others in the sample schools to strengthen the effective implementation of GNHIC is satisfactory (with a probability score of 71%). The QUAN data analysis found that the sample schools receive external support for implementing the GNHIC from the Educational Monitoring and Support Division (EMSD) and district education offices (DEO). The schools also sought support from the EMSD and parents for the effective implementation of GNHIC. However, schools receive less support from the Department of Curriculum and Research Development (now the Royal Education Council) for the implementation of the GNHIC. In the same way, the sample schools have not sought support from the colleges of education (CoEs) under the Royal University of Bhutan.

Capitalising on the human resources provided by the Royal Education Council (REC) and the CoEs may enrich the idea of infusing the GNH values into the school curriculum. The REC frames the national school curriculum and the CoEs train future teachers. However, the findings from the QUAL data analysis showed a lack of appropriate support from the concerned agencies (EMSD, DEO, REC CoEs and parents) regarding the implementation of the GNHIC in schools.

Of particular note is that teachers provided a contradictory response concerning Item 5 (My school receives supports from the DEOs/TEOs in implementing the GNH-Infused Curriculum) and Item 1 (My school seeks help from the District /Thromdey Education Officers in implementing the GNH-Infused Curriculum). Item 5 posits that schools received support from the DEOs but responses to Item 1 indicate that schools did not seek help from the DEOs. This conflicting result may be due to the teachers considering that because the DEO visits their school they are being supported, but, in fact, the DEO is simply gathering data for further submission to the EMSD for school rankings under a decentralised monitoring policy (EMSD, 2005).

The responses from four interview participants supported the interpretation that teachers are aware that district education officers come into their schools to check the lesson plans, conduct interviews and collect data about the overall management of the school. However, teachers do not receive any professional support services from these district education officers on GNHIC during the monitoring period. Perhaps due to the lack of actual pedagogical support, particularly from the district education offices and the Education Monitoring and Support Division, there is no uniform approach to the GNHIC in the schools.

The support from the children's parents is scant, despite the schools organising annual parent-teacher meetings about the promotion of GNH values. Teachers reported there is a lack of parental support in teaching values despite the effort put in by the school principals and teachers to bridge the gap between the parents and the school. Two teachers maintained that one way to address this problem is through an effective ongoing parenting program. Both group and individual meetings should be initiated by the school instead of the current practice of organising a one-time parent-teacher meeting conducted in large groups (TP10m, TP9f). Studies initiated by Barnard (2004), Henderson (1988), Krashen (2005), Marzano (2003), Shumox and Lomax (2001) and Todd (2010) revealed that the children whose parents are educated do fairly well in any curricular and co-curricular activities in schools. In other words, a supportive home ambience when provided to children is conducive to their academic success (Marzano, 2003; Todd, 2010). What is more, the performance of students in academic fields depends heavily on parental engagement in their daily learning activities (Barnard, 2004; Henderson, 1988; Shumox & Lomax, 2001).

### ***Teachers' Attitudes Towards the GNH-Infused Curriculum***

Teachers' attitudes towards the implementation of the GNHIC in the sample schools was positive. The item difficulty analysis showed that learning of GNH values by the students is facilitated by how teachers promote, exhibit and role model the values in schools. The analysis of the qualitative data strongly supported the claim that role modelling is one of the best approaches to teaching GNH values to their students. A synthesis of both phases of the data pointed to the notion that a whole school approach to role modelling in terms of using appropriate language when addressing

students, behaving professionally and being honest and punctual with school duties are essential.

Synthesis of results from survey items 6 and 7 showed that understanding how to teach certain values, including values clarification and insights into the teacher's own values, is essential for the achievement of Gross National Happiness (Item 6). However, teachers claimed that a need to understand all GNH values is not crucial for the effective teaching of GNH values to students (Item 7). Furthermore, the qualitative analysis indicated that teachers are confused about different important concepts. For example, they are not sure of the difference between the GNH values and life skills. It is apparent some of the train-the-trainers did not deliver the information effectively to their fellow-teachers (TP1f). To address this and other teachers' issues, there needs to be additional human resources and professional support services operating within and outside schools.

Teachers reported being comfortable teaching GNH values through language (English and Dzongkha) and humanity subjects (History, Geography, Economics and Commerce). One participant argued that through use of songs, rhymes and stories, GNH values can be taught to students. One other participant also claimed that teaching GNH values in the higher grades to older students' classes is impractical due to the time limits. It is noteworthy that four interview participants indicated that infusing GNH values into science and mathematics lessons is not possible unless clearly written guidelines about how to infuse GNH values in all the lesson topics are provided (TP2m, TP4m, TP9m, TP11m). This claim is supported by the majority of the teachers, who reported that GNH values can be easily infused into all the subjects if appropriate guidelines and training were provided to them. One participant reported that the

integrated approach to teaching GNH values requested by the Ministry of Education is “relevant but not effective as many teachers do not exactly know how to infuse it into their daily lessons” (TP2m).

In this study, both QUAN and QUAL data analyses found that teachers need continuous professional development programmes to gain a better understanding of certain values. Furthermore, the QUAN and QUAL results revealed that support from the school principal and maintaining the school policy regarding the implementation of GNHIC are imperative for the success of EGNH in schools. In addition, teaching values to students, including the changing of negative statements that exist in any prescribed texts to positive value statements using the integrative approach, are also desirable for the success of EGNH in schools.

The QUAN results showed that teachers are not able to confirm whether their students would practise GNH values more if they were weighted in the internal assessment within a student’s progress report card. Moreover, teachers do not support the idea of assessing the GNH values using formative assessment criteria. However, the QUAL results supported the idea of assessing and awarding GNH values assessment marks for the promotion of students. The integrated approach to teaching the GNH values does not have any means of assessment to measure and to ascertain what students know about the GNH values. Teachers claimed that there is no exam, no assessment, no oral test and nothing to measure the taught lesson outcomes. Teachers opined that there needs to be some assessment items (for example, letting students write papers on GNH values), so that teachers can assess students and find out what they understand when it comes to the GNH values.

The QUAN results showed that teachers do not validate the notion of teaching GNH values separately as a subject. Similarly, more than 50% of interview respondents supported the QUAN result that if teachers are well trained and appropriately monitored, a separate GNH subject is not required. This statement supports the idea that if teachers are provided with the right tools, the integrated approach to teaching GNH values to students should suffice the need for introducing EGNH in Bhutanese schools. These findings support Jones' (2013) work, which reported that values education should be taught through an integrated approach because teaching values separately via a subject promotes a behaviourist's approach to values indoctrination and values inculcation practices, which contrasts with the constructivist theory of learning (a twenty-first century student centred teaching approach).

Conversely, a small proportion of interview participants noted that GNH values could be taught to students through separate subjects. These teachers maintained that if GNH values are taught through a separate subject, students would be in the position to relate the values learned in the GNH value classes to other subjects, whereby teachers need not necessarily infuse them into every discipline. On this note, a retired vice chancellor of the Royal University of Bhutan cautioned that the integrated approach to teaching GNH values to students may pose a danger of receding into non-action, as there does not exist anything tangible upon which to "anchor" the program (Thinley, 2016, pp. 32-33). Thinley (2016) wrote:

A subject called GNH Values Education would enrich and complement the meditation and mind training pathway, give greater meaning to the other pathways [curriculum integration, media literacy, leadership, holistic assessment, green school initiatives], and help to make the whole

Educating for GNH initiative, and in fact the whole experience of education, coherent and concrete. (Thinley, 2016, p. 34)

Interestingly, just over half of the participants who identified that values could be taught by a separate subject also supported a hybrid approach, by which GNH values could be taught by a separate subject and also as an integrated approach to teaching GNH values to students.

The item response analysis (IRA) revealed that teachers do not regard GNH education to be as important as an academic education. The QUAL analysis found that the time allocated to academic tasks, such as summative assessments (board examinations, class tests, term tests and unit tests), could result in the majority of teachers' attention being placed on academic education. Furthermore, participants argued that the focus on summative assessment in subject areas, which does not determine the overall development of a student, places an emphasis on academic education. A participant suggested the need to assess the holistic development of the child more formatively and inclusive of life skills, values and attitude developments, which may assist to balance the importance of GNH values as well as the academic. One of the aims of EGNH in Bhutanese schools is to reduce the academic pressure on students (DCRD, 2011). If the mindset of the teachers is academically oriented, the goal of the King to achieve Gross National Happiness may be at stake. GNH was founded based on the philosophy that happiness can be attained by maintaining a fine balance between “the needs of the body with those of the mind within a peaceful and secure environment” (Gross National Happiness Commission, 2013, para. 4).

The item response analysis showed that teachers do not endorse one of the objectives of EGNH, that is, the integration of GNH values into the existing school

curriculum to enhance the effectiveness of the teaching and learning process. In contrast, the QUAL result supported the idea that infusing the GNH values into the existing curriculum is vital for a livelier teaching and learning process. Thinley (2009) reported that introducing the GNH values into the classroom situations was intended to provide both teachers and students with an additional rationale for the teaching and learning that occurs in schools.

One pertinent finding of this study was that teachers do not support the idea of revising the curriculum texts if the texts are not embedded with Bhutanese-inspired GNH values (Ura, 2009). The results from the interview data analysis supported the idea of redesigning the existing curriculum texts to meet the GNH values. In addition, about 50% of the interview participants commented that classrooms, furniture and GNH related books and guidelines are as important as framing a GNH-inspired curriculum text for the effective implementation of GNHIC in schools.

The QUAL results also revealed that if a teacher were appointed as the school GNH focal person to oversee the effective implementation of GNHIC, teachers would be happy to execute the GNHVITAL plans and activities broadly through lesson planning, a whole school approach, monitoring and collaborative learning dimensions. This finding aligns with the recommendations provided by the Ministry of Education on how to implement the GNHIC in schools (DCRD, 2011; EMSSD, 2013).

### ***GNH-Infused Curriculum Implementation across Teacher Characteristics***

The analysis of variance (ANOVA) revealed that there were no statistically significant differences between the groups pertaining to teachers' gender, age levels, qualification and number of years in service on both combined dependent variables (GNHVITAL, SR, ISS, ESS, and TAGC) scale and on the separate GNHVITAL scale.

However, the multivariate analysis of variance (MANOVA) showed that the interaction between the age and qualification groups was significantly different with regard to the implementation of the GNH-Infused Curriculum via a GNHVITAL approach. One interesting finding was that young teachers with a bachelor's degree performed better in the GNHVITAL scale as opposed to young teachers with diploma, postgraduate diploma or master's degree and also compared to older aged teachers with a bachelor's degree. Teachers with a master's degree and another qualification such as a diploma or postgraduate diploma tend to perform better on the GNHVITAL scale with the number of years of teaching service.

In conclusion, these results indicated that teaching experience (as observed in age groups of teachers with both diploma and postgraduate degree holders) and qualifications correlate with the implementation of the GNHVITAL processes in the schools. That is, seniority in age and service influences the level of implementation of the GNH-Infused Curriculum in schools. However, interestingly, young teachers with a bachelor's degree performed better in implementing the GNHIC in their schools. This cohort of young teachers underwent training on teaching values to their students during their pre-service courses at the training colleges. Thinley (2016) found that the colleges under RUB borrowed a curriculum course from India for teaching universal human values in the RUB colleges. A pilot programme on these human values was initiated at Gaeddu College of Business Studies in 2012 and subsequently introduced in all the colleges of the Royal University of Bhutan as a mandatory non-credited course commencing in the Autumn Semester, 2013 (RUB, 2014; Thinley, 2016; Tshomo, 2016; Young, 2012).

Because of such learning opportunities accessed by the teacher trainees at the RUB education colleges, those young teachers with a bachelor's degree gained a measure of proficiency and efficacy in teaching GNH values appropriately to their students. However, a trend was noted in the data analysis that teachers could implement the GNHIC efficiently as they gained experience in teaching and as they increased the number of years in teaching. In other words, age and number of years of service seem to influence in a positive way the level of implementation of the GNH-Infused Curriculum in schools.

The multivariate analysis showed that there were no significant differences in regard to the interactions between the gender and age groups, gender and qualification groups and between gender, age and qualification groups on the GNHVITAL scale.

#### ***GNH-Infused Curriculum Implementation across School Characteristics***

The statistical results revealed that there were no statistically significant differences between the school characteristics of district (Thimphu and Samtse), school category (Lower Secondary School, Middle Secondary School and Higher Secondary School), location (remote, semi-urban and urban) and school system (day or boarding school) on the GNHVITAL scale. Similarly, the interaction effects between the characteristics of district and school category, district and location, school category and location, and district, school category and location did not have statistical differences on the GNHVITAL scale. In other words, the implementation level with regard to the GNHVITAL process in schools was the same in both the districts (Thimphu and Samtse), irrespective of the location of the school (rural, semi-urban and urban) and category of school (LSS, MSS, and HSS). This finding is not surprising, as the schools

were provided the same resources by the Royal Government of Bhutan (AES, 2013, 2014, 2015; EMSSD, 2003; PM, 2017).

Nevertheless, in terms of the TAGC scale, the MANOVA test result revealed that there was a statistically significant difference between the “remote” and “urban” locations. The result revealed that remote school teachers’ attitudes towards the implementation of GNHIC are more positive than their teacher colleagues in urban locations. This finding aligns with one of the participant’s comments on an interview question about whether teachers should be mandated to infuse GNH values into the existing curriculum. This participant claimed that teachers become rebellious if any programme initiated in school is forced on them, thereby suggesting that teachers in urban schools do not support the idea of integrating the GNH values into the curriculum. Further studies on this finding are required to ascertain why teachers in urban areas are not positively disposed to implementing the GNHIC in schools.

***Correlations between Gross National Happiness Values Integrated Teaching and Learning (GNHVITAL), School Resources (SR), Internal Support System (ISS), External Support System (ESS) and Teachers’ Attitudes towards GNH-Infused Curriculum (TAGC) Scales***

Pallant (2005) uses three different words, namely, *small*, *medium* and *large*, to reflect the degree/amount of correlation between the variables. A small correlation is  $r = .10$  to  $.29$  or  $r = -.10$  to  $-.29$ ; a medium correlation is  $r = .30$  to  $.49$  or  $r = -.30$  to  $-.49$ ; and a large correlation is  $r = .50$  to  $1.0$  or  $r = -.50$  to  $-1.0$  (Pallant, 2005, p.126).

Pearson product-moment correlation coefficient test analysis revealed a large correlation between the GNHVITAL and SR scales. In a study carried out by Carron and Chau (1996), a strong correlation was found between sufficient resources in

schools and students' higher learning scores in mathematics and Hindi (Carron & Chau, 1996).

The correlation between SR, ESS and ISS can be described in terms of a medium level (with  $r$  values of .42 between SR and ESS, .38 between SR and ISS and .49 between ESS and ISS), which supports Pallant's (2005) classification of correlation results, indicating an association between these independent variables in influencing the implementation of the GNHIC in schools. The correlation between ISS and TAGC was medium ( $r$  values of .32), and the correlation between SR and TAGC ( $r = .29$ ) and between ESS and TAGC ( $r = .17$ ) were within the category of a *small* correlation, indicating a small association between the variables in influencing the implementation of the GNHIC in the secondary schools of the two districts.

***Regression Test Results of School Resource (SR), Internal Support System (ISS), External Support System (ESS), Teachers' Attitudes towards GNH-Infused Curriculum (TAGC) and Demographic Variables***

The regression test beta values for SR, ISS, ESS and TAGC revealed which variable made the strongest contribution to explaining the dependent variable. The SR variable had the largest value, which indicated that this variable made the strongest contribution to explaining the dependent variable. A study by Willms (2000) of 50,000 grade three and four students ascertained that schools lacking in teaching and learning materials and with insufficient library facilities had significantly lower test scores compared to the well-equipped and furnished schools. The conclusion from Willm's (2000) study concurred with the findings for other schools located in Botswana, Nigeria and Papua New Guinea (Pennycuick, 1993).

School resources (SR) and internal support system (ISS) in schools predict

greater contributions towards the implementation of the GNHIC in schools if these variables are accessible to the teachers. Providing support for teaching and learning through better conditions, professional development, teachers' autonomy and inclusive decision-making processes have been shown to positively impact on the learning of students (Barber & Mourshed, 2009; Leithwood et al., 2006; McKinsey, 2007; Mourshed et al., 2010; UNICEF, 2000).

ESS and TAGC did not explain factors pertaining to the dependent variable (GNHVITAL), suggesting teachers can still achieve the GNHIC even without an external support system (ESS) or with ambivalent attitudes towards the GNHIC if robust internal support services and adequate resources are readily available in schools. The QUAL result supported this finding that school resources and internal support system are the vital components for the successful implementation of the GNHIC through GNHVITAL approaches. Similarly, none of the demographic variables (age, gender, qualification, number of years in teaching profession, location, district, school category and day or boarding school) explained any likely influence on the dependent variable (GNHVITAL).

In summary, this section provided a discussion of the results from the QUAN and QUAL data analyses. The research findings from both QUAN and QUAL were synthesised and integrated to change the conceptual framework designed for this study.

### **A Revised Conceptual Framework of the Study**

This study anchors the effectiveness of teaching, learning and support (ETLS) model adopted and designed based on UNICEF's (2000) five dimensions/determinants of quality education, with the additional element of UNESCO's (2005) policies for better quality or enabling inputs for quality teaching and learning and Windham's

(1990) educational effectiveness production model (which comprises input, process, output and outcomes indicators). The study also considered the school effectiveness research structures of Scheerens (2000), Creemers and Kyriakides (2006), Reynolds et al. (2014), and Tshering (2014) (context level, school level, classroom level, and student level) while designing the conceptual framework of the study.

An exploration of the four important input characteristics of relevant teaching approaches (GNHVITAL), both material and human resources (SR), appropriate support services (ISS and ESS) and teachers' attitudes and aptitude towards the GNHIC (TAGC) was undertaken. The findings support previous research that found having relevant teaching pedagogy, abundant resources (both material and human), supportive environments and competent and motivated teachers are crucial for the attainment of educational goals (UNICEF, 2000; UNESCO, 2005; Windham, 1990). The outcome of executing EGNH plans via a GNH-Infused Curriculum (GNHIC) in the sample secondary schools in the current study is found to be dependent on the level of input characteristics introduced by the school policy planners.

The results from this study point to the need for a review of the conceptual framework. The study revealed two important findings: (i) the effectiveness of the GNHIC in Bhutanese schools or the achievement of learned GNHIC can be attained if the relevant intended and hidden GNH-Infused Curricula are designed, and (ii) the taught GNHIC should comprise vigorous input characteristics such as relevant GNHVITAL approaches, sufficient school resources (SR) and a strong internal support system (ISS). The input characteristics of GNHVITAL, SR and ISS were found to be

strongly correlated, and the SR and ISS largely predicted the effective implementation of GNHVITAL practices in schools.

Though qualitative data analysis supported the importance of the external support system and teachers' attitudes towards the GNHIC, the regression test showed that the external support system and teachers' attitudes did not contribute to predicting GNHVITAL implementation in schools. There was a small correlation between the GNHVITAL, ESS and TAGC variables.

The gap between the intended curriculum and taught curriculum can be minimised if the input characteristics, of GNHVITAL approaches, relevant school resources and internal support system are implemented effectively. Of particular note is that the school planners should focus their attention on the SR and ISS variables, as these two variables explained stronger achievement of the GNHVITAL variable. The revised conceptual framework is provided in Figure 8.1.

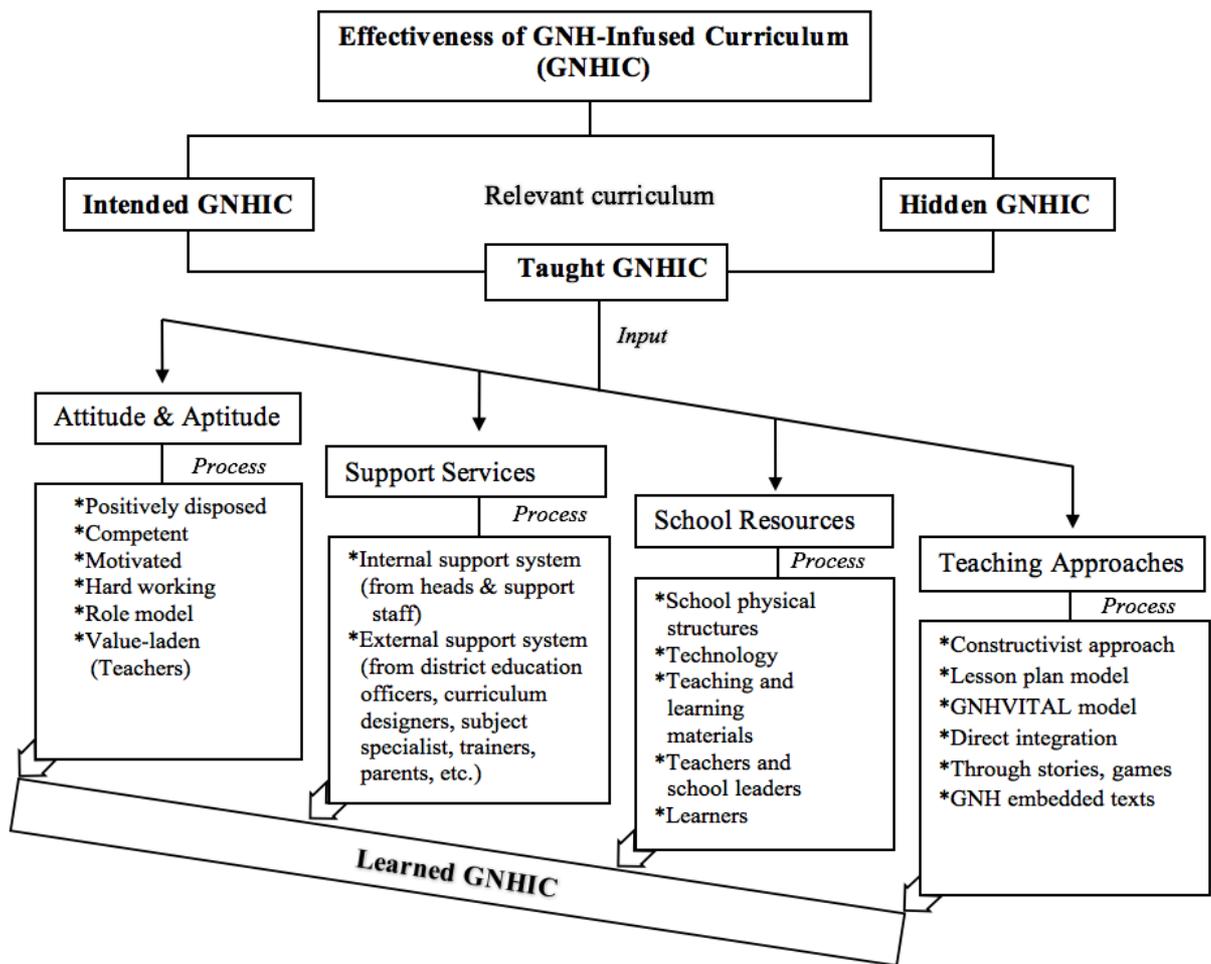


Figure 8.1. The revised conceptual framework for the effectiveness of GNHIC practices in schools.

*Note:* The results from the study guided the revising of the conceptual framework, which is represented in the form of a weighing balance machine, an analogy used to indicate that the order of the weight exerted by each of the input characteristics (teaching approaches, school resources, support services and attitude and aptitude) determine the stronger achievement of the GNHIC in schools.

The initial conceptual framework showed a more horizontal structure than that shown in Figure 8.1 regarding the input characteristics of attitude and aptitude, support services, school resources and teaching approaches, which indicated the equal importance of each input variable on the effective implementation of GNHIC in schools. However, the analysis of the findings from this study revealed that teaching approaches, internal support services and school resources are more strongly correlated and are better predictors of effective implementation of the GNHIC in schools. Figure Chapter Eight

8.1 shows the change in emphasis, that is, the weighting of the four input variables is represented by a change in the slope presented in the original conceptual framework to one that indicates the most important variable at the bottom right up to the lesser variable at the top left. The perceived impact on the learned curriculum is also expected to be greater from the teaching approaches, school resources and internal support systems as these variables are strongly correlated with regard to their effectiveness in the implementation of the GNHIC in schools. The results also indicated that the perceived impact from external support services and teachers' attitudes on the implementation of the GNHIC or learned GNHIC is likely to be minimal, as their correlation values were smaller and did not predict the effective implementation of the GNHIC in schools. The magnitude of perceived impact on the learned curriculum from each of the input characteristics is indicated by arrows (see Figure 8.1). This study authenticated the input characteristics included in the conceptual framework of the study, which was developed based on the educational input characteristics put forward by UNICEF (2000), UNESCO (2005), Windham (1990), Scheerens (2000), Creemers and Kyriakides (2006), Reynolds et al. (2014) and Tshering (2014).

### **Contribution to Theory**

This thesis was framed on pragmatic theory, which is underpinned by pluralistic perspectives and problem-centred, real-world, practiced-oriented and research question-based approaches. The methodology and results from this study confirm that pragmatism is an appropriate theory for school effectiveness research (SER). The study's results were attained by employing appropriate research methods and tools that addressed the research questions. Pragmatists mutually combine the strengths and weaknesses of both QUAN and QUAL research and do not adhere to one rigid

paradigmatic approach to research. They focus on the practical issues of the problem being investigated and employ the most appropriate methods, designs, tools and other approaches to address the research questions (Creswell & Clark, 2011).

This study detected that variations existed between the intended and taught GNH-Infused Curricula implementation in the sampled schools by employing statistical tests. These descriptive statistics included analysis of variance (ANOVA), multivariate analysis of variance (MANOVA), item response analysis (IRT), Pearson correlations and regression, and thematic analysis of the interview data. To cite an example, the descriptive statistics revealed that the level of implementation of the GNHIC in the sample schools was strong; however, the item difficulty analysis (based on the Rasch measurement model) detected that there was a gap between the intended and taught GNHIC in the sampled schools. This finding was supported by the QUAL result that the level of implementation of the GNHIC in Bhutanese schools is slowly disappearing. To bridge this gap, the findings from the QUAL result, which maintained that the input characteristics of appropriate teaching approaches, relevant teaching resources, vibrant internal support services, continual external support system and teacher's positive outlook towards the GNHIC are imperative for the effectiveness of the GNHIC in Bhutanese schools, need to be considered while employing a mixed methods SER. This finding aligns with previous studies that found a disparity between survey findings, interview results and actual practices surrounding the classroom instructions employed by the teachers in the class (English, 1988; Sherab, 2013; Yangki, 1998). Accordingly, this disparity provides further evidence that a pragmatic approach is needed to comprehensively address the research questions.

The mixed methods and real-world research provided a firm platform on which to conduct this research. As such, this study adds to the veracity of a pragmatic theoretical approach and allows the research questions to be studied in more depth in the context of this study to ascertain the level of implementation of the GNHIC in the sampled schools.

### **Implications of Study**

Bhutan aims to provide a holistic and Gross National Happiness (GNH) values-based quality education to all the children in the country. GNH can be attained by maintaining a fine balance between “the needs of the body with those of the mind within a peaceful and secure environment” (Gross National Happiness Commission, 2013, para. 4). To achieve this noble vision of the Fourth King of Bhutan, the government of the day brought in a policy shift in the Ministry of Education by instituting Educating for GNH (EGNH) in all Bhutanese schools in the 2010 academic year. Different approaches have been designed and used in implementing EGNH in schools. One of the approaches employed to promote EGNH in schools was curriculum integration, that is, by infusing the GNH values into the existing school curriculum. The current study focused on the effectiveness of the intended and taught GNH-Infused Curricula (GNHIC) in the sample secondary schools. The input characteristics of the effectiveness of teaching, learning and support (ETLS) model (as discussed in Chapter Three) are indispensable for the successful achievement of the intended and taught GNH-Infused Curriculum. According to Windham (1990), the essential input characteristics that consist of factors such as teacher attributes, facilities, equipment, educational materials and administrative capacity determine the effectiveness of school innovations.

The findings from this research entail practical, policy and methodological implications. These implications are provided in the following sub-topics.

### ***Practical Implications***

The schools of Thimphu and Samtse districts may draw insights from this finding for further strengthening of the GNHIC. The practical implications of these research findings are discussed in the following paragraphs.

The study revealed that there was a gap between the intended and taught GNHIC (as determined by the item analysis of the GNHVITAL scale). Failing to close this gap would lead to the failure of effective implementation of the GNHIC in schools. A waste of time and financial, material and human resources would be incurred if what has been intended and planned by the curriculum designers does not get enacted in the schools.

Further, the sampled schools neither include values components in their school assessment policy, provide written/verbal feedback nor keep an effective record of students' learning of the GNH values. In other words, teachers do not maintain any systematic records of student values development and the feedback provided. In any forms of learning, assessment and evaluation are indispensable for the successful implementation of educational innovations/reforms (Lissitz & Schafer, 2002; Scheerens, 2000). Absence of assessment tools could result in inadequate infusion of the GNH values into the existing school curriculum. This finding revealed that teachers and students are not motivated to study or implement the GNH-Infused Curriculum if there is a dearth of values assessment in schools. The interview respondents strongly opined for a need for GNH values assessment if the GNHIC is to be effectively implemented in the schools. Many authors (Black & Wiliam, 1998; Brookhart, 2002;

CAPSD & BBE, 2004; UNESCO, 2005; UNICEF, 2000; Windham, 1990) claimed that undertaking varied assessments in schools facilitates teachers to provide a range of teaching strategies to address the learning needs of the students. This study indicates that it would be valuable to attach assessment to the GNH curriculum.

Teachers agreed that they did not change or modify the content of the textbooks from negative concepts into positive value statements to align with the GNH values and principles, although the teachers' attitudes scale (TAGC) revealed that such a strategy is a useful approach to integrating the GNH values into the existing school curriculum. Lack of such practices by teachers may hinder the teaching of GNH values to Bhutanese students. Furthermore, changing the negative statements in the prescribed texts to a positive values statement is considered a suitable approach to teaching GNH values to students (DCRD, 2011; EMSSD, 2013).

The item response analysis (IRA) and QUAL results found that teachers do not spend more time preparing GNH lessons. This finding contrasts with the IRA results on the planning of GNH lessons, entering the class with clear GNH lesson objectives and teaching the lesson logically and systematically through an interactive and collaborative approach. The research revealed that the effective implementation of the GNHIC can be achieved if teachers are provided some time for GNH lesson preparation, as quality of teaching depends on the time invested by the teachers in planning their teaching lessons.

The QUAL result showed that teachers were asked by the school principal to plan a GNH lesson; however, many respondents expressed their concerns that the GNH values remain on lesson plans only, not actually taught in the class. This aligns with Sherab's (2013) finding about the existing disparity between teachers' perceptions and

their actual classroom practices, albeit the methodologies used were different. The immediate implication is waste of time and resources. There is no point wasting time planning the lessons if teachers do not execute the plans in the class. This finding indicated that there is no follow-up monitoring by the school principals, and such ill practices, if continued, would impact on the effective implementation of the GNHIC in schools.

Disparity was observed between the schools in terms of implementing the GNH-Infused Curriculum uniformly. Some school principals leave the implementation of the GNHIC to the discretion of the teachers. One of the immediate impacts of the variation in the implementation amongst schools may be that the GNHIC is not implemented at all in some schools by some teachers.

One finding is that there are ineffective professional support services from the school affiliated agencies and school principals. The lack of appropriate guidance and professional support services for the GNHIC may hinder its effective implementation. It is important that sufficient appropriate training on how to implement the GNHIC is provided to teachers to ensure the effectiveness of the GNHIC in schools. The teachers' attitudes survey scale revealed that 97% of teachers agreed to a need for continuous professional development programmes for teachers about how to effectively implement the GNH-Infused Curriculum in schools.

Similarly, the study showed that teachers were not able to teach GNH values to students as effectively as required due to the lack of appropriate resources from both the schools and the concerned agencies. For example, the item analysis revealed that teachers do not have access to teaching resource materials concerning how to integrate GNH values into the existing school curriculum. The IRA also showed that the

classrooms are not spacious enough to let the teachers move around freely during the GNH lesson activities. The QUAL data analysis also supported that some schools do not have sufficient spacious classrooms and adequate furniture to implement the GNHIC. Furthermore, the findings from the correlation and regression tests point to the fact that appropriate resource materials are essential investments for implementing the GNHIC in schools. The school resource variable was the strongest predictor of effective GNHVITAL practices in schools. Not supplying the resources required to implement the GNHIC into schools would impact on how effectively it would be taught.

This study's results revealed the importance of role modelling by teachers while teaching GNH values to their students, which is a key aspect of the hidden curriculum. Ninety six percent of the survey respondents agreed that teachers should be the role models for their students in terms of embodying the taught values. Furthermore, these teachers agreed that students become more respectful of Bhutanese social etiquettes (*Driglam Namzha*) if they are exposed to teachers who promote respect and embody the values they preach to their students. It is important to promote a whole school approach to role modelling, as this could bring about a more uniform change in students' thoughts, words and actions.

The results from the TAGC survey item analysis showed that the GNHVITAL approach has been the most appropriate approach to teaching values to students; however, it should not be the only approach. The study found that a hybrid approach of including both an integrated and separate GNH subject would strengthen the effectiveness of the GNHIC in Bhutanese schools. While the literature and government policy support an integrated approach, results from this study indicate that some

teachers believe that the introduction of a separate subject may improve the effective implementation of GNH in schools. This notion of teaching the GNH values via a separate subject form has also been supported by the retired vice chancellor of the Royal University of Bhutan (Thinley, 2016). Given the difficulty of integrating the GNHIC, as identified by the study's participants, introducing a hybrid approach may encourage more teachers to implement it as they will have the choice of delivery mode to suit their individual preferences.

### ***Policy Implications***

The results from this study indicate that there is a gap between schools in terms of implementing the GNHIC uniformly; consequently, the government and school policies regarding its implementation need revision. According to the Education Monitoring Division (2013), the training manual book for GNHIC states, "Teachers should be mindful that infusing values should not come at the cost of delivering curriculum content". Furthermore, the finding from the QUAL result analysis revealed that school principals direct their teachers to integrate GNH values into the curriculum text "whenever and wherever" possible, therefore making it at the discretion of teachers. These statements related to policy can reduce teachers' and principal's willingness to implement the GNHIC, as it provides them a way to avoid it. Thus, implementation of the GNHIC could remain uniformly ineffective across schools in Bhutan if teachers and schools are left to their own devices and the policy statement remains less explicit.

The TAGC item analysis revealed that teachers do not wish the curriculum planners to revise the existing curriculum, even though findings from the IRA and Ura (2009) showed that the existing curriculum does not contain sufficient Bhutanese-

inspired GNH values. This finding may indicate that the large focus on academic priorities is hindering the effective implementation of the GNHIC in schools. This point suggests that there is a need for an increased emphasis from the curriculum planners on integrating GNH values into each subject area. The findings of this study revealed that GNH values are especially lacking in mathematics, ICT and science, as teachers find it difficult to integrate the values into these subject areas. The curriculum planners may explore the possibilities of re-examining or revising some of the content of these subjects and related texts to align them with the GNH values and principles.

Similarly, GNH has no weighting in determining the grade promotions of students. Teachers claimed that because of the absence of examination and other forms of assessment in GNH education, the teachers and students are not serious about teaching and learning GNH values and principles. Although the holistic approach to values assessment rewards students with recognition of achievement through character certificates and Socially Useful and Productive Work (SUPW) grades (DCRD, 2011; EMSSD, 2013) as a means of measuring the values learned, this study indicated that there is a dearth of records kept by teachers. The retired vice chancellor of the Royal University of Bhutan cautioned that the practising of EGNH in schools would lose its anchor if there are no appropriate tools to measure and assess the intended and taught GNH-Infused Curricula in schools (Thinley, 2016). Accordingly, there is a strong case to mandate for the assessment of GNH values in schools.

This study found that one of the factors inhibiting the effective implementation of the GNHIC is teachers' workload. The QUAL result showed that teachers are overburdened with co-curricular and extra-curricular activities in addition to their subject areas. Consequently, teachers get little time to plan their GNH lessons. The crowded

curriculum, irrelevant topics, some obsolete aspects of the curriculum and large numbers of students in classes further aggravate the problems of implementing the GNHIC in schools. The concerned agencies need to review this issue of teachers' workloads and consider reducing their focus on co- and extra-curricular activities so they can concentrate on curriculum aspects and have sufficient time to plan and integrate the GNHIC more effectively.

Items analysis from the teachers' attitudes survey scale showed that support from school principals is imperative for the successful implementation of the GNH-Infused Curriculum (GNHIC). The analysis also informed that having a uniform and centralised policy for schools on the GNHIC is essential if it is to be effective in schools. As discussed under the sub-topic "practical implications", school resources and internal support systems are imperative, as these two variables are strong predictors of the successful implementation of the GNHIC. The study revealed that in order to effectively implement the GNHIC in schools, teachers need professional support services from the school leaders and significant others and appropriate school resources. Failing to provide a school policy that addresses professional support and material resources is likely to hinder the effective implementation of the GNHIC schools.

### ***Methodological Implications***

Researchers in the past have demonstrated that there were often disparities between survey findings, interview results and actual practices surrounding the classroom instructions employed by the teachers (Sherab et al., 2016; Yangki, 1998). Similarly, in this study, the case analysis of the survey data revealed that the level of implementation of the GNHIC in the sample schools was strong; however, the item

response analysis and the interview data analysis showed a considerable gap between the intended and taught GNHIC in terms of using GNHVITAL approaches, availability of school resources and the level of support services received by the teachers from the school leaders and the significant others.

The existence of a disparity between the intended and taught GNHIC was detected through use of the Rasch measurement scale employed for this study, where both case and item analyses were considered to ascertain the results. Unlike the principal component analysis used in classical test methods to reveal the magnitude of item correlations and reliability, the Rasch model focuses on the unidimensionality, construct validity and reliability for both case and item scores. Once the construct validity is achieved, the item analysis can expose even a minute difference in the test items and reveal the gaps existing in the construct under study. For example, there was a discrepancy between the responses provided by the participants for survey items 4 and 12, that is, teachers could go to the class with prepared GNH lesson objectives but failed to end the lesson on GNH appropriately. This result may be interpreted as the gap between theory and practice. This result supports the ideas of English (1988), UNICEF (2000) and Yanki (1999), who suggested that a gap between the intended and taught curricula is likely to occur during the process of curriculum implementation.

The knowledge claim here is that the Rasch measurement model is essential for testing and analysing all the psychometrical data. Item response analysis is as important as participant observation. Interviews are vital to either support or reveal gaps found in the survey data analysis. However, a more scientific and objective way of measurement is via an item response analysis or item difficulty analysis (Rasch analysis). These findings indicate that the IRA appears to be more reliable and valid than the findings

from the case score analysis. Ultimately, these research tools for analysis can enrich understanding of the issues involved due to the details they make accessible.

This study employed a convergent mixed method study, where both QUAN and QUAL data were collected simultaneously to determine the school's effectiveness in the implementation of the GNHIC. However, of particular note, while designing the data collection tools and questions, researchers must be mindful of framing questions that are complementary to each other (e.g., survey and interview) for consistent data analysis and comprehensive understanding of the research question. Nonetheless, in recent times, school effectiveness research internationally has been dominated by the quantitative approach, with survey and quasi-experimental studies (Creemers & Kyriakides, 2006; Kyriakides, 2005; Kyriakides & Creemers, 2008). Finally, to gain a more detailed understanding through research, consideration should be given to employing a mixed methods approach when conducting school effectiveness research.

### **Limitations of the Study**

The inherent limitations, scope and applicability of the study require the study's findings to be considered with caution. The following paragraphs present the limitations of the study.

This study had the scope to include research participants such as the principals, students and external affiliated agencies (parents, educational officers from REC, EMSD, DEO, CoE and DSE); however, due to the mitigating circumstances and time constraints, these potential participants were not invited to participate in this study. There was scope for obtaining a complete understanding of the GNH values in teaching and learning in the schools had these participants been included in the study. For example, the study found that there was a lack of appropriate support from school

principals and affiliated agencies and a lack of GNH-inspired content in the existing curriculum. Seeking the perspectives from principals, students and significant others would have deepened the understanding of the findings.

Similarly, in-depth case study and class participant observation were excluded from the study due to the same mitigating circumstances. Inclusion of these data collection tools would have verified the findings, such as high average case scores for all the survey scales, and provided a further objective measure of the implementation of the GNHIC. However, the item response analysis revealed that discrepancies existed in the implementation of the GNHIC in the sampled schools.

Furthermore, this study was conducted in two districts of Bhutan, namely, Thimphu and Samtse, due to the short duration of the research. Had there been more schools included from the other 20 districts of Bhutan, the scope of the findings from this study could have been more generalisable. The study used purposive and voluntary sampling and thus the findings are limited to the 22 sampled schools from these two districts. However, seven secondary schools had class levels from pre-primary to class VIII and five secondary schools had class levels from pre-primary to class X. In addition, data could not be collected from remote schools that did not have internet or road access. None of the private schools provided access to the researcher to collect data from their teachers despite being invited.

### **Directions for Future Research**

The advent of new information and the attainment of new knowledge are never static (Sherab et al., 2016). With the use of new tools, existing knowledge may be either validated or refined for the advancement of understanding and knowledge about a question under investigation. Notwithstanding the implications and limitations of this

study, researchers investigating in the future can take note of the seven directions provided in the following paragraphs for future research surrounding EGNH via the GNHIC.

First, using a similar mixed methods approach to determining school effectiveness, future researchers could include the learners or initiate an impact study of the GNHIC on learners. For example, one such question to be addressed is concerned with “The impact of intended and taught GNH-infused curricula on the learned curriculum”.

Second, future researchers could conduct a study using additional tools, such as participant observation, document analysis and case study, in a broader scope of schools (at all school levels in all districts and/or in a larger sample of secondary schools from other districts).

Third, future researchers could undertake follow-up research about why teachers with a bachelor’s qualification who are 25 years and younger did well in the GNHIC/GNHVITAL scale as opposed to their senior, older colleagues with a bachelor’s degree and colleagues in the same age range with a postgraduate diploma certificate and master’s degree.

Fourth, in terms of the scale related to the teachers’ attitudes towards the implementation of GNHIC in the sampled schools, the MANOVA test result revealed that remote school teachers’ attitudes towards the implementation of GNHIC are more positive than their teacher colleagues in urban locations. Future researchers can undertake follow up studies on this finding that why teachers in urban areas are not positively disposed to implementing the GNHIC in schools.

Fifth, future researchers could undertake an in-depth study using appropriate research methods including quasi-experimental research to authenticate the finding as to why external support system (ESS) and teachers' attitudes towards the GNH-infused curriculum (TAGC) scales did not predict the effective implementation of the GNHIC in the sampled schools. The correlations between these variables were found to be small.

Sixth, this study found that teachers were not able to confirm if internal assessment of GNH values would facilitate more effective implementation and student learning. Future research could undertake an in-depth quantitative study on the topic of internal assessment and its effects on the implementation on GNHIC.

Finally, as opposed to the research design used for this study, future researchers could use an explanatory sequential mixed method design to gain an understanding of the case of the intended and taught GNHIC by first collecting quantitative data and analysing it, and second by collecting qualitative data to support or refute the findings from the first phase of this research using suitable data collection tools.

### **Chapter Conclusion and Reflection on the Results**

This chapter provided discussions surrounding the results from QUAN and QUAL data analyses, the conceptual framework, theoretical underpinnings, implications, limitations of the study and potential future directions of the study. A final reflection of the results discussed in this chapter is provided in the following dot points.

- The effectiveness of teaching, learning and support (TLS) model is a recommended framework for the implementation of an educational innovation such as the GNHIC in schools.

- The GNH values can be taught using a GNHVITAL approach but may be supported by designing a separate subject on EGNH.
- A strong internal support system and appropriate school resources determine the increasing effectiveness of school innovations.
- Support from significant others (parents, DEOs, EMOS, educational experts) is important for the effectiveness of the GNHIC in schools.
- Professional development of teachers is key to the effectiveness of any educational innovation in schools (e.g., EGNH via GNHIC).
- Role modelling by teachers in relation to their thoughts, words and actions is an important teaching and learning strategy, that is, part of the hidden curriculum involved in teaching GNH values to students.
- It is essential that school principals guide and support the implementation of educational innovation in their schools.
- A change of school principal can hinder the implementation of school innovation when there is a lack of uniform school policy across schools.
- Policy clauses such as “whenever and wherever possible” and “values should not come at the cost of delivering curriculum content”, while infusing the GNH values into the existing curriculum, hinder the uniform practising of GNHIC in schools.
- The gap between the intended and taught GNHIC in schools needs to be reduced for the successful implementation of EGNH in schools.
- Effective teachers’ guidelines and manuals are necessary to implement educational innovation.

- The prescribed curriculum texts need to be embedded with GNH values for easy GNH lesson planning.
- Student assessment of GNH values should be considered with the intention of increasing the status of GNH teaching and learning practices.
- Teachers' workloads need to be addressed if the GNHVITAL approaches are to effectively executed by teachers.
- Crowded curriculum, obsolete texts and teachers' lack of knowledge on GNHIC are three major inhibiting factors to implementing the GNHIC in the sample schools.

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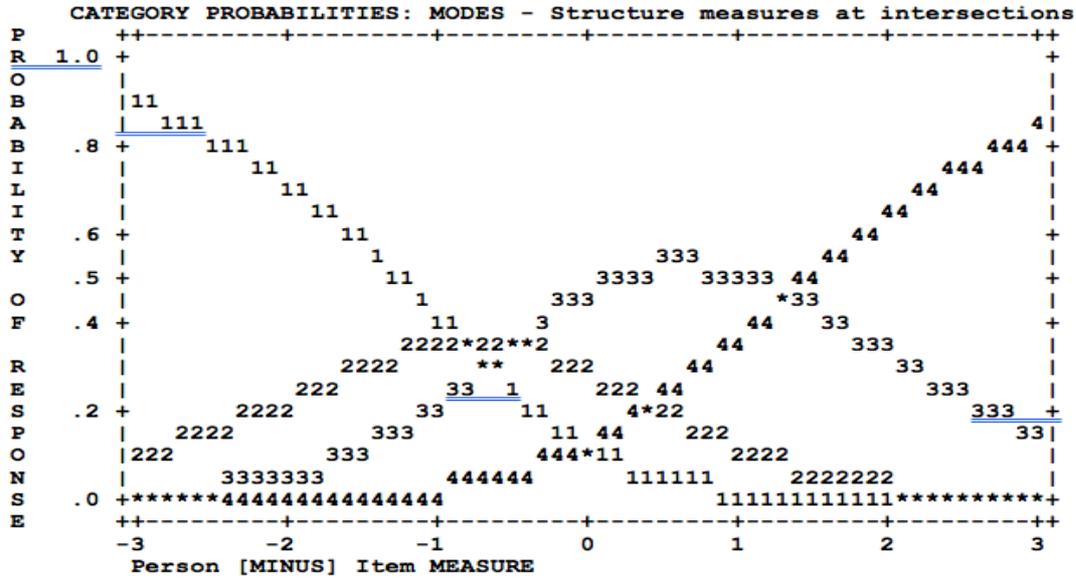
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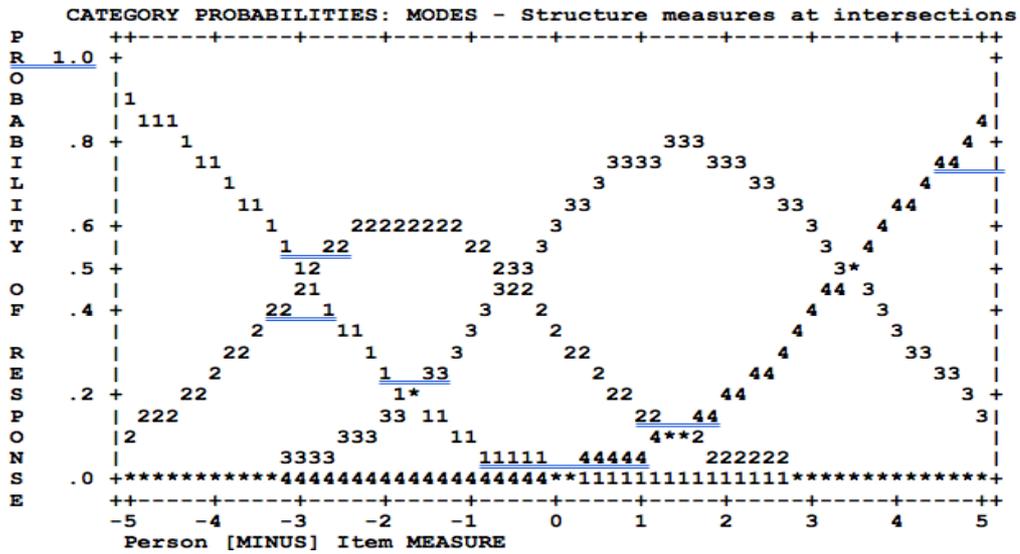
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# Appendices

## Appendix A: Item Fit Map for SR Scale



## Appendix B: Item Map for ISS Scale





## Appendix E: GNHVITAL Ranked Concept Graph

Concept	Absolute Count	Relative Count
values	180	100%
teaching	174	96.6%
lesson	108	60%
students	89	49.4%
time	55	30.5%
class	48	26.6%
topic	36	20%
plan	35	19.4%
activities	30	16.6%
work	26	14.4%
think	25	13.8%
centred	24	13.3%
school	24	13.3%
talk	24	13.3%
follow	21	11.6%
group	21	11.6%
infuse	20	11.1%
learn	19	10.5%
should	19	10.5%
questions	14	7.7%
give	14	7.7%
important	13	7.2%
write	13	7.2%
classroom	13	7.2%
ideas	12	6.6%
curriculum	11	6.1%
problem	10	5.5%

## Appendix F: SR Ranked Concept Graph

Concept	Absolute Count	Relative Count
values	38	100%
teaching	32	84.2%
Gnh	30	78.9%
classrooms	25	65.7%
school	20	52.6%
materials	19	50%
students	18	47.3%
class	13	34.2%
think	13	34.2%
teach	9	23.6%
books	7	18.4%
spacious	7	18.4%
furniture	6	15.7%
children	6	15.7%
hall	5	13.1%
resources	4	10.5%
system	4	10.5%
needed	4	10.5%
help	4	10.5%

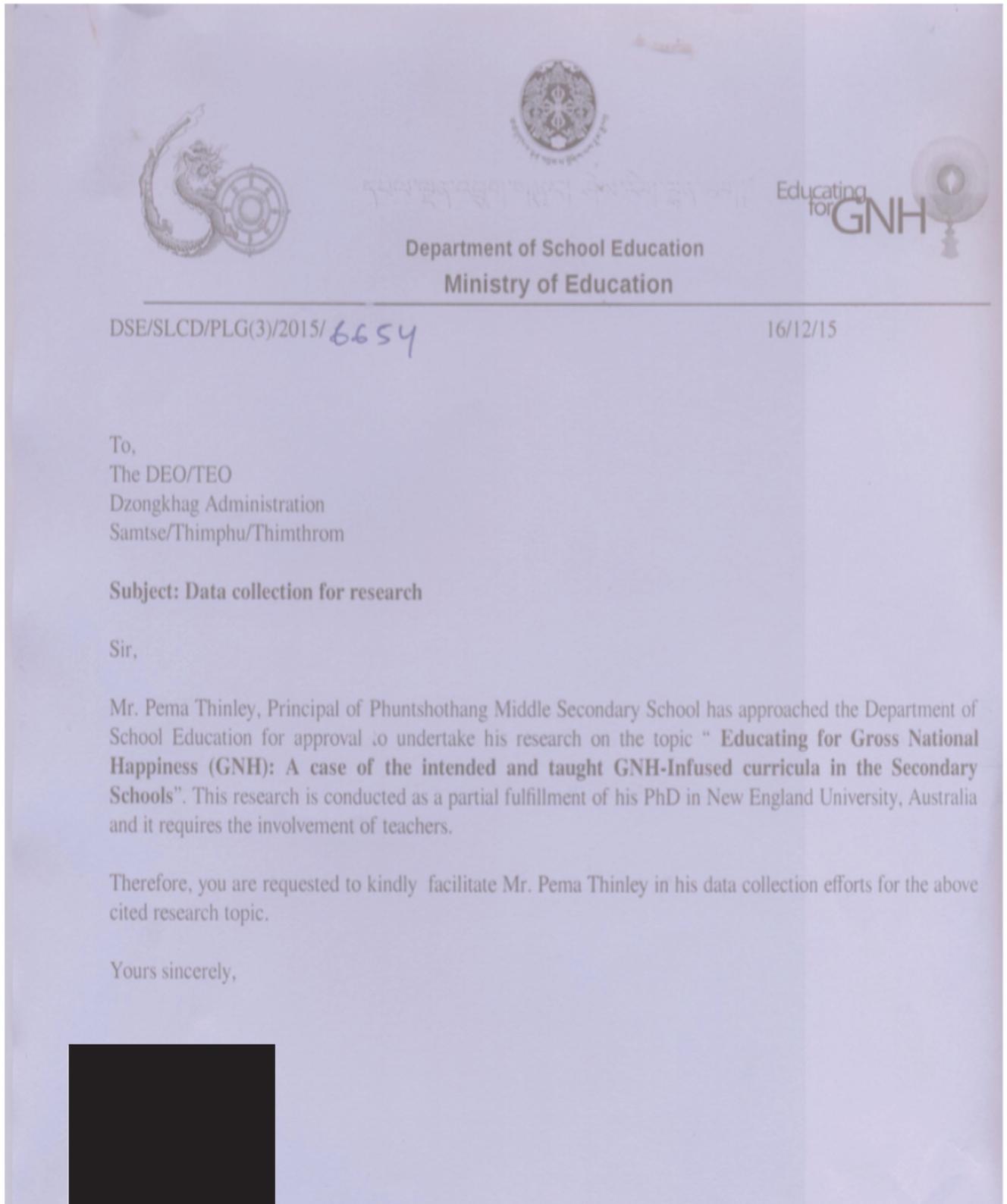
## Appendix G: ISS and ESS Ranked Concept Graph

Concept	Absolute Count	Relative Count
<u>school</u>	87	100%
<u>Gnh</u>	73	83.9%
<u>teachers</u>	50	57.4%
<u>support</u>	37	42.5%
<u>parents</u>	34	39%
<u>think</u>	23	26.4%
<u>year</u>	21	24.1%
<u>workshop</u>	21	24.1%
<u>time</u>	20	22.9%
<u>students</u>	18	20.6%
<u>children</u>	15	17.2%
<u>Sbip</u>	14	16%
<u>attended</u>	14	16%
<u>parent</u>	13	14.9%
<u>lessons</u>	13	14.9%
<u>program</u>	12	13.7%
<u>few</u>	11	12.6%
<u>principal</u>	10	11.4%
<u>give</u>	10	11.4%
<u>education</u>	9	10.3%
<u>teaching</u>	9	10.3%
<u>problem</u>	9	10.3%
<u>teach</u>	9	10.3%
<u>activities</u>	9	10.3%
<u>talk</u>	8	9.1%
<u>people</u>	8	9.1%
<u>coming</u>	8	9.1%
<u>parenting</u>	8	9.1%

## Appendix H: TAGC Ranked Concept Graph

Concept	Absolute Count	Relative Count
<u>values</u>	331	100%
<u>Gnh</u>	323	97.5%
<u>teachers</u>	136	41%
<u>students</u>	112	33.8%
<u>think</u>	98	29.6%
<u>should</u>	95	28.7%
<u>school</u>	89	26.8%
<u>important</u>	76	22.9%
<u>teach</u>	73	22%
<u>subject</u>	66	19.9%
<u>lessons</u>	54	16.3%
<u>time</u>	47	14.1%
<u>infuse</u>	47	14.1%
<u>assessment</u>	46	13.8%
<u>teaching</u>	42	12.6%
<u>talk</u>	42	12.6%
<u>class</u>	39	11.7%
<u>children</u>	39	11.7%
<u>person</u>	39	11.7%
<u>feel</u>	29	8.7%
<u>academic</u>	29	8.7%
<u>curriculum</u>	28	8.4%
<u>learn</u>	28	8.4%
<u>role</u>	28	8.4%
<u>education</u>	27	8.1%
<u>give</u>	27	8.1%
<u>policy</u>	24	7.2%
<u>help</u>	21	6.3%
<u>modeling</u>	17	5.1%
<u>care</u>	13	3.9%
<u>environment</u>	13	3.9%
<u>development</u>	10	3%
<u>areas</u>	9	2.7%

## Appendix I: Director's Letter of Approval for Data Collection from Schools



## Appendix J: Participants Consent Form

# CONSENT FORM for PARTICIPANTS

Research Project:

Educating for Gross National Happiness (GNH): A case of the intended and taught GNH-Infused curricula in the secondary schools of Thimphu and Samtse districts, Bhutan

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I, ....., have read the information contained in the Information Sheet for Participants and any questions I have asked have been answered to my satisfaction.

Yes/No

I agree to participate in this activity, realising that I may withdraw at any time. Yes/No

I agree that research data gathered for the study may be quoted and published using a pseudonym.

Yes/No

I agree to the interview having my audio recorded and transcribed.

Yes/No

I would like to receive a copy of the transcription of the interview.

Yes/No

I am older than 18 years of age.

Yes/No

.....  
Participant Date

.....  
Researcher Date

## **Appendix K: Telephone/In-person Interview Scripts**

### **PROPOSED TELEPHONE INTERVIEW SCRIPT**

Hi, my name is Pema Thinley. I'm currently pursuing my PhD in education at the School of Education at the University of New England, Armidale, Australia under the supervision of my Principal Supervisor, Dr. John Haynes and Co-Supervisor, Mrs. Kathy Jenkins. The topic of my research is "*Educating for Gross National Happiness: A case of the intended and taught GNH-Infused curriculum in the secondary schools of Thimphu and Samtse districts.*"

As a follow up to, my survey I am conducting telephone interviews aimed at adding to the depth and breadth of the data collected from the surveys. As such I am inviting you to take part in this additional component of the study essentially because, with your additional information on GNH-Infused curriculum, the study will showcase a holistic picture of the case of an intended and taught GNH-Infused curriculum in your school. The purpose of this is to inform stakeholders whether or not the existing curriculum requires a new or different approach and content in order to achieve GNH values and principles by the students of Thimphu and Samtse districts.

Before you agree to participate, there are some additional information you should know about the study:

There are no other expected risks to you for participating in this study. There will be no cost to you to participate in this study. If you agreed, this interview would be tape recorded and transcribed later in a closed door. The transcribed texts will be sent to you via an email for authentication of the information and necessary addition and deletion of information as per your willingness. The hard copy data will be kept under lock and key, and the soft copy data will be saved with highly secured password. Results of the research may be presented at meetings or in publications, but your name will not be used.

Your participation in semi-structured interviews will last about 15 to 30 minutes approximately. Your participation in this study is completely voluntary. You are free not to participate or to withdraw at any time, for whatever reason. No matter what decision you

make, there will be no penalty or loss of benefit to which you are entitled.

Do you have any questions? Do you agree to participate in this interview?

If you decide to take part in this study, you will be asked to tell me some of the best practices and teaching approaches adopted by you and your fellow teachers to teach GNH values to students through daily teaching lessons. I will also ask you to tell me some of the discrepancies existing between the intended and taught GNH-Infused curriculum and between the content and GNH values. You can also tell me some of the enabling and inhibiting factors surrounding the implementation of GNH-Infused curriculum in your school.

Shall we begin our interview? . . . If ‘Yes’ . . .

The following questions will be asked for the interview:

1. What teaching methods have been deployed by you/ teachers to engage the students in the GNH-Infused curriculum?
  - a. How Important is infusing GNH values into the existing school curriculum to you?
  - b. Can you describe the steps that you follow while planning a GNH-Infused curriculum (for example)?
  - c. How do you plan your lessons in order to teach GNH values to your students?/ What do you do before teaching, while teaching and after teaching the GNH-Infused lessons to your students? Could you talk little bit about how your friends plan their lessons and teach in the class?
  - d. Could you give one example of approaches you followed while teaching GNH-Infused lessons in your classes? How important is this approach to you? How successful was this approach?
  - e. Could you also share some other approaches you followed while teaching GNH-Infused curriculum?
  - f. Could you share some GNH values that you know? May be you could start with four pillars . . .
  - g. Could you share some school-based in-service programs (SBIP) that your school carried out about infusing GNH values into the existing curriculum/content?
  - h. What are some of the GNH related activities that you carried out in your classrooms during the teaching learning process?
2. What factors (both enabling and inhibiting) affect the implementation of GNH-Infused curricula in the Bhutanese schools?

- a. What are some of the challenges you face while implementing GNH-Infused curricula? Why do you think you face/faced those challenges?
  - b. What are some of the achievements you and your friends had while implementing GNH-Infused curriculum? Could you provide some reasons for those achievements?
  - c. What are some of the structural or physical factors that may influence the implementation of GNH-Infused curriculum? What are some additional resources needed for the successful implementation of GNH-Infused curriculum in your school?
  - d. Do you think appropriate teaching learning materials are important for the successful teaching of GNH-Infused curriculum? Why?
3. What is the relationship between the intended curricula and what is being taught in schools?
    - a. How helpful was any training that you got for the implementation of GNH-Infused curriculum?
    - b. How important is professional development (PD) training or workshop about infusing GNH values into the existing school curriculum?
    - c. How supportive is your Principal on the goal of infusing GNH values into the curriculum content? If not supportive, why not?
    - d. How supportive is the concerned agency (for example, district education office, curriculum division, education monitoring division, department of school of education, parents, teaching colleges) about GNH-Infused curriculum in schools? Why do you think there is a poor/good support from this agency?
  4. What are some of the striking differences existed between the GNH values and curriculum content? Do they align with each other?
    - a. If you were the academic in-charge, how would you plan and execute the successful implementation of GNH-Infused Curriculum (infusing GNH values into the daily lesson content) in your school?
    - b. Could you talk about any mismatch in the lesson content (in textbook) that you teach and GNH values? How do you fix those mismatches (if any)?
    - c. Why do you think integration of GNH values into the existing school curriculum is essential to all Bhutanese schools?
    - d. How relevant is this integrated approach to teaching GNH values to the students?
    - e. How important is role modeling by teachers in order to achieve GNH values by the students?
    - f. How important is having a school policy about infusing GNH values into the curriculum content?
    - g. How important is child centred teaching and learning approach while teaching GNH-Infused curriculum?
    - h. Do you support the statement, “GNH education is as important as academic education”? Why/why not?
    - i. Some teachers think, GNH values should be taught separately; what is your opinion on this?
    - j. Some teachers say that there is a poor support from the parents; what is your take on this?
  5. How do you/teachers assess the learning outcomes of the GNH-Infused curriculum? Is there school policy to support this?

- a. How do you assess your students' learning outcome of GNH-Infused curriculum?
- b. How important is assessment on GNH values by the teachers in your school?
- c. Do you think students will practice GNH values more if there is weighting in the internal assessment of student's progress report? Why?

The following consent form will be used before commencement of the interview:

Name of the Participant:

---

**Person Obtaining Consent**

I have read this form to the participant. An explanation of the research was given and questions from the subject were solicited and answered to the subject's satisfaction. In my judgment, the participant has demonstrated comprehension of the information. The participant has provided oral consent to participate in this study.

---

Name and Title (Print)

---

Signature of Person Obtaining Consent

---

Date

Thank You Note:

I would like to thank you very much for sparing your precious time by sharing your wonderful experiences vis-a-vis the implementation of GNH-Infused Curriculum in your school. The data provided by you would enrich my research findings. I remain obliged to you for being one of the 12 participants for the research interview. I look forward to receiving the same corporation from you in near future.

Thank You. Bye. Take Care.

## Appendix L: Letter of Approval from the UNE HDR Ethics Officer



Ethics Office  
Research Development & Integrity  
Research Division  
Armidale NSW 2351  
Australia  
Phone 02 6773 3449  
Fax 02 6773 3543  
jo-ann.sozou@une.edu.au  
www.une.edu.au/research-services

### HUMAN RESEARCH ETHICS COMMITTEE

**MEMORANDUM TO:** Dr John Haynes, Mrs Kathryn Jenkins & Mr Pema Thinley  
**School of Education**

This is to advise you that the Human Research Ethics Committee has approved the following:

**PROJECT TITLE:** Educating for Gross National Happiness(GNH): A case of the intended and taught GNH-infused curricula in the secondary schools of Thimphu and Samtse districts, Bhutan

**APPROVAL No.:** HE16-087

**COMMENCEMENT DATE:** 21 April, 2016

**APPROVAL VALID TO:** 21 April, 2017

**COMMENTS:** Nil. Conditions met in full

The Human Research Ethics Committee may grant approval for up to a maximum of three years. For approval periods greater than 12 months, researchers are required to submit an application for renewal at each twelve-month period. All researchers are required to submit a Final Report at the completion of their project. The Progress/Final Report Form is available at the following web address:  
<http://www.une.edu.au/research/research-services/rdi/ethics/hre/hrec-forms>

The NHMRC National Statement on Ethical Conduct in Research Involving Humans requires that researchers must report immediately to the Human Research Ethics Committee anything that might affect ethical acceptance of the protocol. This includes adverse reactions of participants, proposed changes in the protocol, and any other unforeseen events that might affect the continued ethical acceptability of the project.

In issuing this approval number, it is required that all data and consent forms are stored in a secure location for a minimum period of five years. These documents may be required for compliance audit processes during that time. If the location at which data and documentation are retained is changed within that five year period, the Research Ethics Officer should be advised of the new location.



Jo-Ann Sozou  
Secretary/Research Ethics Officer

21/04/2016

A16/11

## Appendix M: Online Survey Consent Form and Questionnaires

Mr Pema Thinley  
PhD Student (220118676)

### Supervisors:

Dr. John Haynes  
Mrs. Kathy Jenkins

Dear Sir/Madam,

In pursuit of my PhD studies at the University of New England, Australia, I am undertaking a research proposal on “*Educating for Gross National Happiness (GNH): A case of the intended and taught GNH-Infused curricula in the secondary schools of Thimphu and Samtse districts, Bhutan.*” I would remain obliged if you could kindly complete the survey items with utmost integrity and honesty. The **CONFIDENTIALITY** of your responses will be highly maintained.

---

### Online Implied Consent for Participants

#### Research Project:

- I have read the information contained in the Information Sheet for Participants and any questions I have asked have been answered to my satisfaction.
- I agree to participate in this activity, realising that I may withdraw at any time.
- *I agree that research data gathered for the study may be published, and my identity will be unidentifiable as explained in the information sheet.*
- *I agree that I may be quoted using a pseudonym.*
- *I am over 18 years of age.*
- In preservation of anonymity, I understand that no name or signature is required of me to give consent. By activating the **proceed** button below I am agreeing to participate in this study.

***PROCEED TO STUDY >>***

---

**I. Demographic Information [Please TICK the most appropriate choice].**

- a. Gender:  Male  
 Female
- b. Type of school:  Day School  
 Boarding School
- c. Your school is a :  Government school  
 Private school
- d. Highest qualification:  PTC/ZTC/Diploma  
 Bachelors  
 Master  
 PhD  
 Any others (please specify).....
- e. Marital status:  Married  
 Single  
 Divorced
- f. Age:  Less than 25 Years  
 26 – 30 Years  
 31 – 35 Years  
 36 – 40 Years  
 41 Years and above
- g. Teaching experience:  Less than 5 Years  
 6 – 10 Years  
 11 – 15 Years  
 16 – 20 Years  
 21 Years and above
- h. Presently you are teaching in class/es (tick whichever is relevant):  
 7 – 8  
 9 – 10  
 11 – 12
- i. Teaching subject/s(tick all that apply):
- |   |  |
|---|--|
| <input type="checkbox"/> English        | <input type="checkbox"/> Mathematics                 |
| <input type="checkbox"/> Dzongkha       | <input type="checkbox"/> EVS                         |
| <input type="checkbox"/> Social Studies | <input type="checkbox"/> Health & Physical Education |
| <input type="checkbox"/> Science        | <input type="checkbox"/> History                     |
| <input type="checkbox"/> Geography      | <input type="checkbox"/> Economics                   |
| <input type="checkbox"/> IT             | <input type="checkbox"/> Biology                     |
| <input type="checkbox"/> Physics        | <input type="checkbox"/> Chemistry                   |
| <input type="checkbox"/> Commerce       |  |

Any others (please specify).....

j. Length of time in your current school:

- 1 – 2 Years
- 3 – 5 Years
- 6 – 10 Years
- 11 Years and more

K. Nationality:

- Bhutanese National
- Non-National

l. Service status:

- Regular
- Contract (Bhutanese National)
- Contract (Expatriate)

**Research survey questions pertaining to GNH values integrated teaching and learning or GNH-Infused curriculum in Bhutanese schools :**

There are four sub-questions against which there are several questionnaires to be answered. There are no correct or incorrect answers. Please feel free to share your frank opinions by indicating the degree to which you strongly agree or strongly disagree with each statement by **CIRCLING** the appropriate number from 1 to 6 (**1** for very strongly disagree, **VSD** and **6** for very strongly agree, **VSA**). Believe me your responses will remain **CONFIDENTIAL**.

1. What are the differences/similarities in the approaches taken to teach GNH-Infused Curriculum in schools?

	ITEMS	Levels of your agreement or disagreement
--	-------	--

SI #	Items on approaches taken to plan and teach a GNH-Infused Curriculum in schools by teachers	Very Strongly Disagree (VSD)	Strongly Disagree (SD)	Disagree (D)	Agree (A)	Strongly Agree (SA)	Very Strongly Agree (VSA)
1	While planning daily lessons I refer to the values listed under the nine domains of Gross National Happiness (DCRD, 2010).	1	2	3	4	5	6
2	I identify GNH values contained in the textbooks that can be transmitted through these/lesson topics (DCRD,2010).	1	2	3	4	5	6
3	I write down the GNH values against the chapters, topics and contents in all my teaching plans (annual/monthly/weekly/block plans) (DCRD,2010).	1	2	3	4	5	6
4	I prepare daily lesson plans integrating GNH values to be taught so that those lessons have GNH value objectives along with concepts and skills of the particular topic (DCRD,2010).	1	2	3	4	5	6
5	I spend more time since the introduction of GNH-Infused curriculum in preparing lessons so that it enables me to help students learn more effectively (DCRD,2010).	1	2	3	4	5	6
6	I am mindful of how I enter the classrooms – starting from the greetings and adhere to proper conduct throughout the lesson period (DCRD, 2010).	1	2	3	4	5	6
7	I enter the class with clear GNH lesson objective to help students learn better (DCRD, 2010).	1	2	3	4	5	6
8	I start every class with a brief mind training session – meditation (DCRD, 2010).	1	2	3	4	5	6
9	I try to develop a GNH lesson logically and systemically through an interactive and collaborative approach that ensures a learner-centred activity (DCRD, 2010).	1	2	3	4	5	6
10	My lessons include songs based on GNH values.	1	2	3	4	5	6
11	I teach GNH values to my students by infusing them through stories.	1	2	3	4	5	6

12	I teach GNH values to my students by infusing them through fun and games.	1	2	3	4	5	6
13	I change any content of the textbooks that has negative information into positive values statement while teaching the given concept.	1	2	3	4	5	6
14	I teach GNH values to my students through interdisciplinary integration (mixing of lesson content).	1	2	3	4	5	6
15	I am aware there are a variety of strategies to teach the GNH-Infused curriculum (integrating GNH values into the existing school curriculum).	1	2	3	4	5	6
16	I am consciously practicing the GNH values through role-modeling in the class as I interact with the students during the classroom activities (DCRD, 2010).	1	2	3	4	5	6
17	I end every lesson with a guided silent reflection of GNH values learned in the class (DCRD, 2010).	1	2	3	4	5	6
18	I maintain systematic records of student value development and regularly provide feedback (DCRD, 2010).	1	2	3	4	5	6
19	The school assessment policy includes GNH value components and the students are provided feedback either written or verbally based on the assessment criteria, which is also recorded (DCRD, 2010).	1	2	3	4	5	6
20	I report the progress and status of GNH value development in students to the principal regularly (DCRD, 2010).	1	2	3	4	5	6

**Would you like to make any other comments on approaches taken to plan and teach a GNH Infused Curriculum in schools by teachers? In your response please refer to a specific question number.**

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2. What are the specific physical resources or structural factors that may influence the taught GNH-Infused Curricula?

	ITEMS	Levels of your agreement or disagreement
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SI #	Items on the specific physical resources or structural factors that may influence the taught GNH-Infused Curricula in schools	Very Strongly Disagree (VSD)	Strongly Disagree (SD)	Disagree (D)	Agree (A)	Strongly Agree (SA)	Very Strongly Agree (VSA)
1	I choose relevant teaching materials to substantiate GNH values (DCRD, 2010).	1	2	3	4	5	6
2	I receive enough teaching materials from the school to teach GNH-Infused curriculum.	1	2	3	4	5	6
3	I teach in a spacious classroom that allows freedom to move around the classroom.	1	2	3	4	5	6
4	I teach in classrooms that are equipped with furniture.	1	2	3	4	5	6
5	I do have an access to the teaching resource materials about how to integrate GNH values into the existing school curriculum.	1	2	3	4	5	6
6	The subjects that I teach do not contain Bhutanese inspired values or GNH values.	1	2	3	4	5	6
7	My school does not have a policy document supporting educating for GNH in the school curriculum.	1	2	3	4	5	6
8	My school provides professional support services of teaching GNH-Infused curriculum/integrating GNH values into the existing school curriculum.	1	2	3	4	5	6
9	My school library contains some books I have used based on values education and curriculum integration that may aid the successful teaching of GNH-Infused curriculum.	1	2	3	4	5	6

**Would you like to make any other comments on the specific physical resources or structural factors that may influence the taught GNH-Infused Curricula in schools? In your response please refer to a specific question number.**

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3. What are some of the notable interpersonal factors that may influence the taught GNH-Infused Curricula?

SI #	ITEMS	Levels of your agreement or disagreement					
		Very Strongly Disagree (VSD)	Strongly Disagree (SD)	Disagree (D)	Agree (A)	Strongly Agree (SA)	Very Strongly Agree (VSA)
1	There is a clear direction for implementing GNH-Infused curriculum in the schools (adopted from Sherub, 2014).	1	2	3	4	5	6
2	Supportive leadership exists in the school in which I teach that encourages the integration GNH values into the existing school curriculum.	1	2	3	4	5	6
3	Teachers are supportive of integrating GNH values into the existing school curriculum.	1	2	3	4	5	6
4	I can see teachers meeting on a regular scheduled basis to discuss how GNH-Infused curriculum actually works in the classrooms.	1	2	3	4	5	6
5	My school seeks and receives support from the DCRD (now the Royal Education Council) in implementing the GNH-Infused curriculum.	1	2	3	4	5	6
6	My school provides refresher courses to teachers in implementing GNH-Infused curriculum.	1	2	3	4	5	6
7	My school seeks and receives support from the EMSSD in implementing the GNH-Infused curriculum.	1	2	3	4	5	6
8	My school seeks and receives support from the District Education Officers in implementing the GNH-Infused curriculum.	1	2	3	4	5	6
9	My school seeks and receives a parental support in implementing GNH-Infused curriculum.	1	2	3	4	5	6
10	My school seeks and receives support from the Colleges of Education in implementing GNH-Infused curriculum.	1	2	3	4	5	6
11	Teachers in my school are motivated to integrate GNH values into the existing school curriculum (adopted from Sherub, 2014).	1	2	3	4	5	6
12	My school requires 'team teaching' for the successful teaching of GNH values to students.	1	2	3	4	5	6

13	My school does not have a policy of teaching GNH values through a curriculum implementation.	1	2	3	4	5	6
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**Would you like to make any other comments on Items of notable interpersonal factors that may influence the taught GNH-Infused Curricula? In your response please refer to a specific question number.**

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4. What are some of the perspectives or belief system of teachers that may influence the taught GNH-Infused Curricula?

SI #	ITEMS	Levels of your agreement or disagreement					
		Very Strongly Disagree (VSD)	Strongly Disagree (SD)	Disagree (D)	Agree (A)	Strongly Agree (SA)	Very Strongly Agree (VSA)
1	Integration of GNH values into the existing school curriculum is essential to all Bhutanese schools (adopted from Ampel, 2009 in Sherub, 2014).	1	2	3	4	5	6
2	GNH education may be taught as a separate subject (Sherub, 2014).	1	2	3	4	5	6
3	GNH education is as important as academic education (Ampel, 2009 in Sherub, 2014).	1	2	3	4	5	6
4	I would prefer to teach values education as a separate subject (revised from Sherub, 2014).	1	2	3	4	5	6
5	The changing negative statement contained in any prescribed texts to positive values statement is a useful approach to integrating GNH values into the existing school curriculum.	1	2	3	4	5	6
6	The teacher should be a role model and embody the values that are being transmitted to students.	1	2	3	4	5	6
7	Understanding of values, including seeking values clarifications and gaining insight into one's own values is essential towards the culmination of Gross National happiness (DCRD, 2010).	1	2	3	4	5	6
8	Having an understanding of all GNH related values and principles is crucial for effective teaching of GNH values to students.	1	2	3	4	5	6
9	Students become more respectful of Bhutanese social etiquettes (Driglam Namzha) if they have teachers who promote respect and embody what they preach (revised from Milson & Mehlig, 2002).	1	2	3	4	5	6
10	GNH values need to be assessed using formative assessment criteria.	1	2	3	4	5	6
11	Students will practice GNH values more if there is weighting in the internal assessment of student's progress report card.	1	2	3	4	5	6

12	There is mismatch between the GNH values and the content of the textbook.	1	2	3	4	5	6
13	The curriculum text that I use to teach does not have Bhutanese inspired values or GNH values.	1	2	3	4	5	6
14	Content of the text that I teach from needs to be revised to achieve GNH values via curriculum implementation.	1	2	3	4	5	6
15	It is essential for my school to have policy of GNH-Infused curriculum if GNH values are to be taught successfully in the classrooms.	1	2	3	4	5	6
16	Principal and Vice Principal's supports in GNH-Infused curriculum is imperative if GNH values are to be taught in the classrooms.	1	2	3	4	5	6
17	GNH Values Integrated Teaching and Learning (GNH VITAL) has been the most appropriate approach to teaching values to students.	1	2	3	4	5	6
18	Integration of GNH values into the existing curriculum enhanced the effectiveness of the teaching and learning process.	1	2	3	4	5	6
19	The GNH-Infused curriculum has the potential to improve students' academic achievement.	1	2	3	4	5	6
20	Continuous professional development programmes for teachers about how to effectively implement GNH-Infused curriculum are necessary in order to achieve GNH values and principles by students.	1	2	3	4	5	6

**Would you like to make any other comments on Items of teachers' perspectives/belief system that may influence the taught GNH-Infused Curricula? In your response please refer to a specific question number.**

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## Appendix N: Information Sheet for Participants



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### INFORMATION SHEET for PARTICIPANTS

I wish to invite you to participate in my research project, described below.

My name is Pema Thinley and I am conducting this research as part of my PhD in the School of Education at the University of New England. My supervisors are Dr. John Haynes and Mrs. Kathy Jenkins.

<b>Research Project</b>	Educating for Gross National Happiness (GNH): A case of the intended and taught GNH-Infused curricula in the secondary schools of Thimphu and Samtse districts, Bhutan
<b>Aim of the research</b>	The research aims to explore the case of intended and taught GNH-Infused curricula in the secondary schools of Thimphu and Samtse districts, Bhutan.
<b>Interview</b>	<b>I would like to conduct a telephone interview with at a pre-arranged time.</b> The interview will take approximately 30 minutes. With your permission, I will make an audio recording of the interview to ensure that I accurately recall the information you provide. Following the <b>telephone interview</b> , a transcript will be provided to you if you wish to see one.
<b>Confidentiality</b>	Any information or personal details gathered in the course of the study will remain confidential. No individual will be identified by name in any publication of the results. All names will be replaced by pseudonyms; this will ensure that you are not identifiable. If you agree I would like to quote some of your responses. This will also be done in a way to ensure that you are not identifiable. <b>An online implied consent form is implied when you participate in the interview.</b>
<b>Participation is Voluntary</b>	Please understand that your involvement in this study is voluntary and I respect your right to withdraw from the study at any time. You may discontinue the interview at any time without consequence and you do not need to provide any explanation if you decide not to participate or withdraw.
<b>Questions</b>	<b>The interview questions will not be of a sensitive nature: rather they are general, aiming to enable you to enhance my knowledge for a better understanding of your perspective, as a teacher, regarding the implementation of a GNH infused curriculum.</b>
<b>Use of information</b>	I will use information from the interview as part of my doctoral thesis, which I expect to complete in December 2017. Information from the interview may also

	<p>be used in journal articles and conference presentations before and after this date. At all times, I will safeguard your identity by presenting the information in a way that will not allow you to be identified.</p>
<p><b>Storage of information</b></p>	<p><b>I will keep hardcopy notes and recordings of the interview in a locked cabinet at the researcher's office at the University of New England's School of Education. Any electronic data will be kept on a password protected computer in the same School. Only the research team will have access to the data.</b></p>
<p><b>Disposal of information</b></p>	<p>All the data collected in this research will be kept for a minimum of five years after successful submission of my thesis, after which it will be disposed of by deleting relevant computer files, and destroying or shredding hardcopy materials. <b>Data will be removed from the Qualtrics server once the project is completed and the only remaining copy of the data will be retained in the Principal Supervisor's School at UNE.</b></p>
<p><b>Approval</b></p>	<p>This project has been approved by the Human Research Ethics Committee of the University of New England (Approval No. <b>HE16-087</b>, Valid to <b>21/04/2016</b>).</p>
<p><b>Contact details</b></p>	<p>Feel free to contact me with any questions about this research by email at <a href="mailto:pthinle3@myune.edu.au">pthinle3@myune.edu.au</a> or by phone on +61 04 20 533279.</p> <p>You may also contact my supervisors'. My Principal supervisors name is Dr. John Haynes and he can be contacted at <a href="mailto:jhaynes2@une.edu.au">jhaynes2@une.edu.au</a> or + 61 2 6773 5091 and my Co-supervisors name is Mrs. Kathy Jenkins and she can be at <a href="mailto:kjenkins@une.edu.au">kjenkins@une.edu.au</a> or +61 2 6773 3850.</p>
<p><b>Complaints</b></p>	<p>Should you have any complaints concerning the manner in which this research is conducted, please contact the Research Ethics Officer and the local contact person at:</p> <p>Mrs Jo-Ann Sozou  Research Services  University of New England  Armidale, NSW 2351  Tel: +61 (02) 6773 3449  Email: <a href="mailto:ethics@une.edu.au">ethics@une.edu.au</a></p> <p>Mr. Karma Sonam Chopel  The Chief District Education Officer  Samtse District, Bhutan  Telephone # <b>+975 05 365543 / F-+975 05 365619</b>.  Email: <a href="mailto:deosamtse@gmail.com">deosamtse@gmail.com</a> / <a href="mailto:karmascho@gmail.com">karmascho@gmail.com</a></p> <p>Thank you for considering this request and I look forward to further contact with you.  Regards,  Pema Thinley</p>

## Appendix O: A Sample of Interview Transcripts

P1f: With regard to infusing GNH in a school curriculum, I do not think it is a big concern because we have been practicing almost all the values throughout our school life even before it was declared that GNH would be infused in the curriculum we already had values classes, which dealt basically with almost all the values that are taught. The curriculum about values used to be conducted from classes as low as pre-primary class up to the highest class level. I can remember it was until class ten. So it is not a big concern in the curriculum.

TP2m: My concern here is in case of History and Geography I think we can infuse it very nicely, but when we teach Mathematics and when we teach IT/ICT, I do not feel it is that comfortable to infuse GNH in the curriculum. But I do not know how the IT teachers and Mathematics teachers are doing but in my case to infuse GNH, I hardly have any ideas about how to infuse with the topic of mathematics. For example, if we are performing a mathematical operation such as the addition and subtraction or any other operation of Mathematics, we hardly have any ideas about how to infuse GNH principles into them. But in between topics I usually make a point to tell the students about the GNH and about the four pillars.

TP6f: Yes because if you are not relating GNH values with the lesson topic, I think our children will not learn what they are about. For example, I am teaching Mathematics and whenever I say to the children, ok we have already learned the chapter on fractions and are this information that you learned in fractions used in everyday situations? When I have asked this question students are often not able to tell me the answer. So every time I teach a topic, I relate it to a value, and indicate which value we have learned from this topic. Every day we are using those GNH values. It is important to relate GNH values with our lessons. Lesson plans as such are not kept but we have a format in our lesson plan, so that every time we teach we mention the related value in our lesson plan.

TP5m: I do not think we can infuse GNH into all lessons. This is especially so when teaching Mathematics as it becomes quite difficult and very rarely can we infuse values into these lessons. I think if we try just infusing values I do not think we can teach the topics, especially in mathematics properly. Sometimes we may just unnecessarily spend our time trying to infuse a value instead of teaching a mathematical concept in the lessons. When we are planning lessons we have to try to figure out what value we can insert into the lessons. Sometimes it becomes really difficult.

TP3m: There are some problems. For example, we were talking a lot about GNH values and we were given some sort of training in the beginning in the school in the form of Professional Development by some trained teachers. But in reality when we try to implement GNH in the classroom situation, sometimes we find problems. I am teaching the subject Geography in class 10 and 12 and sometimes 11. For example, the class 10 syllabus is too vast and furthermore that same syllabus has been taught since I was at school. There have not been any major changes in the syllabus, and right now we are teaching something which is not important to our students such as information about other countries, such as coco cultivation, rubber cultivation, and about desserts, which is not that relevant to the situation of our country. The syllabus is too vast, and furthermore we have to complete our syllabus in a given time. To infuse GNH effectively, the syllabus needs to have a less content and we need

to teach the subject in such a way that is very interesting so that students can learn in a very effective way and can also perform better.

TP4f: Actually we always have included values, when we teach English values are included in stories and poems. It is not something new to us. Yes it is of concern, especially in our subject when we teach values dealing with short stories.

TP8f: I think we have been infusing GNH values in curriculum in every subject. If I talk about my own subject and about the class 9 syllabus itself, the very first topic we teach about is GNH where we talk about when this topic was first who propounded and who created the idea. If we examine class ten syllabuses there is more of comparison between GNH and GDP. In class 12 it is the same, with a whole chapter devoted to GNH. In one way or another, we are inculcating GNH but in certain subjects like Mathematics there are different ways to inculcate GNH like problem solving, critical thinking, however, there will be some mathematics teachers who say that it is very difficult to inculcate. So it is an issue of concern. Moreover, whoever teaches classes 11 and 12 have to comply with the syllabus so sometimes the infusion of GNH is really hard for them. Since I teach secondary school classes it is difficult for me to cope with the content of the syllabus.

TP7m: I think I would say yes as well as no. It depends on whether the school has plans and programs that include trying to infuse such values into the classrooms. Where people and schools lack resources, or where people or schools do not have good policies I think it is still an issue because the teachers are already bogged down with lots of activities. We are so much over-burdened. Talking about the educating for GNH and infusing GNH values into the school curriculum looks like an additional burden. In this regard GNH infusion is an issue because we have to think about many more things that may be useful for the students. However, it looks like GNH is also important and that we should try and infuse such values into the lessons, especially if you want to influence the students so as to achieve a happy society in the future. Teaching on a needs basis is very important, but no matter what we should try and teach GNH, but if you see other side of the argument it is still a burden and still an issue.

TP10m: Actually, infusing is not that much of a concern but the concept of GNH does not relate with the Science lessons that we teach in the class. Only sometimes when we are teaching about the environment we can infuse GNH, or when we teach about biodiversity, ecosystems, we can also infuse the issue, but when we teach about molecules and so on, there is no way we can infuse the GNH values. Of course, in some examples, maybe we can provide some guidance but again we are bogged down by the syllabus, the vastness of syllabus. We cannot just pause and think of how to relate the concept of GNH to the topic of the lesson. I mean we cannot always bring the concept of GNH into the class. Our syllabus is so vast and we provide GNH information only if it is related to the topic. We get stressed, and tell them some GNH information about the environment, health, and planting of trees, photosynthesis and so on. GNH values are available, but in terms of teaching science, we are totally focusing on a different level like chemical reactions and so on. So, we cannot include the GNH values unless the topic is related to GNH. For example, if I teach about environment, I can relate the environment with a GNH concept. Second is the vastness of the syllabus. We have a tight schedule because the number of periods to complete the syllabus is very restricted. So, we cannot even think of straying away from the scientific concept that

we are supposed to be teaching in the class. In lower classes we can always relate topics to GNH because they have more time. They can always talk about and relate the lessons to GNH, but in higher grades, especially in class ten, the number of periods we were given to teach and the vastness of the syllabus, makes our schedule so tight that we cannot think of something which is not related to the actual syllabus topics.

TP9f: Exactly, it should not be an issue of concern, I mean the thing is it may not be possible to infuse GNH in each and every lesson in all the subjects but to infuse is not a problem. What I meant to say is infusing is not a problem but infusing in all the subjects may be a problem. For instance, in math lessons the infusing of GNH values may not be easy. Similarly, in some of the science lessons also like Chemistry and Physics infusing would be difficult but in some parts of Physics may be possible to infuse.

TP11m: Yes integrating the GNH values into the curriculum is an issue of concern to me and as well as my other friends. Firstly, GNH is our national policy and we are focusing on it too much in our school, in another way I feel that they are directly pressuring the teachers to infuse GNH without any knowledge and without any workshop being oriented to teaching us. They are directly telling us that we have to infuse this GNH concept and we are forced to do that. So, because of that I am little bit disagreeable with this policy that is infusing GNH in our school. A simple example is these days they are asking us to reflect on what are the same lesson plans that we have been doing before, only now they are just trying to change by asking us to reflect on what GNH values we are infusing. The difference is we are there reflecting but in the actual field what is happening is that what we do is never monitored and never studied. So, they are just allowing us to write GNH into our plans and that is where the idea remains, on the paper. So, in short what I meant to say is firstly, it is a national policy and if you really wanted this to happen in school is firstly, the teachers are the main tools who will be working with the GNH and children. Teachers should be oriented properly. They should know what actually it is and how to carry out and how to use the values.

TP12f: To me I think to implement GNH in the curriculum is good but again we are using this GNH in our classroom not directly, while teaching it comes automatically while teaching English lessons in or in any of the subjects. Suppose, when we are teaching English literature, sometimes GNH comes out of a story or some essays so all that time we are automatically infusing the GNH values or the morals that come across from these stories in the lessons. That way I think it is good to have GNH but not as a separate subject we are not going to teach GNH in the class. We are infusing GNH values when we teach. Indirectly we are using that strategy not directly...