UNDERGRADUATE STUDENTS' EXPERIENCES OF LEARNING WITH DIGITAL MULTIMODAL TEXTS

by
Dorothy Cooshna-Naik
Student Number: 213573475

A thesis submitted in fulfilment of the academic requirements

for the degree of

DOCTOR OF PHILOSOPHY

School of Education, College of Humanities

UNIVERSITY OF KWAZULU-NATAL, EDGEWOOD CAMPUS, DURBAN

SUPERVISORS

Dr Linda van Laren
Honorary Senior Lecturer, School of Education,
University of KwaZulu-Natal, Durban, South Africa
Prof Claudia Mitchell
Full Professor, McGill University, Montreal, Canada
Prof Rada Tirvassen
Head Ancient and Modern Languages and Cultures Department, Faculty of Humanities,
University of Pretoria, South Africa

(2018, Mauritius)

Abstract

The study emerged from my interest in understanding the multimodal learning practices and multiliteracies of the current generation of students, especially with the increasingly new genres of texts finding their way into the education landscape. Designed as a pedagogical intervention, it sought to understand the different ways first year undergraduate students at the University of Mauritius experienced learning with and through varied forms of digital multimodal texts (DMTs) within the context of the module Mauritian History (HIST1002Y) included in their programme of studies. A phenomenographic approach was used to describe and interpret the qualitatively different ways participants experienced two learning situations (LS1 & LS2) involving the use and creation of DMTs. A purposeful sample of 19 participants was involved. Data was collected through semi-structured interviews, participants' written reflections, a focus group discussion and a consideration of the DMTs (a video assignment) they produced.

The phenomenographic analysis produced two sets of categories of description, one for each learning situation, moving from least to more comprehensive ways of experiencing the phenomenon. As consumers of DMTs in LS1, participants expressed their experiences in five different ways. DMTs were seen as authentic sources of information; as a novelty to the learning approach; as an opportunity to break learning monotony; as emotionally engaging; and as effective and useful learning support. As for LS2 involving participants as authors or producers of their own DMT the findings revealed that such a task was conceived of in six different ways. Making a video was seen as an assessment to be completed for the purpose of grades; a new way of learning and assessment; a journey of ups and downs; an opportunity to widen one's horizons; an opportunity for personal growth and development; and a process of multimodal orchestration. The categories were further analysed to highlight their logical relationship based on dimensions of variation in the way DMTs were experienced. The overall findings indicate that the implementation of pedagogical practices supported by DMTs could revitalise the teaching and learning of History despite some noted challenges. This calls for a reconceptualisation of higher education pedagogies in alignment with our students' changing literacy practices so that from passive receivers of knowledge they become active knowledge producers.

Keywords: *Digital multimodal texts; Phenomenography; Multimodality and multiliteracies; History teaching and learning*

Declaration

I, **Dorothy COOSHNA-NAIK** declare that:-

1. The research reported in this thesis, except where otherwise indicated, is my original research.

2. This thesis has not been submitted for any degree or examination at any other university.

3. This thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.

4. This thesis does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:

   a. Their words have been re-written but the general information attributed to them has been referenced.
   b. Where their exact words have been used, then their writing has been placed inside quotation marks, and referenced.

5. This thesis does not contain text, graphics or tables copied and pasted from the internet, unless specifically acknowledged, and the source being detailed in the thesis and in the References sections.

Student's signature:

Date: 30 November 2018

STATEMENT BY SUPERVISORS

This dissertation is submitted with/without our approval.

DR LINDA VAN LAREN   PROF CLAUDIA MITCHELL   PROF RADA TIRVASSEN

Ethical clearance certificate

18 November 2014

Mrs Dorothy Cooshna-Naik 213573475
School of Education
Edgewood Campus

Protocol reference number: HSS/1508/014D
Project title: **Undergraduate students' experiences of learning with digital multimodal texts**

Dear Mrs Cooshna-Naik

Expedited Approval

In response to your application dated 14 November 2014, the Humanities & Social **Sciences** Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL.**
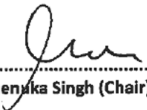
Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of **3** years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

....
Dr Shenuka Singh (Chair)

/px

cc Supervisor: Dr Linda Van Laren
cc Co-Supervisor: Professor Claudia Mitchell
cc Academic Leader Research: Professor PJ Morojele
cc School Administrator: Ms Tyzer Khumalo

Acknowledgements

The completion of this research study would not have been possible without the support and guidance of many people to whom I am deeply indebted.

First I would like to acknowledge the unflinching support and guidance of my three supervisors throughout the course of this Ph.D journey. I would like to express my deepest thanks to Dr Linda van Laren, whose personal kindness, patience, continuous encouragement and feedback have been of enormous help to me. She has been a remarkable mentor to me since the beginning and was always available when I needed her. My deepest appreciation also goes to Prof Claudia Mitchell, my co-supervisor, from whom I have learnt a lot during this research. Her critical insights and suggestions were enlightening and helped me improve the writing of the thesis. The keen interest and enthusiasm she showed to my work were indeed reassuring and encouraged me to pursue my writing. I am forever grateful for her accompanying me in the final stages of my work and for attending promptly to my multiple queries. I would like to extend my sincere gratitude to Prof Rada Tirvassen, my co-supervisor whose constructive comments and ideas have helped me clarify and enhance several aspects of my work. It was indeed a privilege to have had the opportunity to work under their supervision.

I would also like to thank the whole supervision team of the University of KwaZulu-Natal (UKZN) and Mauritius Institute of Education (MIE), especially Prof Michael Samuel and Associate.Prof Hyleen Mariaye who have been very supportive during the Ph.D cohort seminars.

In addition, I would like to make a special mention to all my participants, the module instructor, and all those who have indirectly and directly contributed to making this study possible. The list is too long to name all of them!

Finally, I am grateful to my family members and friends for their patience and continued moral support throughout the whole research period.

List of abbreviations

DMT/DMTs	Digital multimodal text/ Digital multimodal texts
HE	Higher education
LS1	Learning situation 1
LS2	Learning situation 2
HEI/HEIs	Higher education institution/Higher education institutions
IT	Information Technology
HIST1002Y	Mauritian History module
UoM	University of Mauritius
CILL	Centre for Innovative and Lifelong Learning
HSC	Higher School Certificate
NYBCE	Nine Year Basic Continuous Schooling
SSEE	Social, Scientific and Environmental Education
TEC	Tertiary Education Commission
LMS	Learning Management System
SDT	Self-Determination Theory
CD	Compact Disc
IWB/IWBs	Interactive whiteboard/Interactive whiteboards

List of tables

List of figures

List of appendices

Appendix A   Student background profile questionnaire

Appendix B   Informed consent letter to participate in interview

Appendix C-1   Interview schedule for learning situation 1 (LS1)

Appendix C-2   Interview schedule for learning situation 2 (LS2)

Appendix D   Sample of one written reflection sheet- 'After video making'

Appendix E   Focus group discussion guide

Appendix F-1   Extract of interview transcript (LS1)

Appendix F-2   Screenshot from F4 analysis software- line by line coding (LS1)

Appendix F-3   Extract of coding and grouping of significant utterances (Moving from individual to collective)

Appendix F-4   Emerging meaning statements (LS1)

Appendix F-5   Initial categories of description (LS1)

Appendix G   Gatekeepers letter: Request for permission to conduct research

Appendix H   Language editor certificate

Appendix I   Turnitin originality proof

Table of contents

CHAPTER 1: INTRODUCTION

1.1 Setting the scene

This study emerged from my personal and professional interest in the field of educational technologies, more specifically in the area of multimedia learning and digital multimodal resources. As an instructor in the Centre for Innovative and Lifelong Learning (CILL) for 17 years at the University of Mauritius (UoM), I have a keen interest in this area. Since its creation[1], the Centre has been promoting the use of innovative teaching and learning practices through technologies within the teaching and learning community of the institution. Being an academic closely involved in supporting educators in the use of e-learning technologies to enhance their practice, I am also concerned with the way our students respond to learning environments we are creating for them. As educators, it is important to question to what extent we are reaching out to students regarding their expectations of learning environments.

The UoM, the oldest higher education institution (HEI) of Mauritius, was identified for the implementation of this study. In its latest strategic plan 2015-2020[2], the UoM acknowledges the importance of adopting "innovative teaching practices" and creating "an environment that promotes engaged, active learning, with the ultimate goal of preparing students to be leaders and thinkers of the world" (UoM Strategic Plan 2015-2020, p. 4). Its Centre for Innovative and Lifelong Learning (CILL) has as its mission to support this endeavour.

One might expect that the proliferation of digital media and advancement in technologies has led to changing students' perspectives about how learning occurs. Today, apart from prescribed textbooks, and lecture notes, students have more flexibility with regards to the types of digital resources they may access as learning materials. Similarly, educators have the possibility of tapping into the potential of available digital learning resources which they can

---

[1] The Centre for Innovative and Lifelong Learning (CILL) was created in 2014 following the merging of two centres namely, the Virtual Centre for Innovative Learning Technologies (VCILT) created in 2001 and the Centre for Professional Development and Lifelong Learning (CPDL) responsible for classic distance education since 1996.

[2] Abridged version of the University of Mauritius strategic plan 2015-2020

use as instructional aids/materials and also to implement new pedagogies that support acquisition of the 21st century skills and competencies. Unfortunately not all educators seem to be fully conscious of this. Several researchers (Bustamante, 2015; Hampson, Patton & Shanks, 2013; Robinson, 2009; Scott, 2015) concerned about the future of education are of the opinion that it has become necessary for educators to rethink their pedagogical approaches, curriculum content and assessment strategies, in order to better cater for a new generation of learners who "appear to have 'different' needs, goals, and learning preferences than students in the past" (Taylor & Parsons, 2011, p. 6).

1.1.1 A brief history of Mauritius

Mauritius, a democratic island geographically located in the African continent is considered an upper-middle income country, with an estimated current population of 1.3 million (Mauritius in figures, 2017). Mauritius became politically independent in 1968 following "successive waves of colonisers from the Dutch to the French and finally the British in 1810" (Ramtohul, 2016, p. 122).

After the departure of the Dutch, who were the first settlers of the island from 1598-1710, the French took possession of the island in 1715 and named it 'Isle de France' (Selvon, 2005, p. 75). Official settlement started in 1722 under the administration of the French East India Company. Not much development occurred during the Dutch settlement which was short-lived. During the French period (1715-1810), several French governors were appointed to rule and they had different visions for the island's development. It was not until 1735 with the arrival of Governor Mahe de Labourdonnais, who stands out among all the French Governors that any major economic activity began. Where others had failed in their administration, he contributed considerably to the development of the island. Slaves were brought from Madagascar and Mozambique and a handful of artisans were brought from Southern India (Teelock, 2009) to help in the building of forts, hospitals, stores, buildings, a canal, port, naval ship yards, roads, fortifications and sugar mills. The French settlers became land owners and owned the sugar estates. In the 1790s the island witnessed a boost in its plantation agriculture with an excess in demand for sugar in continental markets (North-Coombes, 1997). Tirvassen (2007) highlights that during the French rule in the 18th Century, the government had no policy

regarding the provision of education to the inhabitants of the colony but it was the Roman Catholic Clergy who controlled access to education. Education was limited to an elite and "was concerned primarily with proselytisation and evangelical expansion" (p. 99).

In 1810, the island 'Isle de France' was conquered by the British during the Anglo-French war which spread over several days and named it 'Mauritius'. The first British Governor, Sir Robert Townsend Farquhar further contributed to the socio-economic development of the island through the promotion of free trade and agriculture, the introduction of machinery to replace manual labour, additional construction of sugar mills, establishment of railways to facilitate mobility between villages and town and also to transport sugar cane crops from the plantations to the sugar mills. Under the British, education was run by both Protestants and Catholics, but they each had different motivation and approaches to the curriculum (Tirvassen, 2007). Education still remained limited to the privileged, controlled by the church and the state.

The British ruled over the island until 1968, when Mauritius gained its political autonomy and became an independent state. At the time of independence, the island had a "volatile monocrop economy" (Frankel, 2010, p. 13) which was highly dependent on sugar cane plantations. The 1970s saw the diversification of the economy with the start of industrialisation. Seechurn, Ramtohul, Googoolye, Vaghjee-Rajiah and Neeliah (2013) note that:

> The rapid development of the Manufacturing sector in the late 1970s and 1980s led to the rapid expansion of relatively low-skilled job creation to meet the labour needs of the fast growing Textile/EPZ sector. From the late 1960s, Mauritius has been able to transform its economy from the primary level, in the 1970s where the Agricultural sector was predominant, to the secondary stage where the Manufacturing sector has flourished in the 1980s and 1990s. Since the early 2000s, Mauritius has embarked in developing the services sector with the development of the Financial Services sector and the ICT. The evolution did not stop there. By the end of the 1980s and early 1990s, the Financial Services sector started to develop further and Tourism sector consolidated itself. (p. 4)

Today Mauritius is considered as an upper-middle economy with the main drivers of growth being the "services sector, especially finance, and the trade and accommodation services" (The World Bank in Mauritius, 2018, para. 4). In an article entitled *Economic Challenges ahead for Mauritius* published in a local online newspaper (News on Sunday, 2017) on 12 March 2017, several economists present their views on the economic challenges that Mauritius still has to overcome. For instance for Pierre Dinan, it is imperative that some existing sectors like the sugar industry, the textile industry and tourism be modernised for a better alignment with new world situations. He speaks of the need for Mauritius to develop the cultural landscape to attract tourists from different regions of the world, and to improve the productivity and quality of the goods we produce for exports. He is also concerned about the ageing population that is likely to impact our workforce. In his view, the country has the potential to do better provided that there is a change in the mind set of people who need to think out of the box, be innovative and have entrepreneurial minds and skills. Swadicq Nuthay is of the opinion that there is an urgent need to have competent professionals and that universities should train students so that they meet the demand of the industry. He considers that this gap needs to be filled for the country to progress. The views of these economists are indeed relevant for the education sector that is called upon to play a major role in preparing the youth of today to be leaders of tomorrow.

The effects of the different colonisation are still seen today. Mauritius has a bilingual population comprising of "Indo-Mauritians, General Population, i.e people of mixed European and African origin and Sino-Mauritians (Mauritius in figures, 2017, p. 2) speaking English, French and Creole. Other Oriental languages which are spoken by some people include Hindi, Marathi, Tamil, Telegu and Arabic while the Asian languages include Mandarin, Hakka and Cantonese. Though English is considered to be the official language, French and Creole are widely spoken. Our constitution is based on the British parliamentary system as is our education system.

1.1.2 The national education system

Four different sectors of education constitute the Mauritian education system – pre-primary, primary, secondary and tertiary (also referred to as post-secondary). Mauritius has an education system which has been based on the British model. However recently, with the

latest educational reform of the government in 2017 with the introduction of the Nine Years Basic Continuous Schooling (NYBCE), the system is being reviewed. NYBCE has been introduced in replacement of the six year primary education. For nearly 35 years, the end of the primary cycle was certified by a national examinations known as the Certificate of Primary Education (CPE). The latter has been subject to various criticism which led to its abolition in 2017 and which has been replaced by the Primary School Achievement Certificate (PSAC). The CPE was believed to be too competitive putting too much psychological pressure on the learners who were in a 'rat race' to be admitted to one of the elite or star secondary schools as they are referred to in Mauritius. There was therefore an urgent need to have a system which would instead cater for the holistic development of the learners and which would meet their diverse learning needs, with an emphasis on the 21st century skills, hence this new reform. It is believed that the new system will have an impact on secondary as well as post-secondary education (Betchoo, 2017). Given that the reform has recently been implemented, its effectiveness and success are yet to be established.

Secondary level education is generally completed over a period of seven years, with the School Certificate Examination (SC) at the end of the 5th year and the Higher School Certificate (HSC) examinations also called A-levels at the end of the 7th year. Since 2010, a national assessment is administered to the Form III/Grade 9 learners. However, the results of the national examinations do not affect the promotion to Form IV/Grade 10.

The tertiary education sector in Mauritius dates back to almost a century ago with the setting up of the School of Agriculture in 1914. This was later on known as the Faculty of Agriculture which in 1965 became the first national University of Mauritius. At that time, higher education was reserved for those who could afford it but a government policy in 1988 (Mohadeb, 2010; Ramtohul, 2016) in view of widening access to education at the national level led to education being subsidised by the state. As a result, students pursuing undergraduate degrees did not have to pay the tuition fees which have been maintained up to now. With the vision of the country to become a knowledge hub, the government has opened up access to other public and private HEIs which now form part of the higher education landscape, under the purview of the Tertiary Education Commission (TEC) which is the regulatory body responsible to ensure that Mauritians are provided with quality post-secondary education (Mohadeb, 2010).

Tertiary education extends beyond the local context as many students nowadays, especially those who can afford it choose to go abroad to pursue their higher studies.

1.1.3 The Mauritian higher education landscape

The Mauritian tertiary education sector has witnessed major transformation since its beginnings. The vision of the government to "transform Mauritius into a regional knowledge hub to serve the region and as a multi-disciplinary centre for higher learning and excellence" (Ramtohul, 2016, p. 123), brought a drastic change to the higher education landscape. The government has opened up access to foreign universities and institutions to set up branches or offshore campuses in the island and thus expanding higher learning opportunities for students who do not have to leave Mauritius or cannot afford to pursue higher studies abroad. A wide choice of programmes of studies such as Accountancy, Management, Medicine, Information and Communication Technology amongst others are available to Mauritian as well as foreign students. Today, the Mauritian tertiary education landscape consists of 10 public funded institutions and around 50 private institutions. Many of the private institutions are local counterparts of foreign higher education institutions (HEIs); they are authorised to hold courses under the aegis of the mother institution overseas but it is the latter which in fact has the authority to confer the academic qualifications.

The higher education sector in Mauritius and around the world is a dynamic one faced with major challenges, having to respond to globalisation and technological development. Increasingly there is growing importance being attached to education and learning considered to be an important contributor to the "socio-economic wellbeing of the individuals and of society" (Baichoo, Parahoo & Fagoonee, 2003, p. 442). In her speech held on 30 January 2015, on the occasion of the launching of UoM Strategic plan 2015-2020, the honourable Mrs Leela Devi Dookhun-Luchoomun, the Minister of Education and Human Resources, Tertiary Education and Scientific Research, highlighted that the changing tertiary landscape is marked by "internationalization and learner mobility but also by the emerging technologies, changing

learner expectations, content digitization and a shift to more flexible learning approaches[3]". For many HEIs, the pressure to respond to the aspirations and needs of various stakeholders (government, policy makers, the masses) and to meet quality standards is being felt. Faced by multiple challenges, HEIs are being forced to rethink their roles, expectations and their managerial and pedagogical approaches and strategies. Robertson (2010) used the term "*race to the top*" to illustrate how HEIs around the world are rushing to secure "global talent, an increased share in the international fee-paying student market, and to steal the edge on their competitors as to the latest ideas, potential inventions, numbers of spin-out companies, and potential entrepreneurs" (p. 4). Other challenges noted include the expansion in the diversity of students who are more eager than ever for a quality education; the need to develop more competency-based education at higher education level (Ford, 2014), facing the consequences of the massification of higher education (Mohamedbhai, 2014). Unfortunately it seems that our local higher learning sector has not yet understood the new international HEI landscape and is lagging behind in terms of learning environments, new pedagogies supported by digital technologies, infrastructure and resources.

1.1.4 Content-driven and teacher-centred curriculum

The Mauritian education system in general has often been criticised for being too exam-oriented, teacher-centred, content-driven encouraging rote learning and spoon feeding (Allybokus, 2015; S. Burrun, 2011; Ramkalawon & Bholoa, 2016). In her master's dissertation focusing on quality of secondary education in Mauritius, S. Burrun (2011) refers to the content-driven nature of the Mauritian education system which promotes rote learning instead of critical thinking, thus leading to students' passivity. Paulo Freire's ideas on how students can become less passive are noteworthy. He argues that teachers should stop being the "depositor", the "prescriber" or the "domesticator" (Freire, 2005, p. 75) to allow students to develop their critical awareness and become more active. As noted by Morrison (2014), the evolution of the information landscape has changed the nature of lecturing and consequently the teachers' and the students' role. Being the 'sage of the stage', a one-way transmission and

---

[3] Retrieved from http://ministry-education.govmu.org/English/AboutUs/theminister/Documents/speeches/2015/Speech%20University%20of%20Mauritius%20Strategic%20Plan%2030%2001%2015.pdf

delivery of content is not relevant anymore since students can access virtually a massive amount of information anytime, anywhere thanks to technology. Morrison (2014) suggests that in such a situation, the teacher would rather "adopt more of a 'guiding' or 'facilitating' function" (p. 2).

Even though education policies and teacher training programmes recommend a learner-centered approach to teaching so as to better engage students in the learning process and to foster independent and self-directed learning, some teachers are still using the conventional transmission model of teaching for imparting knowledge. Referring to the Mauritian post-secondary education system, Hardin-Ramanan, Ballasoupramanien, Gopee, Rowtho and Charoux (2019) note that the system is too academic and as such does not fully prepare the graduates for the work environment where various transferable skills are required.

1.1.5 ICT integration in the curriculum

In a news article by Jadoo and Fakun (2017), several education specialists are of the opinion that it is important that our education system provides the possibility for our students to develop a range of skills through the appropriate curriculum and pedagogy. They highlight views from education specialist Faizal Jeeroburkhan who argues that these skills should include "intellectual curiosity, critical and creative thinking skills, modern communication skills (to retrieve, assess and use information intelligently), metacognitive skills, problem solving skills, entrepreneurship and leadership skills, and research and innovation skill" (Jadoo & Fakun, 2017, para. 27). Feizal Jeeroburkhan calls for a more technology-based education system where teachers will be facilitators and where the students will be taught using e-learning approaches. Similarly, Surendra Bissoondoyal, the president of the Tertiary Education Commission (TEC) notes that our education system is not suitable and does not prepare our students to face the challenges of the modern world. He suggests that our education system should not focus on only the academic knowledge but should give the possibility for students to develop other skills and abilities/aptitudes to thrive in other fields which are not academically oriented.

Within the context of the Mauritian education system, the integration of ICT in the school curriculum at primary and secondary level was seen as a necessity by the government around

the year 2008 to prepare our children to face the future. There have been various projects that have been initiated by the Government to promote the use of digital technologies at all levels of education. In 2010, many schools were equipped with IT facilities in view of promoting a technology-enhanced curriculum (Subrun & Subrun, 2015). While initially ICT projects in the Mauritian education system laid emphasis on creating awareness of ICT and promoting basic computer literacy, later projects such as the Sankoré Digital Education for All in Africa programme, launched in 2011, through a Franco-British partnership had as an objective the digital empowerment of all teachers and students through the digitalisation of the classrooms and the use of digital teaching and learning resources. Teachers, irrespective of subjects taught were expected to embrace digital technologies and pedagogies and were given the necessary training to empower them to do so (Subrun & Subrun, 2015). In line with the Sankoré project, several primary and secondary schools were equipped with interactive whiteboards (IWBs) and laptops. Furthermore, it is estimated that about 24000 tablets have been distributed to the Grade 10/Form IV secondary school teachers and students in 2014 (Jugee & Santally, 2016).

At the level of the tertiary institution where I carried out this study, there has been some attempt at promoting the use of digital technologies to enhance teaching and learning and the quality of student learning experiences. Most of the classrooms are now equipped with IT facilities such as digital projectors and computer systems. There have been major improvements made regarding wifi access on campus. The institution is also encouraging the use of online learning and innovative pedagogies amongst its lecturers through its e-learning centre.

Despite the various initiatives mentioned above emphasising technology use and new pedagogies, the adoption of technology-enhanced teaching and learning by educators seem to be quite slow. Some factors that are often thought to impede the adoption of technologies in teaching and learning contexts include teacher resistance to change, lack of adequate training, time constraints, time constraints regarding prescribed syllabus, lack of skills and competencies, teacher apprehension, lack of reward for teaching innovations, poor learner autonomy, lack of funding and adequate resource planning (Jhurree, 2005; Teeroovengadum, Heeraman & Jugurnath, 2017; Vencatachellum & Munusami, 2006). The use of technology does not automatically lead to a shift towards more learner-centered and self-directed

pedagogical practices. In general, the Mauritian curriculum and pedagogies appear to be still heavily print-based with reliance on textbooks and teacher notes. Ramma, Bholoa, Watts and Nadal (2018) note that "technology is used as a means for teacher's demonstration rather than as a pedagogical tool" (p. 210). In such a situation, the student is not being given the opportunity to develop important skills required for the 21st century.

1.1.6 Moving towards new types of learning environments

Since this study explores the phenomenon of learning with digital multimodal texts (DMTs)[4] experienced by students as part of their learning environment, I believe that a clarification on the concept of learning environment makes sense in better situating the research context. The literature shows that this concept is broad and quite complex in terms of the way it is conceptualised. The following section addresses the concept of learning environments and discusses the shift from a traditional to a more contemporary understanding of the concept.

Upon hearing the term learning environment, a quick association is often made to the physical space of a school, a university, a classroom, or a lab. However this is a limited notion as there are many other elements that make up a learning environment which may directly or indirectly influence the students' learning experiences. Other features such as teacher-student, student-student, and student-content interaction are also part of the learning environment. A broader definition of a learning environment is provided on the Glossary of Educational Reform website ("Learning Environment," 2013) which views the learning environment as "diverse physical locations, contexts, and cultures in which students learn" (para. 1). This definition puts forward the idea that students have the opportunity to demonstrate different types of learning in different contexts (Bates, 2015).

Given the move towards a more digitally oriented education system, some researchers have presented a more contemporary outlook on the concept of learning environment. Interested in the way digital technologies are having an impact on the traditional learning environments, J.S. Brown (2000) used the concept of ecology to describe the learning environment which he described as "an open complex adaptive system comprising elements that are dynamic and

---

[4] Note that I provide further details regarding the DMTs later in this Chapter and in Chapter 4.

interdependent. One of the things that makes an ecology so powerful and adaptable to new contexts is its diversity" (p. 19). Richardson (2002) highlights that Brown's concept of learning ecology needs to provide opportunities to students to acquire knowledge in flexible and varied ways, which cater for their needs, individual preferences and learning situations. Using this ecology, students can "construct and organize personalized, unique interactions with the content" (p. 48). Creating learning environments which provide opportunities as highlighted by Richardson (2002) represents major challenges and entails an investment in time, money and resources for various stakeholders. G. Brown (2008) cautions against assuming that learners will all engage and respond in the same way to components that make up the learning environment such as the assessment tasks, the curricular content, the teaching approaches and the learning tools.

We now speak of technology-rich learning environments, e-learning environments, online learning environments, web-based e-learning environments, blended learning environments and virtual learning environments. These types of learning environments go beyond a physical space and consist of various components that need to be considered to make an effective learning environment. One important aspect in these learning environments is the student-course content interaction. In this current study, emphasis is laid on this aspect of student interaction and engagement related to the DMTs which formed part of the pedagogical resources within the History teaching and learning environment.

1.2 Context and motivation for the study

This current study which is framed as a pedagogical intervention explores first year undergraduate students' experiences of learning with DMTs within the context of a module entitled 'Mauritian History' which is also referred to as module code HIST 1002Y. Included in first year programmes of studies namely BA (Hons) Joint Humanities, BA (Hons) History and Political Science and BA (Hons) History and Sociology, this yearly module HIST1002Y has been delivered using a web-enhanced modality for a few years now. Students who are enrolled on this module are supposed to attend 90 minute face to face lectures and 45 minute tutorial sessions once a week. Through the web-enhanced delivery mode of the module, they are able to access the module lecture notes and presentations, assignments, and also submit

their completed assignments and receive feedback from their instructor via the institutions' e-learning platform.

The module instructor[5] responsible for delivering this module is a full-time senior academic at the History department of the Faculty of Social Studies and Humanities (renamed since 2017 as the Faculty of Social Science and Humanities) and a well-known historian and author of several History-related books. She was assisted by another part-time History tutor and myself during the academic year 2015/2016, the period when the pedagogical intervention was conducted. The module instructor became interested in using a web-enhanced approach to deliver this module when the centre for e-learning of UoM started to promote the use of e-learning in the year 2001. Being part of the academic staff at this e-learning centre, I assisted the module instructor with regard to the development and delivery of digital curricular content via an e-learning platform. As noted above, learning resources such as lecture notes and PowerPoint presentations were commonly used in the module and these were made available for students to download from the e-learning platform. In the context of this study, additional digital content was made accessible in the form of interactive multimedia CDs and interactive quizzes. Some documentary films were also screened during the face to face lecture sessions.

The Mauritian History class is made up of students from the above programme of studies who come from diverse backgrounds, have had different previous educational experiences, motivations, learning dispositions and have developed prior knowledge and skills. After having completed their secondary education (also referred to as Higher School Certificate-HSC), students decide to pursue higher studies for various reasons. An informal discussion with the student cohort showed that some of them opted for the above mentioned programme of studies because they had a real interest for History and thought of a professional career in the field. For some, their choice was based on the fact that they could not secure a seat on the programme of their choice and therefore chose the one where they were admitted[6]. This was

---

[5] Module instructor: Note that I use 'module instructor' or 'History educator' most of the time in the thesis but when she is mentioned in the participants' extracts/quotes used in the analysis chapter, I have used the pseudonym 'Kavita'.

[6] When students apply to pursue higher studies at the UoM, they are given the possibility to apply on 8 different programmes in order of priority. So if they do not get their first choice, they shift to another programme where their application has been accepted.

further emphasised in the responses I obtained from the student background profile questionnaire and also from the first round of interviews I conducted (See Chapter 4 Section 4.8). Furthermore, according to the module instructor, most of the students have never studied History at school except for what was included as part of the Social Studies programme at lower secondary level. They are thus totally new to the skills required and to basic concepts of History as a discipline.

I have a particular interest in anything related to visual forms of learning and the use of technology for enhancing teaching and learning. As noted above, I hold a position as a lecturer in the field of visual communication at the Centre for Innovative and Lifelong learning (CILL) of the University of Mauritius. One of my responsibilities is to assist lecturers in designing their online learning content and my role consists in helping them in structuring their digital learning content, in coordinating the design and development of multimedia resources. Furthermore, my Master degree in the field of educational technologies allows me to apply the knowledge I have acquired to my online teaching practice. Being constantly exposed to online learning environments with my students, I have developed a keen interest in understanding the affordances and the challenges of audio visual media for learning. I decided to embark on this study not only to broaden my knowledge about the field of digital learning but also with the intention to contribute to the enhancement of pedagogical practices in a disciplinary area.

Why did I choose History? I have previous working and professional relations with the History instructor mentioned above. Some years ago, we collaborated on a research project related to History learning through digital media for young children aged 8-10 years old. The project involved producing a multimedia-enhanced CD addressing History and Geography topics for upper primary level. A paper entitled *Enhancing the teaching and learning of History and Geography through Information and Communications Technology: A Mauritian experience was* published in the Educational Technology Research and Development journal in 2006 (Cooshna-Naik & Teelock, 2006). Being in the field of e-learning at a HEI, I became interested in extending the research to higher education students and wanted to understand how they experience multimodal and digital learning.

I was motivated when I heard the concerns raised by the module instructor and the part-time tutor involved in the teaching of HIST1002Y about issues related to teaching and learning of the subject. These concerns included the difficulty for students to connect the past and present, to visualise and demonstrate imaginative reconstruction of text-intensive lecture notes and the challenges for lecturers to fully engage and create a sense of belonging for the subject especially when dealing with large cohorts of students. For several years now, this module has relied on face to face lectures as the main instructional strategy to transmit knowledge, a situation that seems to still predominate in some HEIs (Achuonye, 2015; Smith & Valentine, 2012). For some students, attending lectures form an important aspect of the university experience and contribute to the social aspect of learning. Others would only attend the lectures if they see some value in doing so. It has been observed that at times there is reluctance from students to attend long hours of lectures. Availability of study material online has been found to be one of the main reason that could explain students' reduced time on University campuses (Baik, Naylor & Akourdis, 2015). This is generally seen in older and working students. Other students would tend not to attend because of "logistical reasons", "inconvenience or distraction in overcrowded theatres", or prefer to "prioritise other commitments such as work or assessments" (Gysbers, Johnston, Hancock, & Denyer, 2011, p. 20).

In this study, the intention was not to eliminate the lecture-based approach but to enhance the teaching and learning of the subject through a technology-based approach. Since part of my professional practice consists in assisting academics to provide adequate e-learning content and pedagogies to students, I felt that the module HIST1002Y could benefit from a different approach and could perhaps address some of the concerns raised by the module instructor. So after discussion with the module instructor, it was agreed to review the way some of the curricular content of the HIST1002Y was presented to the students and as a type of pedagogical intervention offer a revised module.

1.2.1 History as a subject in the Mauritian curriculum

Over the past two decades, the Mauritian primary and secondary school curriculum regarding History has been subject to continuous scrutiny and various alterations. During the 1960s and and 1970s, the primary school curriculum consisted of four core subjects namely French,

English, Arithmetics and Geography. While European and British History was taught in the 1960s to 1980s, it was not until the 1980s that the teaching of Mauritian History was introduced in the curriculum though to a limited extent in the primary school curriculum in a subject termed 'Environmental Studies' known as EVS. It is essential to point out that decolonising 'History' teaching through the introduction of Mauritian History was an important goal of the government after independence and especially after the 1980s to reflect the political objectives. However, the representation of some sensitive issues such as slavery and independence were intensely discussed.

In 2002, EVS was replaced by two subjects namely the Sciences and History and Geography. The aim was to allow learners to have a better understanding of these two subjects. The latest National Curriculum Framework for primary Grades 1-6 for the Nine Year continuous basic education, produced by the Mauritius Institute of Education under the aegis of the Ministry of Education and Human Resources, Tertiary Education and Scientific Research in December 2015 classifies these two subjects under the learning area of Social, Scientific and Environmental Education (SSEE). The History of Mauritius is addressed in Grades 5 and 6 and "includes a study of societies, events and developments that have shaped the island's history from the time of its discovery to the present day. It explores key concepts for developing historical understanding." (History Teaching and Learning Syllabus Grades 3-6, 2015, p. 7).

At secondary level, History is offered in lower classes as a core subject while it is optional for upper classes. School Certificate and Higher School Certificate History were offered as a major elective but it was mainly elements of World History that were addressed. At secondary level, topics relevant to Mauritian History are taught in lower classes as part of Social Studies along with Geography and Sociology. *The Education Reforms in action 2008-2014-Learning for life* report published in 2014 (Ministry of Education and Human Resources, 2014) mentioned the willingness of the government to introduce History of Mauritius as a stand-alone subject at lower secondary level in 2015:

> In a multicultural society such as ours, there is no greater cohesive force than a strong feeling of patriotism. To help create the feeling of belonging and to nurture a sense of

unity for nation building, History of Mauritius must be given its rightful place as a subject in the school curriculum. (p. 28)

The above however, has never been materialised. The new curriculum framework for the Nine-Year Continuous Basic Education Grades 7-9 proposes Social and Modern Societies in replacement of Social Studies. The three year syllabus includes local, regional and global themes to better understand the historical, sociological and geographical aspects of Mauritius.

Though the subject Social and Modern Studies (formerly known as Social Studies) is compulsory for lower secondary level (Grades 7-9 formerly termed as Form I-III), at upper secondary it is offered as an optional subject in only a handful of secondary schools with less than a dozen learners opting for the subject at the HSC level. Despite the willingness at the national level to provide the opportunity for learners to learn about their past, the lack of interest for the subject is prominent at upper secondary level. Several reports from the Mauritius Examinations Syndicate have shown that there is a decline in learners opting for History as a subject at upper primary level. Goburdhun (2008, p. 64-65) explained that this disinterest in the subject may be linked to various factors such as:-

- the national and school policy regarding History in the curriculum
- the students and teachers perceptions of history as a school subject
- career prospects and usefulness of the subject as viewed by students
- impact of parental influence and advice on students decisions to study the subject
- the role of teaching and learning of History in the classroom.

At tertiary level, a few local HEIs offer History related undergraduate and post graduate programmes. At my institution, such programmes fall under the department of History and Political Science of the Faculty of Social Studies and Humanities (now known as the Faculty of Social Science and Humanities). Except for one undergraduate degree programme and a Masters by Research in Historical studies, other programmes combines History with disciplines such as Political Science, Sociology, Heritage and Cultural Tourism. These programmes include History-related modules which are either specific to Mauritian History or to general History.

16

1.2.2 Popular views on History as a subject

Experiences of History as a subject vary according to individuals, contexts, motivation and purposes and therefore cannot be generalised. Fielding (2005) explains that some people tend to dislike the subject as they view it as being boring, demanding too much of recalling names and dates, as irrelevant and uninteresting to them. Similarly, Joseph (2011) notes that people who have "limited or no exposure to the subject" often share comments that demonstrate that they perceive History as "boring and irrelevant to contemporary life" (p. 1). Such negative perceptions cannot be generalised though. At secondary level History learning, there is a mixed attitude towards the subject. Some students may feel that they enjoy the subject but are not able to provide the reasons for its usefulness (Harris & Haydn, 2006) or that History as a subject does not have "any influences on their personality and/or on their future life in general" (Tamisoglou, 2010, p. 480). The latter investigated views of 12-15 years old students about History as a subject and related educational material within the Greek education context and found that several reasons were brought forward by the students about their dislike for the subject. Qualitative data from focus group discussions was analysed, revealing that quite a few of the participants disliked the subject since they consider the subject to be mainly about 'dates', 'names', 'too many events', 'talking and talking', 'boring', 'difficult', 'wars', 'battles', 'revolutions', 'too much reading' and 'very long texts' (p. 478). Similarly, Joseph (2011) carried out a study involving 415 upper secondary school students selected from public and private schools in Trinidad and Tobago to explore their thinking of the subject "to determine the extent to which these views coincided with popular external views about the subject" (p. 23). The findings revealed that even though a large majority of the students did not regard the History subject as boring and irrelevant to their current life, there was still a reluctance in pursuing higher studies in the field. One of the reasons that Joseph (2011) puts forward to explain this is students' belief that the subject becomes more complex and bulky with much details in terms of requirements at higher levels. Within the local context, a similar trend is seen where there is a decline in students' interest for the subject at upper secondary level as noted by B. Burrun (1998), Goburdhun (2008) and Domur (2015).

The way a subject is taught and the way it is learnt is another factor that has an influence on the way the subject is perceived. Joseph (2011) and Boadu (2015) note that students tend to

find History as a subject boring and dull when the teachers do not use appropriate methods to teach the subject. For instance, when the subject is presented as "a compilation of facts and dates" (p. 3), then the student will tend to simply memorise and recall without really connecting to the subject. Such students says Joseph (2011) will not find the information relevant to their everyday lives. Noboa (2013) also lays emphasis on the importance of "relevant and captivating" instructional strategies to motivate and gain students' interest in learning History. Noboa's study explored the teaching approaches used by a group of high school and middle school History teachers in a Southeast region of El Paso, Texas which they considered to be effective to approach the topic they are addressing. The findings revealed that a wide variety of methods were used which included "group or collaborative work; real-world projects; a variety of visual aids; interactive assignments and technology tools (computers, the internet, and the interactive whiteboard) were effective means of teaching the subject" (Boadu, 2015, p. 41). Furthermore, more conventional approaches such as lecturing, direct instruction and responding to questions from the textbooks were used to a limited extent, except to introduce topics. The view that "History as a subject can become very dry and boring when taught only from a textbook" is also shared by Domur (2015, p. 260). As a History teacher, she favours the use of active and hands-on learning to engage her students.

1.3 Research questions

As far as the Mauritian context is concerned, while the use of textbooks is common in history classrooms at primary and secondary level, at tertiary level education, there is no specific prescribed textbook but the lecturer or tutor provides a list of books, lecture notes and makes use of PowerPoint presentations to support face to face lectures. In the case of this current study, additional materials such as documentary films and interactive multimedia resources were incorporated in the HIST1002Y syllabus. By undertaking this research, I expected to be able to answer the following questions.

1. What are the undergraduate students' experiences of learning with digital multimodal texts?
2. How do undergraduate students experience learning with digital multimodal texts?
3. Why do undergraduate students talk about their experiences the way they do?

The first and second research questions are related and are operational questions. While the focus of the first research question is on the ways learning with DMTs are construed by the participants with respect to each of the learning situations, the second research question lays emphasis on the 'how' of the experience, that is how participants describe the act/process of learning and the intent of learning. Under this question, I expected to gain a better understanding of how participants actually went about using DMTs, what were their motives behind the act of learning and the perceived gains and challenges of the use of DMTs as experienced in the module HIST1002Y. The third question is broader in nature and intends to question the data from a bird's eye view to get a deeper understanding of why participants talk about their experiences the way they do while at the same time provide insight on the contribution of DMTs to higher education settings, the conditions of use and associated implications on a wider level.

1.4 Overview of the study

As noted above, I consider this study to be a type of pedagogical intervention which considered two learning situations which aimed at understanding and gaining an insight into first year undergraduate students' experiences of learning with DMTs from a knowledge acquisition perspective on one hand and on the other hand from a knowledge construction perspective so as to better respond to their learning needs.

This study was made possible with the collaboration of the History module instructor who gave her consent to access her class and students from which I was able to sample my participants for the study. Over the course of the academic year before the module started, I worked in close collaboration with her to revise the module with the integration of DMTs and a multimodal assignment. We had several meetings where we discussed the implementation of the different phases of the study, the modalities regarding students' access to the different DMTs, about the design and development of the interactive multimedia resources as well as the multimodal assignment brief. Since the module instructor was not comfortable with multimedia and digital technologies, she assigned me as a part-time tutor for this module to handle the technology aspects of the module. In other words, I was directly involved in making the DMTs accessible to the participants via the e-learning platform, in introducing them to video editing basics during a workshop I specially devised for them as a scaffolding strategy.

1.4.1 The intervention- LS1 & LS2

The two learning situations as conceptualised in this study are identified as LS1 and LS2 respectively.

The first learning situation (LS1) consisted in providing the class with a range of DMTs which they were expected to access, utilise and engage with during the first semester of the module. In LS1, the participant/student is a user/recipient/consumer of the DMTs.

The range of DMTs included the following:

- Several PowerPoints which addressed topics such as *Introduction to the study of Mauritian History; Mercantilism and Colonisation; The Dutch in Mauritius; French Settlement; Trade, Industry and Agriculture; Slavery; Revolutionary Isle de France; Imperial administration (1803-1810) and the British in Mauritius.*

- Two historical documentary films that were screened in class: *From so far-the story of Indian immigration in Mauritius* which retraced the hardships faced by the Indian immigrants who left their native land for an island, with the thought of a better life and *From so far- The story of African immigration to Mauritius* portrayed the story of the Africans brought to Mauritius as slaves and their long path from the violence they suffered as slaves before they started to discover renewed hope.

- A multimedia enhanced Compact Disc (CD) with various interactive features such as an animated digital story, an animated timeline, quizzes, an archaeology game all related to the French period in Mauritius.

- An interactive multimedia quiz game entitled *The British Treasure*, a self-assessment multimedia resource consisting of quizzes through which students learn about the British period in Mauritius and assess their knowledge by attempting a series of quizzes.

Except for the historical documentary films which were produced locally by two Mauritian film makers, the PowerPoints were created by the module instructor and the interactive multimedia resources by a team of web designers/educational technologists from CILL. I was involved in mainly coordinating the development of the interactive multimedia resources. Most of the DMTs, except for the documentary films, were viewed at the students' pace and outside classroom time. In the second learning situation (LS2), the students were expected to

complete a multimodal production assessment task which consisted of creating a History-related documentary style video. Within LS2, the participant/student took the role of a writer/author/creator/producer.

The module instructor and myself, discussed the implementation of a new form of assignment which could allow students to develop transferable and cross-curricular skills. It was therefore agreed that as part of the assessment of the module, students would create their own digital multimodal text, namely a History related documentary video. Therefore students were given a choice of two topics on which they could base their video namely (i) *What's in a name: Family name or family History* and (ii) *What's in a name: Your street name.*

I helped to design the assignment and I also co-led a video editing workshop with two other colleagues from the technical team of CILL. I was also involved in assessing the multimodal assignment and was assisted in this work by my colleagues who were involved in the video editing workshop. Chapter 4 Section 4.10.2 provides further information about the implementation of the video assignment.

1.5 Structure of thesis

This thesis is organised as follows:

In Chapter 1, I introduced the study providing an outline of the research context, the purpose of the study as well as the formulation of the research questions. I provide an explanation of my positioning as the researcher and the study itself as a pedagogical intervention.

In view of providing a better picture of the field within which this research is situated, I examine in Chapter 2, the relevant literature related to concepts of experience and learning, considering the importance of reflection and reflexivity in understanding students' experiences of learning experiences. A key factor of this chapter is to consider the literature on multimodality and multiliteracies (and also links to multimedia studies).

Chapter 3 presents an overview of the theories and concepts that have informed the study. The theoretical assumptions underlying phenomenography (used as theory and methodology in this study) are introduced. This chapter further describes the visual map derived from the theories and concepts and which framed the study.

Chapter 4 describes the methodological underpinnings of the study, fleshes out the research design and describes the methods used for data collection and the data analysis process. The chapter further explains how trustworthiness of the research study was ensured. Finally the chapter presents the ethical considerations given to the study.

Using a phenomenographic approach to data analysis, Chapters 5 and 6 address the research questions (i) *What are the undergraduate students' experiences of learning with digital multimodal texts? and (ii) How do undergraduate students experience learning with digital multimodal texts?* Each chapter is structured as two sections. Chapter 5, section one lays emphasis on the presentation and interpretation of the categories of description that emerged from the first learning situation (LS1) of the study where participants described their experiences from a consumer/user perspective. Chapter 5, section two presents a discussion on the outcome space highlighting the relationships between the categories of description.

Chapter 6 adopts the same move as Chapter 5, except that the focus is on the second learning situation (LS2) where participants described their experiences of engaging in a video assignment whereby they were themselves the creators/producers.

Chapter 7 presents a discussion on the main findings of the study in line with the literature, putting forth the pedagogical and design implications of using DMTs for knowledge acquisition and knowledge production at a higher education level. It also reports the limitations of the study and proposes scope for further research.

CHAPTER 2: LITERATURE REVIEW

2.1 Orientation to chapter

This chapter is organised in two sections. Driven by the research focus of this study which is the exploration of undergraduate students' experiences of learning with digital multimodal texts, it seemed pertinent to start this chapter with a first section which provides a holistic overview of the concept of experience in order to better understand how the experience of learning is generally viewed and researched. Since an important aspect of this study is the concept of reflection and reflexivity, it was pertinent to address this in relation to the experience of learning. The second section of the chapter brings clarity to the topic of multimodality and multimodal texts as applied to varied educational settings. It further discusses the notion of consumer and producer of DMTs while giving consideration to the changing literacy practices of our current generation of students and emerging concerns for educators. Given that the current pedagogical intervention is related to History teaching and learning, a section is dedicated to current research in the field and how it is approached.

2.2 SECTION I: Experience and learning

In a study where the focus is on students' experiences of learning with digital media, it makes sense to begin with a general discussion of experience itself. This section therefore intends to present the general concept of experience while foregrounding key concepts related to the students' experiences of learning.

2.2.1 The concept of experience

The term *experience* is used in everyday language by people not familiar with the field of philosophy where experiences have deeper meanings. The idea of experience as noted by Jarvis, Holford and Griffin (2003) is usually taken for granted as it seems quite natural that "there is a world out there and that during our conscious life we apprehend it in some way" (p. 53). When philosophers talk about *experiences*, they are concerned with their content and how they relate to the world. In *Experience and Education* published in 1938, John Dewey lays emphasis on the learning experiences in schools and puts forth the notion that some

experiences may be educative while some may be mis-educative. Dewey (1938) argues that while "all genuine education comes about through experience (this) does not mean that all experiences are genuinely or equally educative" (p. 25). His philosophy on experience connects to ideas such as intelligence, aesthetics and ethics (Wojcikiewicz, 2010). Dewey argues through his theory of experience that education and experience are linked by two principles, those of continuity and interaction. He views continuity and interaction as "the longitudinal and lateral aspects of experience" (p. 42). Fishman and McCarthy (1998) further elaborate on these two aspects. They point to Dewey's use of the term continuity which relates directly to the individual while the term interaction is related to the environment. For Dewey (1938), "all experiences (past or present) are carried forward and have an impact on future experiences and decisions" (p. 35). He uses the term continuity to make the distinction between educationally worthwhile experiences and those that are not. Furthermore, the aspect of interaction relates to an exchange between the organism and its world/environment. In the current study, this interaction aspect relates to the participants' engagement with digital multimodal texts within a learning context. This principle of interaction is shared by Marton and Booth (1997) who argue that "experience is a non-dualistic internal relationship with the external world" (p. 122).

Jarvis et al. (2003) qualify experience as subjective for its individualised personal nature. Similarly, Knutson and Beck (2003) point to the "elusive and indistinct notion of experience" (p. 50) and add that "it is a difficult construct to define, let alone measure, because of its multiple elements and individualized nature" (p. 24). Dewey (1916) explains in *Democracy and Education* that the nature of our experiences is a combination of two phases - an active (doing) and a passive (undergoing) phase. An experience is qualified as valuable when these two phases are connected. He further stresses that for an experience to be meaningful, both the active doing phase and the passive undergoing phase should be considered together. This suggests that the body and the mind both work together for someone to have an experience. It is not merely cognitive. As Dewey (1916) notes, "no experience having a meaning is possible without some element of thought" (p. 143). The act of reflecting on one's experience connects learning with experience and therefore giving students the opportunity to reflect on their learning experiences is crucial. Dewey (1933) argues that "we do not learn from

experience…we learn from reflecting on experience" (p. 78). It is through reflection that one makes meaning of an experience. An experience exists in time and is therefore linked to the past and the future. Demonstrating ability to reflect on one's experience and knowledge, after which using the reflections for improvement purposes is crucial for university-level thinking and work.

2.2.2 Importance of reflection in the learning process

There seems to be a lack of clarity in the definition of the term "reflection" in the literature as pointed out by Rodgers (2002) who claims that the term is "becoming everything to everybody" (p. 843). Reflection as explained here is a process of introspection which takes its roots from the works of the American philosopher, psychologist and pedagogue, John Dewey (1916) who has been cited extensively in the literature. Others such as the German philosopher Gottfried Wilhelm Leibniz considers reflection to be the experience one has when focusing on what is happening.

While Dewey's (1933) work provides a more philosophical outlook of the concept, other scholars such as Donald Schön and David Kolb provide a more practice-oriented view of reflective thinking. All these thinkers acknowledge the importance of reflection for teachers' and students' learning and development. Schön (1983) emphasised the role and significance of reflection for the practitioner. He proposed two forms of reflection which the professional should use namely reflection-in action and reflection-on-action. The former occurs during the act of performing one's duties while the latter happens after the action has been performed. Both types of reflections according to Schön (1983) are important since they allow the practitioner to become aware of his/her assumptions and to question them so as to build new understandings to shape their practice:

> The practitioner allows himself to experience surprise, puzzlement, or confusion in a situation which he finds uncertain or unique. He reflects on the phenomenon before him, and on the prior understandings which have been implicit in his behaviour. He carries out an experiment which serves to generate both a new understanding of the phenomenon and a change in the situation. (Schön, 1983, p. 68)

2.2.2.1 The experiential learning cycle

Kolb's cycle of experiential learning (1984) also referred to as the Kolb cycle or the learning cycle is often cited as a model that englobes the learning journey of an individual. It represents four different stages of learning from experience. The familiar diagram of the cycle (See Figure 1) includes four sequential elements namely (i) Concrete experiences which is about encountering either a new situation or reinterpreting existing experience (ii) Reflective observation is about reviewing/reflecting on the experience by doing a self-reflection or evaluation following the event (iii) Abstract conceptualisation which is about how reflecting on the experience may modify existing ideas or give rise to new ideas (iv) Active experimentation which is about applying and testing these new ideas to new situations.
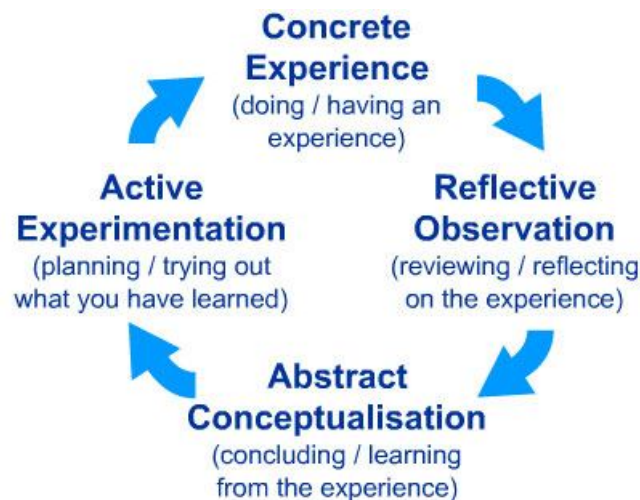
Figure 1. Kolb's cycle of experiential learning (cited in McLeod, 2017, p. 1)

The learning cycle suggests that merely having an experience does not mean that learning has taken place. Reflecting on the experience is indispensable to "make generalisations and formulate concepts which can then be applied to new situations. This learning must then be tested out in new situations." (Dwyer, 2012, p. 597). Through the four stages present in the cycle, the learner then establishes the link between theory and action (Walshe & Smith, 2011). Kolb (1984) states that for effective and successful learning to occur, it is important that the stages are followed in a sequential manner.

2.2.3 Students' experiences of higher education and their epistemological beliefs

Higher education institutions around the world increasingly attach high importance to the notion of student experience. As noted by Harvey, Burrows and Green (1992) 'student experience' is an important factor in assessing quality in higher education. What constitutes the student experience is said to differ from one institution to another. In an institution for instance, what the academic would consider as contributing to the student experience may not be viewed in the same perspective by the administration staff. Similarly "student expectations and perceptions of their own experiences are likely to be markedly different to the perspectives of the university staff" (Benckendorff, Ruhanen & Scott, 2009, p. 84). Student experiences encompass academic and non-academic issues. Knowing about students' experiences therefore has implications for both learning and teaching. Benckendorff et al. (2009) present a conceptual framework (See Figure 2) of student experiences within the field of hospitality, tourism and related fields, and report that several factors influence the student experience at university level.
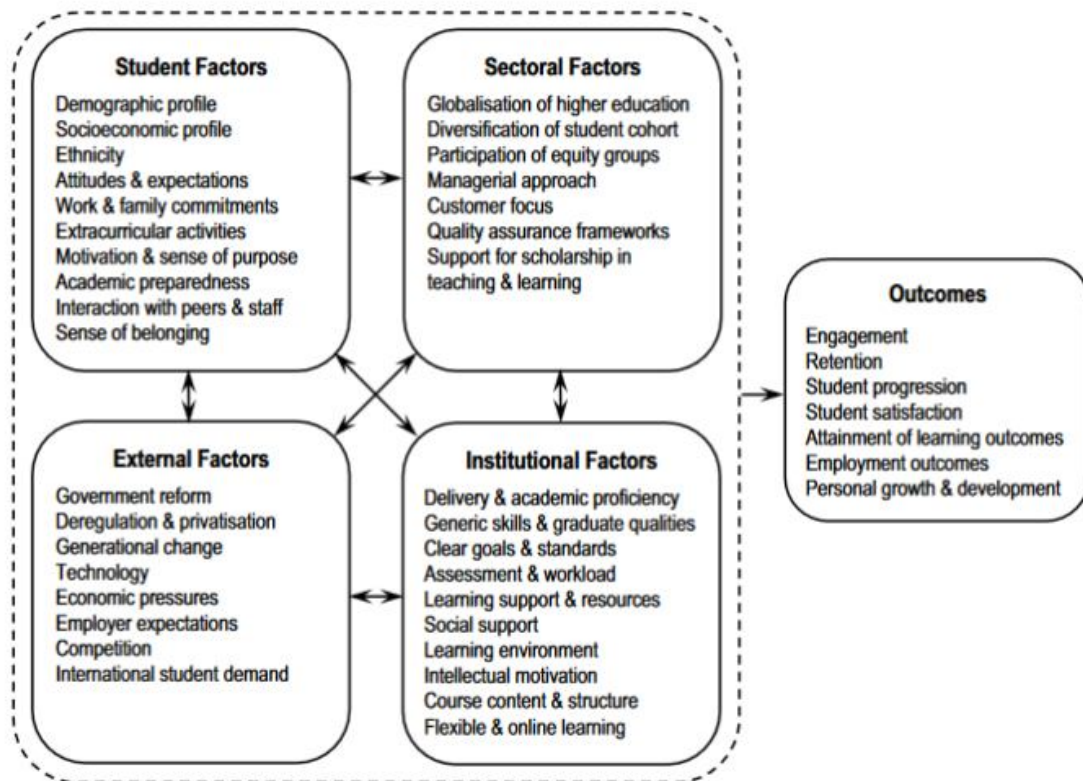
Figure 2. A framework for understanding factors that influence the student experience (Benckendorff et al., 2009, p. 86)

Those factors have been categorised into four dimensions (1) institutional (2) student (3) sector-wide and (4) external factors. The institutional dimension lays emphasis on the role of institutions and staff in managing the learning experience. The student dimension considers the fact that individual student characteristics influence the perceived quality of the student experience. The sector-wide dimension emphasises that since universities are part of a wider system of institutions and given the competitive nature of internationalisation or collaboration between universities, there may be an influence on how students view their learning experiences. The last dimension is related to external factors such as by external trends and changes such as "government policies, technological innovations and economic pressures" (Benckendorff et al., 2009, p. 85).

Initial research on student experiences of higher education was carried out by Becker, Greer & Hughes (1968) whose study focused on the social and academic life of the student. Less importance was given to the content of what was being studied. William Perry (1970), an educational psychologist during the 1950s and 1960s also researched student experiences and focused rather on the qualitative changes in students' thinking and on how students interpreted and made meaning of their educational experiences at university. He conducted two longitudinal studies using open ended interviews with men and women from Harvard and Radcliffe University in the United State of America. The first of these longitudinal studies involved interviewing on an annual basis and over a period of four years, a group of 31 college students consisting of 27 women and 4 men in view of knowing what exactly students felt outstanding in their experiences. Interviews asked students to comment on their experiences each year. His analysis of the transcripts led him to conclude that how college students made meanings of their experience "was not a reflection of personality but an evolving developmental process" (Hofer & Pintrich, 1997, p. 93). This research culminated in the development of an intellectual and ethical scheme which emphasises nine transitional stages/positions through which a student matures over time (See Table 1). The Perry scheme as explained by Hofer and Pintrich (1997) is a model for understanding how college students "come to know the theories and beliefs they hold about knowing, and the manner in which such epistemological premises are a part of and an influence on the cognitive processes of thinking and reasoning" (p. 88).

Table 1

Categorisation of students' attitudes towards knowledge based on Perry's scheme of intellectual and ethical development (1970)

CATEGORIES	POSITIONS
Dualism-Absolutism	**Position 1: Basic Duality** Students consider the teacher as being the sole knowledge provider, as the authority power to whom they listen blindly. Absolutist, right and wrong view of the world (Hofer & Pintrich, 1997)
Multiplicity-Subjective knowing	**Position 2: Multiplicity Pre-legitimate** Students begin to recognise that there are multiple authorities who may present different knowledge (Green, Pynn & Lopez, 2013) .
	Position 3: Multiplicity subordinate Students acknowledge that there are multiple authorities and knowledge and that there are problems with known answers and problems where answers are yet to be known. Students still depend and trust authorities for finding the answers (De Martin-Silva, Fonseca, Jones, Morgan & Mesquita, 2015)
	Position 4: Multiplicity correlate and relativism subordinate (Late multiplicity) Authorities are not the only source of knowledge and the right to have a point of view is not limited to the authorities. Students become conscious of their active role in meaning making. They acknowledge that their own point of view matters.
Relativism-procedural knowing	**Position 5: Relativism Correlate, Competing or Diffuse** Knowledge is viewed as always changing. Students go from a "major shift in the perception of self as an active maker of meaning" (Hofer & Pintrich, 1997, p. 91). The students are able to make decisions after analysing the situation. They demonstrate critical analysis skills.
Commitment (More mature position-Reflective) *Integration of knowledge learned from others with personal experience and reflection.*	**Position 6: Commitment foreseen** Students begin to realise that they will need to make their commitments and take constant decisions in a relativist world, investing in time and energy, care in whatever they do for a responsible life.
	Position 7: Initial commitment Being aware of taking a commitment to do something, students are aware of their responsibility and the implications of their commitment. (Wilson, 2013).
	Position 8: Orientations in implications of commitment Students experience implications of commitment and explores associated responsibilities.
	Position 9: Developing Commitments Students have developed the experience of being committed. Individuals make and affirm commitments to values, careers, relationships, and personal identity (Hofer & Pintrich, 1997). Individuals develop new perspectives and discards those that they feel they do not need.

Table 1 elaborates each of the positions identified in the Perry Scheme. Positions one to five address the intellectual development while positions six through nine concern the ethical, moral and identity development. Perry and his colleagues conducted a second longitudinal study to validate the above intellectual and ethical scheme where a randomly selected group

of 109 first year students were interviewed annually over their four years of study at college. This group consisted of 85 men and 24 women (Hofer & Pintrich, 1997).

Even though Perry's work has been widely applied to educational contexts, he acknowledged that his model had limitations (Hofer & Pintrinch, 1997; Pascarella & Terenzini, 2005). One of the limitations noted by Perry himself was that he interviewed student volunteers coming from one single college. Another was in respect to the development scheme which "was abstracted from oral reports given by the students during annual interviews conducted by the investigators" (Brooks, 1998, p. 8).

Other theorists have also noted limitations such as gender bias, and some confusion of the underlying constructs (Brooks, 1998). The limitations of Perry's model led other theorists to try and enhance the model thus generating other development schemes. Three such models which are commonly claimed to be refinements of Perry's Scheme are briefly outlined here:

1. Baxter Magolda's (1992, 2004) epistemological Reflection Model developed in 1992 based on Perry's model focuses on how "students' epistemological assumptions affect their interpretation of educational experiences" (Hofer & Pintrich, 1997, p. 99). The model presents four perspectives on knowledge namely (i) absolute knowing, (ii) transitional knowing, (iii) independent knowing, and (iv) contextual knowing (Zhu, 2017, p. 19).

2. Belenky, Clinchy, Goldberger and Tarule (1986) addressed the omission of gender in previous models by embarking upon work that focused exclusively on women. They came up with the idea of "Women's Ways of Knowing" model. This model is based on interview data collected from 135 women, with 90 of them being college students. Belenky et al. (1986) built on Perry's scheme by grouping the women's perspectives on knowing into five epistemological categories. As Brooks (1998) summarises, these include (a) silence, (b) received knowledge, (c) subjective knowledge, (d) procedural knowledge, and (e) constructed knowledge (Brooks, 1998, p. 10).

3. King and Kitchener's (1994) reflective judgment model is another refinement of Perry's Scheme. This model focuses on how students develop complex reasoning skills that is they develop arguments and make judgments.

By presenting the above models, the aim was to argue that students develop intellectually and ethically in a variety of ways over time from when they join to when they leave the University. Each individual student has a unique perspective when looking at his/her experience of any learning event or the general learning environment.

2.2.4 Research studies on students' experience of learning

There is an extensive body of work on how students experience their learning in various contexts (Bolstad & Lin, 2009; Ellis & Calvo, 2006; Entwistle & Ramsden, 1983; Hounsell, 1997; Marton & Booth, 1997; Marton, Hounsell & Entwistle, 1997; Prosser & Trigwell, 1999; Robertson & Blackler, 2006) using varied methodologies and methods. When students enter the university, they bring with them previous experiences of education and study habits which have an influence on their approaches to learning and how they make sense of their studies (Entwistle, McCune & Hounsell, 2002). Marton, Hounsell and Entwistle (1997) presented experience of learning at higher education level as being perceived and understood by different interested groups namely lecturers/educational researchers and students. The differences in students' prior knowledge and experiences lead to varied students' varied perceptions of the teaching and learning environment they encounter. Key concepts of the student learning experience have been well illustrated in the framework (See Figure 3) proposed by Entwistle, McCune and Hounsell (2002) in their report published in the context of the enhancing teaching-learning environments in undergraduate courses (ETL) project. This framework identifies the relationships between important aspects of student learning experience.
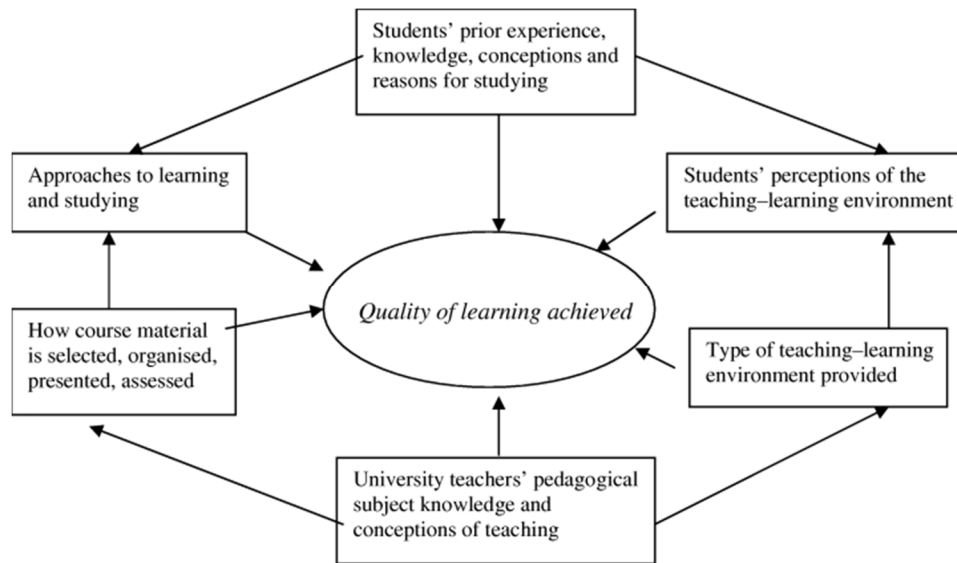
Figure 3. Concepts related to the quality of learning at university
(Entwistle, McCune & Hounsell, 2002, p. 6)

Ellis and Calvo (2006) view the schema as having two parts- the top half relating to the students' experience of learning which includes their approaches, conceptions and perceptions and the bottom half which relates to the "teacher's influence on student experience of learning; the type of learning environment provided, the teachers' knowledge and conceptions of teaching and their design of the course material" (p. 57). Others noted that there exists a close relation between the quality of learning achieved and the quality of the teaching and learning environments (Prosser & Trigwell, 1999). For example, if students perceive that the environment such as the content as clear and relevant, then they would perceive the learning experience as positive. Today, with the advent of new technologies and changing teaching and learning landscapes, many universities find themselves with the challenge to rethink the design and presentation of their curricular content so as to better respond to the needs of today's generation of students (Laurillard, 2002) and also to respond to "global, social, political, technological, and learning research trends" (Siemens & Tittenberger, 2009, p. 1). Along with the traditional lectures and textbooks, the curricular content can now be made accessible via e-learning technologies. As such, the traditional notion of learning environments defined in terms of "time, place and space" is expanded to include aspects of "technology, interaction and control" (Piccoli, Ahmad & Ives, 2001, p. 403). Many HEIs across the world have the possibility of using Learning Management Systems (LMS) to

provide blended or fully online learning to their students, or make use of multimedia learning objects/resources and other educational technologies as support to teaching and learning, thus allowing more flexibility in the way teaching and learning occurs.

2.2.5 Methodological approaches to study students' experiences

Educational research has been criticised for using research approaches falling within the quantitative paradigm, which have proved to be successful in the physical sciences but less appropriate in relation to social sciences and humanities. While the quantitative approach "tend to produce formal or mechanical models which embody assumptions about fixed paths of causality" (Marton, Hounsell & Entwistle, 1997, p. 13), the qualitative paradigm to study student experiences involves a more empathetic approach which seeks to understand what is involved in student learning from students' own descriptions/voices and the meaning they assign to their learning.

Methods used to gather student experiences include surveys as well as more qualitative methods such as interviews, focus groups and more participatory approaches. Institutions through their quality assurance mechanism often make use of surveys to frame the experiences of students. For example, some like Lopatto (2007) have considered science undergraduates research experiences and used online surveys to examine whether such experiences "enhance their educational experiences, attracts and retains talented students to careers in science, and acts as a pathway for minority students into science careers" (p. 297). A mixed approach to research has been used by Bolstad and Lin (2009) to explore students' experiences of learning in virtual classrooms. Online surveys, focus groups and teacher workshops were used as methods to collect data in their study. Similarly, it is very common for Higher education universities to evaluate students' academic and non-academic experiences through surveys and questionnaires. Examples of such instruments include the First Year Experience Questionnaire (FYEQ) of Krause and Coates (2008); the Course Experience Questionnaire (CEQ) of Elphinstone (1990) relevant to Australian Tertiary Institutions and the National Student Survey (NSS) which final year students of Higher Education Institutions use to rate their educational experience. Other studies have adopted a more qualitative approach focusing on students' experiences of a given learning situation, a course, learning activities and adopt qualitative research methods. For example, Marton, Hounsell and Entwistle (1997) present

33

experience of learning at higher education level as perceived and understood by different interested groups namely lecturers/educational researchers and students. As students are at the heart of this study, it is helpful to understand the 21st teaching and learning landscape as well as the generation of learners we are dealing with and the type of environment in which they thrive. These two aspects will be discussed in the next paragraph.

2.2.6 The net generation and the 21st century emerging learning environments

I introduce the idea of generation here as a way to situate the net generation participants in my study. The concept of 'generation' was addressed by Strauss and Howe (1991) in their book *Generations: The History of America's Future, 1584 to 2069,* a book that looks at the history of America through its generational life stories dating back to 1584. The authors also note the cyclical nature of generations and created the generational theory, a framework through which cultural and social change can be explained and through which predictions about the future can be made. The term "generation" is attributed to a group of people belonging to more or less the same group age, being born around the same time. According to DeChane (2014), a generation basically groups people according to the years in which they were born. Keeling (2003) defines a generation as "a group moving through time that is shaped by events of their lifetime. These defining events affect the behaviours, attitudes, and beliefs of the members of a generation" (p. 30).

Generations have been labelled in different ways such as the Hero, Artist, Prophet and Nomad generations. The 'Hero' generation include those who were born around the year 1901-1924 and are also referred to as the GI generation. They lived through Word War I when they were in their childhood and as young adults they experienced the Great Depression and World War II and helped society in resolving issues emerging from the crisis. In midlife, they are set to face challenges, propose solutions, become more confident, determined, optimistic, more team-oriented with the aim of becoming successful in all spheres of life. The 'Hero' generation is followed by the 'Artist' generation, also referred to as the 'Silent Generation'. The year attributed to this generation is roughly 1925-1942. This generation consists of children born during the post-crisis period, overprotected by parents who faced the crisis of war and depression. A new generation archetype called the 'Prophets' emerged around 1943-1960 which is also referred to as the 'Baby Boom' generation (the BBs). The term 'Baby Boomer'

was assigned to this generation as there was a high rise in the birth rate following the post-world war II. There are varying views regarding when this generation starts and ends. But demographers and researchers often label people born between 1943-1960 as the 'Boom Generation' (Colby & Ortman, 2014, p. 2; Howe & Strauss, 2007, p. 43). Some articles and reports consider the 1946-64 as the year bracket to present this generation (Colby & Ortman, 2014; Furlong, 2013). The next generation following the Baby Boomers generation has been labelled as Generation X. This generation has often been disregarded by other generations. Those belonging to this generation are viewed by others from the past generations as being "outrageous, yet elusive, with inferior minds and inferior educations" (Keeling, 2003, p. 31). On the contrary, the members of Generation X (the Xers) do not share the same view and consider themselves as "pragmatic, quick, sharp-eyed, and able to step outside themselves to understand the game of life as it really gets played" (Strauss & Howe, 1991, p. 320). Those born between 1982 and 2002 are labelled by Howe and Strauss (2000) as the Millennials. This group belongs to a generation which is believed to be clearly different from the preceding generations. Various characteristics have been attributed to the Millennials. As compared to the Xer Generation who witnessed the development of technology, the Millennials live in a society already filled with new forms of communication, a society with increased connectivity and new technological devices. According to Maürtin-Cairncross (2014), the Millennials share the following traits:

> they are globally aware and globally connected; they value diversity, collaboration and achievement; technology seems to be a natural part of their lives; they have a strong sense of civic duty; they have a highly developed ability to multi-task; and they are energetic, optimistic and confident. (p. 565)

The participants of this study are considered as the Millennials (Howe & Strauss, 2000; Oblinger & Oblinger, 2005) also referred to as Generation Y (Nader, 2003) *or* the Net Generation (Tapscott, 1998). While they have been labelled as digital natives (Prensky, 2001), a term that has been contested by some, the key point here is that learners of the 21st century are digital technology literate and that is becoming increasingly important for universities to consider the implementation of digital technology in teaching and learning. It is believed that these learners possess sophisticated skills in using digital technologies and have been able to

develop new cognitive capacities and learning styles due to heavy exposure to these technologies (Prensky, 2001). It is further claimed that students today are quickly bored with text and lecture methods considered to be traditional teaching strategies (Berk, 2009; Carlson, 2005) as they spend much of their time using technology devices such as mobile phones and tablets which they find more exciting. They embrace a wide range of visually dominant information, use various multimedia tools and other audio-enhanced resources. For instance they send text messages, constantly using emojis and share pictures on social networking phone apps. But on the other side of the coin, there are other researchers who have been critical about this deterministic view which lacks empirical evidence. Jones and Shao (2011) argue that this assumption should not be taken at face value and that it may not be applicable to all learners. Some studies conducted at university level (Bennett & Maton, 2010; Helsper & Eynon, 2010; Kirkwood & Price, 2005; Margaryan, Littlejohn & Vojt, 2011; Selwyn, 2009; Thompson, 2013) have found no evidence that students' patterns of learning are radically changing and suggest that young people's engagement with digital technologies are often varied. According to Kennedy, Judd, Churchward, Gray and Krause (2008), *"the widespread revision of curricula to accommodate the so-called Digital Natives does not seem warranted"* (p. 117). They reject the assumption that "being a member of the Net Generation is synonymous with knowing how to employ technology strategically to optimise learning experience in university settings" (p. 118). They noted that young people within one same cohort differ significantly in terms of their preferences, skills and use of new technologies. Talking about ways young people use technology, Bennett and Maton (2010) confirm that "rather than being a homogenous generation, there is a diversity of interests, motivations and needs" (p. 9). Kennedy, Judd, Dalgarno, and Waycott's (2010) research findings on the patterns of students' technology use from three Australian Universities conclude that while 14% use a wide range of technologies at varied frequency, the rest mainly use basic features of mobile phones and the web for instance, to send email or to search for information. There was limited use of technologies for creating text, audio or video content or for playing computer games. HEIs need to be careful about the assumption that the current learner generation belongs to the same category and therefore will all be demonstrating the same capabilities, skills, and attitudes towards digital technologies. Other factors such as socio-economic status, including race and gender (Hargittai, 2010) and academic discipline

36

(Kennedy et al., 2008) have been found to influence students' perception and experiences of technology-mediated learning.

2.3 SECTION II: Reviewing the field

This section of the chapter provides firstly a clarification about the terms multimedia and multimodal to show how they relate to each other and how they have been used across the literature. It then looks at more applied contexts of digital multimodal texts and presents the concepts of multimodality and multiliteracies to better situate the development in this area of research. Since this study explores participants' experiences of learning with DMTs in relation to a module on a Mauritian History module at a first year undergraduate level, the concept of historical knowledge and cultural heritage, alongside the state of History education and assessment at tertiary level is also addressed as part of this chapter.

2.3.1 Multimedia and multimodal: Coming to terms

The question of whether to use 'multimedia' or 'multimodal' in the title of this thesis has been an ongoing debate. From my prior interactions with peers/ colleagues, it seemed clear that many were not familiar with the term 'digital multimodal texts', while the term 'multimedia' is well known. In an article published in 2009, Claire Lauer provided a clear analysis on how the two terms, multimedia and multimodal have been defined and used in the academic as well as non-academic and industry contexts. According to Lauer (2009), "both terms are not only defined similarly, they are often used interchangeably" (p. 299) in the context of composition and rhetoric (Selfe, 2007; Wysocki, 2004). She noted that the use of the term multimedia which dates back to the 70s was more frequent in use until around the late 90s, after which the term multimodal coined by the New London Group started to gain popularity, particularly in the scholarly literature. Concerned about the state and future of communication landscape, language and education, a group of academics/scholars came together in 1996 to form the New London Group. Scholars such as Bill Cope and Mary Kalantzis, Gunther Kress and Theo van Leeuwen and James Gee were amongst those who coined the term multimodal and started to focus their works on multimodality and multiliteracies.

While multimedia lays emphasis on the media, multimodal is more concerned with modes. Kress and van Leeuwen (2001) refer to modes as "ways of representing information, or the

semiotic channels we use to compose a text" and to media as "tools and material resources" used to produce and disseminate the text (p. 22). Various definitions of multimedia and multimodal can be found in the literature. Some are simple and speak to a wider audience while others have more theoretical nuances. Hofstetter (2001) presents a simple definition of multimedia which is referred to as "the use of a computer to present and combine text, graphics, audio, and video with links and tools that let the user navigate, interact, create, and communicate" (p. 2). In this definition, emphasis is laid both on the author (the person responsible for creating the text) as well as the user (the person who engages with the text). This definition according to Lauer (2009) posits that "multimedia texts are inherently multimodal texts because rather than being texts that combine various media (such as the book, radio, television, and computer screen), they are texts that combine a variety of modes (such as image, animation, and sound) disseminated through a single medium (such as a computer screen)" (p. 229) and in relation to providing relevant frameworks (See Chapter 3). This interpretation clearly suggests a blurred line that separates the two terms. Using both terms interchangeably in the context of this study, even though the title includes the term 'digital multimodal text' means allowing flexibility and openness in discussing the topic. While recognising the fact that the term multimodal is a more recent term which has "emerged out of scholarship published in just the last ten years" (p. 237), as noted from Lauer's analysis (2009), it is also important to continue including the term multimedia as perhaps a more inclusive term in relation to various audiences.

2.3.2 What are multimodal texts?

Traditionally, a text is characterised by paragraphs of printed words or language that convey meaning. However, with the advances in technologies and more sophisticated views of meaning making, new ideas about what a text is have emerged along with greater attention to what is accessible to teachers and students. Texts are now being represented through multiple modes and accessed through varied media. New terms have emerged to talk about such texts such as digital texts, multimedia texts, multimodal texts (Kress & van Leeuwen, 2001; Serafini, 2012; M. Walsh, 2006). Multimodal texts as defined by Anstey and Bull (2010) are those texts "that combines two or more semiotic systems" (para. 2). In their discussions, they refer to five recognised semiotic systems namely linguistic, visual, audio, gestural and spatial.

These multimodal texts may include still and moving images, spoken or written language and sound and may be produced electronically or are print-based. It is important to understand the interplay between the different semiotic modes when engaging with multimodal texts.

2.3.2.1 Semiotic modes at play in multimodal texts

Communication involves the transmission and reception of information from a sender to a receiver through a communication channel. This exchange of information can utilise signs which are also known as "semiotic resources" which have been defined by van Leeuwen (2005) as:

> the actions and artefacts we use to communicate, whether they are produced physiologically – with our vocal apparatus; with the muscles we use to create facial expressions and gestures, etc. – or by means of technologies – with pen, ink and paper; with computer hardware and software; with fabrics, scissors and sewing machines, etc. (p. 3)

Figure 4 represents different modes of communication as semiotic resources that permit the design of meanings as proposed by the New London Group (1996). The meaning making modes include (i) linguistic (ii) audio (iii) spatial (iv) gestural and (v) visual mode. From a perspective of multimodality, these modes are brought together to give meaning to the text. For example in a poster design, all the elements such as the images, the colours, the layout, the written message is not to be seen in isolation but as interrelated to convey a certain message to the target audience.
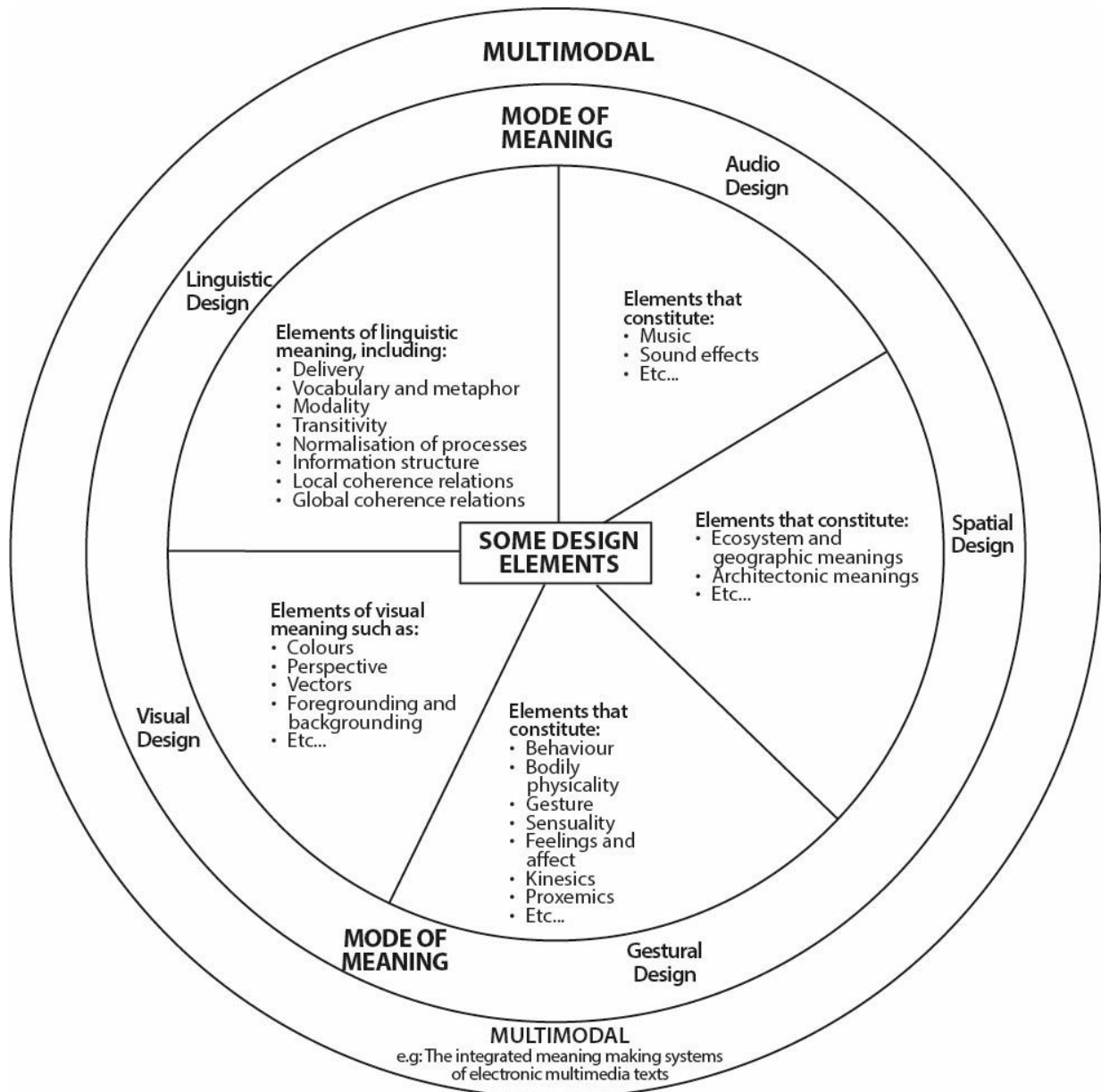
Figure 4. Design elements of different modes of meaning (New London Group, 1996, p. 83)

Generating meaning through this intersemiotic relationship is not simply about putting a number of modes together. Baldry and Thibault (2006) explain the complex nature of this relationship:

> Multimodal texts integrate selections from different semiotic resources to their principles of organisation. (…) These resources are not simply juxtaposed as separate

modes of meaning making but are combined and integrated to form a complex whole which cannot be reduced to, or explained in terms of the mere sum of its separate parts. (p. 3)

Modes in multimodal texts fulfil different communicative functions and carry varied meaning depending on the context in which they are being used. The semiotic resources that van Leeuwen (2005) refers to "have a meaning potential, based on their past uses, and a set of affordances based on their possible uses, and these will be actualized in concrete social contexts where their use is subject to some form of semiotic regime" (p. 285). According to Jewitt (2005), "Print and screen-based technologies make available different modes and semiotic resources in ways that shape processes of meaning making" (p. 315). Examples of modes include words, sounds, still and moving images, animation and color. Kress and van Leeuwen (2001) argue that "readers and designers assign semiotic meanings to all of the modes deployed in a multimodal object/phenomenon/text" (p. 28).

There have been numerous studies which have focused on understanding how the semiotic modes work together to create meaning (Álvarez, 2016; Bourne & Jewitt, 2003; Flewitt, 2006; Siefkes, 2015). Bourne and Jewitt (2003), for instance analysed how a teacher in a multi-ethnic urban secondary school English classroom made use of semiotic resources together with her students to develop higher-order literacy skills.

At the University of Mauritius, (except for a few innovative programmes of studies delivered using an online modality) most of the faculties adopt the traditional approach to assessment which focus on continuous coursework, tests and written examinations. Though there are some variations in the types of continuous coursework depending on the disciplines, the dominant ways of assessing in the Social Sciences and Humanities in general are still very much focused on writing forms of expressing knowledge. Not much attention is given to other multimodal forms of expressions. Emphasis is laid on the standardised exams which does not provide opportunities for this current generation of students to develop skills that are critical for the 21st century.

2.3.3 The notion of consumer and producer of DMTs

The 'digital turn' which according to Mills (2010) is "a consequence of globalization and the growing range of technologies for communication" (p. 247) has given rise to a shift in the roles of students and teachers. Researchers within the area of literacy have been showing an increased interest in new literacy practices occurring in digital environments present across different social contexts such as schools and work. One notion that has been addressed to discuss issues around digital media and literacy practices is that of media consumption and media production. Various terms are used in the literature to conceptualise the role of the student thriving in today's digital economy. Terms such as *consumers* and *creators or producers* of knowledge have been used by several researchers interested in understanding the role of teachers and students in an increasingly technological and globalised world. This notion of students as consumers and students as producers of knowledge was brought forward by Neary and Winn (2009) who acknowledge that with Universities facing pressures from governments, higher education is being seen as a business venture grounded in a corporate culture, with students being transformed into consumers (Molesworth, Nixon & Scullion, 2009) expecting to get what they have paid for. Similarly this is reflected in what Woodall, Hiller and Resnick (2014) state about British higher education students: "students are increasingly demonstrating customer-like behaviour and are now demanding even more 'value' from institutions" (p. 1).

The students as consumers or as producers concept has also been used from another perspective by other researchers interested in researching digital technologies and people's media activities (Buckingham,2007a, 2007b; Handsfield, Dean & Cielocha, 2009; Lippincott, 2007; Mishra, Koehler & Zhao, 2007; Selwyn, 2012; Tapscott & Williams, 2008; Wormeli, 2015). Various other terms have been used to characterise the roles of students when it comes to the use of digital texts and media. For instance, Buckingham (2007b) refers to terms such as "creating digital media" or "creative production" and at the same time use the verb "producing multimedia texts" (p. 49) when citing examples of how teachers are promoting digital literacy amongst young children and students through engaging them in tasks where they make use of digital technologies to create their own multimodal texts. Similarly Mills (2010) makes use of the term "creative production" and speaks of "production of multimedia

texts" (p. 256) in her discussion on new literacy practices of the 21st century. Referring to the work of Peppler and Kafai (2007) which focused on exploring how a group of urban children and youths from a computer clubhouse in South Los Angeles experienced their informal art practices, Mills (2010) states that "the inner-city youth became creators rather than consumers of digital products" (p. 256). This idea of people being media users or media consumers and media producers has also been advanced by Vainikka and Herkman (2013).

Some researchers have argued for the need of a pedagogy that promotes knowledge creation instead of mere knowledge transmission. Tapscott and Williams (2008) while referring to young social media users affirm that they "are not content to be passive consumers, and increasingly satisfy their desire for choice, convenience, customization, and control by designing, producing, and distributing products themselves" (p. 52). McLoughlin and Lee (2010) also highlight the need for having a pedagogy that focuses less on product and more on process. This pedagogy should lay more emphasis on student generated content where students are given the opportunity to become more involved in the learning process and develop a range of skills. They argue that educational content should not be viewed solely as the educator's, the instructional designer's and developer's work. They suggest that:

> In order to increase engagement, to promote self-directed and self-regulated learning as well as collaboration and knowledge sharing, and to encourage the development of products of value beyond the assessment or grading process, there is a need to expand our vision of educational content so that greater value is placed on student created products as a primary content source, In this way, students become active as both producers and consumers, or 'prosumers', of knowledge, ideas and artefacts (p. 32).

Like others, Wormeli (2015) raises the question whether today's students are "passive consumers or active creators" (para. 5). He claims that the curriculum should focus more on "project based learning, integrated learning and inquiry methods" (para. 10) rather than students being passive, merely listening and repeating the content with which they are presented.

In this study, I have chosen to refer to participants as knowledge consumers and as knowledge producers. However, terms such as users and recipients are used interchangeably when I refer

to participants as knowledge consumers, as in LS1 while as producers of their own video, as in LS2, other terms such as authors and creators have been used.

2.3.4 Multimodality and multiliteracies in education settings

As a phenomenon, multimodality is not new. Basically, our daily experience as a human being involves using various senses to communicate. It is through multiple communication modes that we acquire knowledge of the world. But with the advent of new forms of media and texts, conventional forms of communicative practices are being challenged. As noted above, the term 'multimodality' was coined in the mid-1990s by the New London Group and is used to "describe the different texts of meaning, or rather the convergence of these texts, where different forms of communication work both together and in contrast in order to convey meaning" (Paziuk, 2013, p. 1). People like Charles Goodwin, Gunther Kress and Theo van Leeuwen, are among those who have introduced the notion of multimodality. These scholars argue that although different semiotic resources offer different possibilities for meaning making, all of them are equally important. It does not mean that one semiotic resource is better than another (Jewitt, Bezemer & O'Halloran, 2016).

As a research discipline, multimodality is quite contemporary and understanding multimodal communication in academic contexts is growing in importance (Archer, 2014; Jewitt 2008; Jewitt et al., 2016; Kress & Selander, 2012) especially when students are presented with an array of multimodal representations. In their book *Introducing multimodality*, Jewitt et al. (2016) explain that multimodality as an area of research emerged as scholars recognised the need for studying how different kinds of meaning making are combined into an *integrated, multimodal whole* (p. 2). Jewitt's (2009) definition of multimodality focuses on the roles of the different semiotic modes in attaining effective and meaningful communication. Her assumption on multimodality is that understanding communication and representation does not rely solely on language but also considers a whole range of communication forms used by people such as image, gesture, gaze, posture and how each of these relate to one another. She defines multimodality as "the approaches that understand communication and representation to be more than about language, and which attend to the full range of communicational forms people use—image, gesture, gaze, posture and so on—and the relationships between them" (Jewitt, 2009, p. 14). Referring to multimodality in the context of education, Jewitt (2008,

2009) claims that the way knowledge is represented and the choice made regarding mode and media is an important aspect of knowledge construction. The form of representation will no doubt shape "what is to be learned, that is, the curriculum content, and how it is to be learned" (Jewitt, 2008, p. 241).

Clearly, instructional content is not limited to text books and lectures. New technologies have opened up possibilities to design new types of educational content to support various subject disciplines. As highlighted by Kalogeras (2014), multimodality is about using multiple resources to communicate and he notes that nowadays with the wide range of media technologies, the educational designers (those who work alongside media developers and technical specialists to help educators design and develop educational media content) have a variety of semiotic resources at their reach to communicate and disseminate knowledge. In discussing multimodality and multimodal communication, Kalogeras (2014) emphasises the notion of media convergence. According to her, "content, semiotic resources, and communicative intentions are connected" (p. 78). Alsadi's (2015) definition of multimodality focuses on an interaction process which occurs between the visual/pictorial and the verbal modes used in various printed materials (books, advertisements, cartoons, diagrams in manuals, etc). Alsadi (2015) is of the view that both the verbal and the pictorial mode reinforce each other to create meaning but these semiotic modes "cannot be isolated from the broader social and cultural context of a particular society" (p. 18). The decoding of multimodal messages therefore depends on one's social and cultural context and calls for a multiliteracy approach to pedagogy.

Bock (2016) argues that theories of communication have undergone major shifts and cite scholars such as Crafton, Silvers and Brennan (2009), Jewitt (2009), Kress and van Leeuwen (1996), Kress (2010) who through their studies, challenge the primacy of language in communication practices. These scholars bring a more contemporary approach to communication, emphasising the importance of visual communication in a world that is increasingly mediatised and technology driven. Bezemer and Kress (2008) for instance stress the shift from primarily textual and language related representations to those which are visually dominant and note that the dominance of multimodal texts and technology is changing the conception of traditional literacy practices.

45

Closely connected to the field of multimodality is the concept of multiliteracies proposed by the New London Group (1996) which has been gaining an interest amongst the academic community. Possible factors that may explain this are the increase in the variety of multimodal texts available today and their integration in the education landscape; the need to develop the literacy skills in reading multimodal texts; the need to understand how and why such texts are produced. In the media and digital environment in which we are living today, the notion of literacy extends beyond mere reading, writing, spelling and speaking. New technologies and various new media have altered this notion thus requiring one to develop new skills to understand how meaning through new forms of multimedia texts is created.

A book by Cope and Kalantzis (2015) entitled *A pedagogy of multiliteracies* brings forth the idea that increasingly new genres of texts are finding their way into the communication landscape due to the emerging field of digital technologies. Learning to communicate in such a context represents a challenge for educators as well as students, unless the pedagogy behind literacy teaching and learning is reviewed accordingly to embrace new literacies. Concerned with this situation, Cope and Kalantzis (2015) along with a few members formed a group to discuss the future of literacy and according to them:

> Meaning is made in ways that are increasingly multimodal—in which written-linguistic modes of meaning interface with oral, visual, audio, gestural, tactile and spatial patterns of meaning. This means that we need to extend the range of literacy pedagogy so that it does not unduly privilege alphabetical representations, but brings into the classroom multimodal representations, and particularly those typical of the new, digital media. This makes literacy pedagogy all the more engaging for its manifest connections with today's communications milieu. (p. 3)

Members of the New London Group argue that a pedagogical approach focusing on multiliteracies acknowledges the importance of diverse linguistic, cultural, communicative and technological tools which students can use to develop skills they will require in a rapidly changing globalised world. Such a pedagogical approach promotes the development of new reading skills that are different from those required to read print-based texts. According to Serafini (2012), "in order to create an informed, literate citizenry, readers must be able to

navigate, interpret, design and interrogate the written, visual and design elements of multi-modal texts" (p. 152). Producing and consuming multimodal texts not only calls for new forms of literacies but also creates new roles for the student reader and the teacher. The basic principles underlying reading and writing have not really changed but with the ever growing use of various types of images in paper and digital texts, reading processes are shifting from the linear cognitive processing of print text to parallel processing requiring the reader to make sense of information that combine various modes (C. Luke, 2003).

2.3.4.1 Do-It-Yourself (DIY), Youth media practices and new literacies

Do-It-Yourself (DIY), youth media practices and new literacies have become an area of research for many researchers and educators, especially within the context of a highly mediated and rapidly evolving society. Today, the social and cultural spaces of young people are very much infused with interactive media. Their media practices do not only include being consumers of media when they browse the Internet and share information on various social networking sites using various technological devices "but they also produce content when contributing to blogs, designing animations, graphics and video productions" (Kafai & Peppler, 2011, p. 89). This has led to a growing interest from researchers to investigate the pedagogical possibilities and challenges of implementing digital media pedagogies which take into consideration young people existing media practices.

Literature on DIY youth studies and participatory culture considers youth-produced media production and investigates how this is created, shared and used for promoting critical discussion and reflexivity (Buckingham 2007a, 2007b, 2013; Burkholder 2018, in press; Burkholder & MacEntee, 2016; De Lange, Olivier, & Wood, 2008; Strong-Wilson, Mitchell, Morrison, Radford, & Pithouse-Morgan, 2014). New digital spaces such as blogs, social networking sites and mobile technologies represent interesting possibilities for young people to express themselves. Buckingham and Martínez-Rodríguez (2013) note that "in these new digital spaces, they develop preliminary frameworks for interpreting life, sets of opinions and prejudices, stereotypes and dilemmas, that guide their understanding of the meanings of everyday actions" (p. 11).

Participatory video approaches have been found to present opportunities for teachers and students to engage more authentically and critically in researching various subjects and social issues such as poverty, parental involvement; HIV and AIDS; teacher identities, citizenship; social justice in diverse educational contexts (Burkholder, 2018; Burkholder & MacEntee, 2016; De Lange, Olivier & Wood, 2008; Ngcobo, 2015, 2012; Strong-Wilson, Mitchell, Morrison, Radford & Pithouse-Morgan, 2014; Wood & Olivier, 2011).

For example, the study conducted by Burkholder and MacEntee (2016) focused on the possibilities that an evolving participatory research approach, namely cellphilming (MacEntee, Burkholder & Schwab-Cartas 2016; Mitchell & De Lange, 2013) can offer pre-service Social Studies teachers from the University of Prince Edward Island (UPEI) in Canada. Cellphilming consists of making use of the cellphone (mobile phone) to film and produce short videos of 1-5 minutes. The study "sought to construct a digital space for participants to create, share, and respond to each other's cellphilms about learning to teach history and their developing professional identities" (p. 211). The pre-service teachers were involved in a cellphilm archive project as an assignment introduced in the Secondary Social Studies Teaching Methods class of their Bachelor of Education degree programme. Each student had to create a one-minute video based on the theme - 'Our Spaces/Our Selves: Exploring our sense of self, belonging and citizenship' (Burkholder & MacEntee, 2016, p. 212). The pre-service teachers were expected "to create, share, and respond to each other's cellphilms about learning to teach history and their developing professional identities" (Burkholder & MacEntee, 2016, p. 211). They published their short video on their individual YouTube channel which was shared with the teacher. The class was given the opportunity to view the cellphilms produced which was followed by a discussion on issues and themes that were explored involving the teacher and the students. The possibility to view each other's creations and to appreciate the different perspectives conveyed and to reflect on it allowed the pre-service teachers to adopt a reflexive position towards their work. The YouTube space was considered "as a space for democratic dissemination and archiving" (Burkholder & MacEntee, 2016, p. 222). Cellphones were used as a tool to support social change in community-based projects dealing with marginalised populations to address serious social issues in a creative manner. At the same time, the authors note that the use of technologies such as cellphones

and media channels as digital archival space raises important ethical challenges and implications such as access, privacy and ownership of data and institutional rights.

Kafai and Peppler (2011) explored youth self-made media artifacts and how they relate to media literacies. They argued that as young people engage in creative media productions, they develop both new media literacies and computer literacies. They noted that in today's participatory culture, creative media productions have become a common thing and are not associated with the field of computer education. Creative media productions as DIY have been included in formal and informal learning contexts. For instance a white paper on a 3 year ethnographic study by Ito et al. (2009) notes that young people engage in "friendship-driven" (p. 1) online activities such as when they connect with others on social networking sites like facebook in view of expanding their friends' networks. They are also found to engage in "interest-driven" online activities where they connect with others (peers and adults) from whom they can learn new things for which they have developed an interest. Some studies have focused on these interest driven practices of young people. For example Yi (2008) explored how a group of 25 Korean adolescents engaged in online collaborative writing and maintained an online community which was an activity that occurred outside school contexts. The approach of online writing that Yi (2008, p. 671) called "relay-writing" allowed its members to express themselves through varied types of texts which included both textual and visual pieces. In such cases much of the learning is peer-based and self-directed. It is noted that "youth with an interest and access to new media now possess a rich set of tools and resources with which to tinker and experiment" (Horst, Herr-Stephenson, & Robinson, 2010, p. 58).

These changing literacy practices foreground the importance of taking a critical stance towards the "complex forms of text production, re-production and dissemination" (Janks, 2012, p. 156) which have been made possible through the availability of user-friendly software, interfaces and virtual spaces. As an example, we note a growing trend in the use of social networking sites such as Facebook and Twitter by people to express their views, share and interact with others about certain issues and events. Furthermore, sophisticated yet easy to operate devices (smart phones, digital cameras, tablet, ipods) are widening the possibilities for knowledge production giving rise to "new forms of text making: mixing, mashing, cutting, pasting and re-contextualising" (Janks, 2012, p. 152). Creating one's own YouTube channel,

uploading and sharing one's video creations with the world to see and on which to comment is now widespread. In such networked and multimodal spaces, the notions of authorship are being challenged and the social and semiotic boundaries are blurring (Kress, 2010). Concerned with the democratisation of text production, literacies and power relationship, Janks (2010) argues that it is important for one to critique any form of power present in the world in which we live. The need for students to engage critically "with the ways in which we produce and consume meaning, whose meanings count and whose are dismissed, who speaks and who is silenced, who benefits and who is disadvantaged" is further stressed by Janks (2010, p. 159). Teaching students how to develop a questioning attitude and not take for granted the different types of text they are exposed to has become a necessity as acknowledged by many scholars such as Janks (2010), A. Luke (2000) and Vasquez (2010) to name a few.

2.3.4.2 Research on multimodal texts in classrooms contexts

Multimodal texts (non-digital and/or digital) present in the classroom, are commonly used as instructional materials and sometimes also as part of assessment practices. Teachers and students often rely on such texts during instruction and learning in various classroom contexts. For example, a teacher may make use of multiple forms of representations to support the explanation of difficult concepts to students. Bodemer and Ploetzner (2002) suggest that multiple, dynamic and interactive representations have the potential to deepen learner's understanding" (p. 2). This view is further shared by Ainsworth (2008) who stresses the importance of multiple representations and multimedia in contributing to effective learning conditions, especially in visualising scientific phenomena.

The literature covers a wide range of studies related to the use of multimodal texts in classrooms contexts from a design, application and knowledge creation perspective. Some of this research attempts to understand how multimodal communication and pedagogies are being applied to teaching and learning settings. While some research presented in the literature (Jewitt, 2008; Stein, 2007) is mostly oriented towards the English syllabus, we do find a few that are concerned with other disciplines such as Science and Mathematics. Researchers have explored students' writing and production of multimodal texts in literacy classrooms and their implication for assessment and meaning making (Bearne, 2003; Jewitt, 2005, 2013; M. Walsh, 2007, 2009). Countries such as Australia (Anstey & Bull, 2010; Kitson, 2011; Sankey, Birch

& Gardiner, 2010; M. Walsh, 2010); United States (Cummins & Early, 2011), United Kingdom (Jewitt, Kress, Ogborn & Tsatsarelis, 2001), South Africa (Stein & Newfield, 2006; Stein, 2007) have published research related to multimodality in educational contexts.

Jewitt (2002) has analysed the design of a multimodal CD involving the transformation of an English print-based novel entitled *Of Mice and Men* used with year 10 (students aged 14-15 years) of a London Secondary school and explored how these students engaged with the resources included in the CD. Organised into five parts, the CD draws on a range of modal modes to further support study of the text. While the CD provided two viewing option namely text and visual, Jewitt focused his analysis on the visual option which used varied "aural and visual modes" (p. 5). Video clips, still images, visual hyperlinks, the video of a pedagogical agent to guide who offers spoken commentary at various points are available to the student. It was noted that learning about the characters of the novel through these new forms of resources influenced the reading and interpretations of students. The CD gave "new opportunity for students to engage with the novel and with the characters" (p. 16). An interesting example given was that how the inclusion of a song being sung by one character changed the views two students had about this specific character. Through the song, these students could better relate to the character, something they could not do while reading the novel. Jewitt (2002) argued in his study that it is problematic to continue to think that learning English is mainly about writing and speech. There is no doubt that along with traditional literacy practices, new cognitive demands are being placed on the learner evolving in a multimodal learning environment.

Furthermore, the pedagogical potential of multimodal literacies has been explored by M. Walsh (2009). In a collaborative research with teachers from primary schools in Australia, she explored how they redesigned their traditional literacy pedagogies to include digital technologies and as such created "multimodal environments where students worked with and incorporated different modes of print-based and digital texts within curriculum tasks" (p. 5). Examples of three case studies are presented and the experiences of the teachers and students are summarised. The first example given is that of eight year old students being engaged in the creation of five to eight minutes podcasts to be shared with a wider audience. The second example concerned teachers using a range of multimodal resources to engage their young

students from two different Kindergarten classes with the Interactive Whiteboard (IWB). Students were involved in a task where they learnt about the theme 'Healthy Eating' through print and digital modes which included "story reading and concrete experiences were combined with use of the IWB, digital photography, interactive computer programs and Photo Story software" (p. 7-8). The third case study example involves older students whereby they were engaged in "highly productive and innovative learning in a unit of work" which was made possible by the learning task set by the teacher which allow the "students to read, write, view, design and produce in both print and digital modes" (p. 9). All three case studies drew on data from interviews. M.Walsh (2009) drew from these case studies to present a pertinent argument suggesting that " to read and produce multimodal texts, students need to be able to combine traditional literacy practices with the understanding, design and manipulation of different modes of image, graphics, sound and movement with text" (p. 13).

Amongst the studies on a multimodal approach to science teaching and learning contexts, a study by Jewitt et al. (2001) focused on how four students of year 4 in a science classroom reproduced visual and textual transcriptions of teacher's multimodal explanation of the topic on cells. Following the teacher's explanation of the concept of cells and demonstration of how to view onion cells through the microscope, students were given a task whereby they were to draw the onion cell as they saw it during an experiment using the microscope and then write a short report. The teacher used analogy and images during his expository teaching. This multimodal task (non-digital) yielded student' drawings and texts that differed from each other. The researchers noted that the students' "remaking of a teacher's message to create new signs can be seen as a process of learning" (p. 6) shaped by their experiences and interests. Students bring their own understanding to the texts they create and in so doing change the teacher's meaning and extend their own learning.

Furthermore, children's engagement with multimodal texts and how this shapes their literacy learning and also the new roles of the learner and the teacher have been addressed by Hassett and Curwood (2009). The authors worked along with three elementary teachers to design literacy lessons using visual and interactive texts based on children's picture books. These lessons were then implemented in two kindergarten classrooms and the researcher used data in the form of "observational field notes that detailed the physical environments, instructional

activities, and interactions among students and teachers, as well as semi-structured teacher interviews and artifacts such as lesson plans, teacher models, and student work" (p. 274) to explore the changing roles of the leaners and the teachers within a socially dynamic and multimodal context. The teacher acts as a "resource manager", a "co-constructor of knowledge", and a "design consultant" (p. 280).

The above studies mostly focus on primary and secondary schools. Fewer studies consider the reading practices and experiences of multimodal texts at higher education level. Archer (2010) has drawn attention to the fact that there has not been much emphasis on how varied range of modes and media have influenced texts in various disciplines in higher education. Some exceptions of students' multimodal experiences in higher education contexts can however be cited. A quantitative study looked at the impact of multiple representations of content on learning outcomes, learning performance and engagement of undergraduate students from an Australian University (Sankey et al., 2010) while Archer (2011) laid emphasis on the exploration and analysis of multimodal assignments encountered by University students. Her study was mainly concerned with finding ways in which students of a South African University can be assisted in producing these multimodal texts. Students should be given the opportunity to develop the necessary skills to work with multimodal texts.

Archer (2011) has presented three types of multimodal texts used in higher education (p. 389):-

1. **Predominantly visual texts** (often accompanied by written reflection) – Examples include Posters, websites, PowerPoint, Videos
2. **Written texts that use images** – Examples include essays supported by visuals, investigative reports.
3. **Written texts that analyse and discuss visuals** – Examples include analysis of advertisements, films which are presented in the form of academic essays.

The argument put forward by Archer (2011) acknowledges that higher education institutions cannot ignore the changing nature of academic literacies which now "involve effectively constructing and navigating multiplicity, manipulating and critiquing information and representations in multiple media, and using diverse technologies (print, visual, digital) in

composing multimodal texts" (p. 395). Consequently, it is further noted that students are not necessarily prepared to work with multimodal texts and that it is important that they are properly coached to be fully literate. Similarly, Karchmer-Klein and Shinas (2012) explored more closely the creation of multimodal texts in an online graduate level literacy and technology course. The focus was on digital multimodal texts and the study stressed the importance for a blend of traditional and digital literacies and in agreement with Archer (2014) calls for scaffolding to better prepare students to work with multimodal texts. Another research study involved "exploring the potential of digital animation as an innovative and responsive research and pedagogic method" (Pithouse-Morgan, van Laren, Mitchell, Mudaly & Singh, 2015, p. 256). Educator's experiences of introducing HIV and AIDs related issues in the curriculum at higher education were translated into a digital animation format and screened to a wider audience which included those interested in curriculum integration at higher education level and or interested in HIV and AIDS curriculum integration as well as those having an interest in digital animation as a research or pedagogic method. These included, university educators post-graduate students involved in self-reflexive research, their supervisors and teacher educators. The participants were invited to openly discuss the digital animation presentation. Key themes highlighted were the potential of digital animation as a medium to communicate messages in an aesthetically entertaining, appealing and powerful way while at the same time engaging "multiple senses simultaneously and instantly" (Pithouse-Morgan et al., 2015, p. 248). Another positive response from participants concerned the effectiveness of using the digital animation approach to enhance the teaching and learning approach not only at higher education level but also at school level. However, some challenges associated with the use of digital animation as digital media for teaching purposes were highlighted by the participants. For instance, some participants revealed that the innovativeness that digital animation brings to the curriculum may not be readily embraced by those educators who do not wish to take the risk to shift away from their usual way of working or who have apprehensions regarding their technical abilities and digital design skills, which as pointed out by Burdick, Drucker, Lunefeld, Presner and Schnapp (2012) consider could act as a barrier to transform teaching and learning practices.

Though considerable studies on multimodality, multiliteracies, multimodal compositions and multimedia learning can be found in Western countries, such research is limited in the local context of Higher Education in Mauritius although some locally based studies have addressed the use of technology to support the teaching and learning of History at primary level (Goburdhun & Sandhaya, 2012; Goodoory & Goburdhun, 2012; Cooshna-Naik & Teelock, 2006). The research conducted by Cooshna-Naik and Teelock (2006) targeted primary school children aged 8 to 10 years' old and explored the design and development of an interactive multimedia resource to enhance the teaching and learning of History and Geography. Goodoory and Goburdhun (2012) explored the experiences of Mauritian pre-service trainee teachers in designing and developing educational resources for History at primary level. These were in the form of video clips using mobile phones. Twelve pre-service trainee teachers enrolled on the Teacher's Diploma Primary programme were the participants. Data for analysis included an online questionnaire, structured and semi-structured interview as well as the storyboards and video clips produced by the trainee teachers. The findings revealed that the perceptions of the participants about History education changed, and they developed communication and interpersonal skills. This research provided scope for trainee teachers to reflect on the potential of digital technologies to support innovative teaching and learning of History and not rely solely on the textbooks.

Further research investigating how History education can benefit from the inclusion of multimodal assessment tasks has been conducted by Goburdhun and Sandhaya (2012). Data was collected through a mixed-method approach in three secondary schools in Mauritius through "observation of students' responses during the implementation stage and the work produced by them" (p. 16), and also from focus group discussions involving both teachers and students. The different assessment tasks assigned to the students were (i) a map work (ii) a historical scene investigation activity and (iii) preparing 3-D posters. It is important to note that the tasks did not involve digital technologies but called for students to make use of various communication modes such as images and text. Findings revealed that while students responded positively to the tasks and demonstrated enthusiasm, they felt that the learning of History was more "meaningful, exciting and real" (p. 26) and the teachers also supported this

new form of assessment. However, they did have some reservations with respect to the "time and resources available to conduct such tasks" (p. 26).

At higher education level, there are a few educational technology related studies addressing issues such as computer-mediated pedagogies and web-based learning (Santally, 2004, 2005), effects of personalised paths on student learning experiences in an e-learning environment (Santally & Senteni, 2006), multimedia learning principles and effects on learning outcomes (Rajabalee, Santally & Cooshna-Naik, 2012). Not much attention has been given to higher education students' perspectives of their experiences of using digital multimodal texts in relation to specific subjects.

2.3.5 Knowledge of History and heritage

As this study is limited to participants' experiences of DMTs in relation to the teaching and learning of History, I regard that making sense of what it means to have knowledge of one's History and cultural heritage is an important aspect to address in order to better situate the study.

Many philosophers/historians have debated the notion of History as a form of knowledge. In his book *Deconstructing History*, Alun Munslow (2006), a philosopher of History and a historian, addresses historical knowledge from a post-modernist perspective. Influenced by the philosophical insights of scholars such as Hayden White, David Harlan, Robert Rosenstone, Keith Jenkins about how knowledge of the past is constituted, Munslow (2006) proposes three models of historical inquiry which serve to approach and conceptualise History - the reconstructionist approach, the constructionist approach and the deconstructionist approach. Historians are believed to fit in any one of the models.

The first two approaches are based on a realist position of knowledge. The reconstructionist historian believes that the truth about the past may be found and can be reconstructed through the analysis and interpretation of sources. This approach to understanding the past is endorsed by the mainstream reconstructionist philosopher, C.Bellan McCullagh and other historians like Arthur Marwick, Geoffrey Elton, Geoffrey Roberts and Fritz Stern. Reconstructionist History acknowledges that it is possible to find "the truthful interpretation and the story in the sources" (Jenkins & Munslow, 2004, p. 7) which after being investigated and analysed by the

historian can be "written up in a realist and by definition, an objective historical narrative" (Jenkins & Munslow, 2004, p. 7). Roberts (1997) also believes that the historian is able to make sense of the past through the analysis of the action of past human subjects. For him, stories can be retold if sources are carefully considered. Reconstructionism as explained by Zeleňák (2011), is a reductionist view of historical work whereby "the aim of the historian is to attain an objective and truthful picture of how it actually was in the past. The final historical narrative is viewed as directly and unproblematically corresponding to past happenings" (p. 525). A History approach through a reconstructionist stance therefore does not use any preconceived theories to explain the past. Phillips (2006) notes that "this form of history is evidence-based and it is overtly nonphilosophical and atheoretical" (p. 3).

Many historians today apparently prefer to work within a constructionist approach to understand the past (Munslow, 2015). What distinguishes the constructionist historian from the reconstructionist historian is the belief that having a detailed knowledge of the sources does not guarantee a truthful picture of the past. The constructionists attach importance to theory in order to consolidate the analysis and interpretation of sources they choose to investigate unlike the reconstructionists. As argued by Jenkins and Munslow (2004), for the constructionists, "knowing the truth is still feasible in principle precisely because history is constructed through using the tools of sophisticated conceptualisation and social theory" (p. 11). In this way, it becomes possible for the historian to discover patterns and trends that are hidden in historical texts. A flexible and theory-laden explanation of the past is welcomed in the constructionist approach to historical understanding of events. Phillips (2006) observes that "Constructionist history attempts to understand historical events by placing them in pre-existing frameworks, which involves a range of theories, ideologies, and social categories, in a way that still allows for human agency, intentionality, and choice" (p. 4). The constructionist historian is also in search of a certain truth but does not rely uniquely on evidence but explains the past on the basis of multiple theories.

Reconstructionism and constructionism from Munslow's (2006) perspective are believed to be weak positions to historical knowledge especially for the contemporary/postmodern historian. This belief has led to deconstructionism which rejects the idea that historical knowledge is based on a single truth. Like a literary work, both the form and the content is

57

important in the deconstructionist perspective of history. The deconstructionist historian is not an observer who engages in the reconstruction of the past events. Instead he is engaged in constructing narratives about those events or specific features of the events that occurred in the past. This is highlighted by Munslow (2003), who suggests that:

> the deconstructive historian maintains that the content of history, like that of literature, derives its meaning as much by the representation of that content, as by research into the sources, tracing the causes and effects of events as well as the hidden but discoverable structure(s) of historical change. (p. 6)

Desconstructionism, according to Zeleňák (2011) is "influenced by some of the ideas derived from the most recent philosophical controversies concerning such issues as language, correspondence, referentiality, truth, narrative form etc" (p. 525). Munslow (2006) further stresses on the fact that the deconstructionist historian "does not reject rationality" but still is aware that answers to question posed may not be right or may not lead to any truth. Furthermore, the desconstructionist historian "does not reject historical reality but questions our access to it, our apprehension of it and therefore its meaning" (p. 111). It is also understood that from the deconstructionist perspective of History, there may be different but yet relevant value judgement about what is right and what is wrong.

The postmodern approach to historical knowledge as put forward by Munslow and others who support his views emphasises the narrative-linguistic turn of History where the historian is the author/narrator who gives form to the past through the texts he/she writes. History in this sense is a literary activity while at the same time being an empirical project. What is important to understand is that historians may approach History in different ways thus they are prone to disagreement. Adhering to the postmodernism thinking, Munslow (2001) raises pertinent questions in his article entitled *what history is*. He argues that doing History in the proper way, entails asking the following question: "is history what happened, or what historians tell us happened?" (para. 9). Having seen the different perspectives that historians take regarding their approaches to historical knowledge, I shall now address historical knowledge as seen within the educational context.

Knowledge as seen within the context of academic History is not only about the acquisition of a wide range of information but also about being able to use this information (Hammarlund, 2015). One has to be able to demonstrate "the ability to handle information of the past and of understanding how pieces of information can relate to each other" (Hammarlund, 2015, p. 33). This is further stressed by Retz (2016) who notes that:

> Students are expected nowadays to be able to discuss the problems that they encounter in investigating the past as well as the strategies that they employ in formulating historical arguments, not simply exhibit mastery of a particular body of historical knowledge. (p. 503)

VanSledright (2013) regroups historical knowledge into two types namely "substantive (what, where, when, etc.) and strategic (how to get to the what, where, when, etc.)" (p. 5). While learning History, each type of knowledge comes into play which depend on each other. Substantive knowledge is sometimes referred to content knowledge and is about understanding the concepts. In the module HIST1002Y, this would include topics on slavery, immigrants, independence, and revolution and so on. Strategic knowledge or procedural knowledge "involves possessing and deploying domain specific strategies (i.e. thinking historically, the how to) for posing and answering rich historical questions that result in deeper understandings of the past" (VanSledright, 2013, p. 6). This second type of knowledge is more active and metacognitive in nature. Drawing on Lee and Shemilt's (2003) notion of first and second-order concepts, substantive knowledge relates to "History as substance" while strategic knowledge points to "History as procedure" (Hammarlund, 2012, p. 123). The perspective of procedural knowledge points to the concept of *doing history* (Lee, 2005, p. 32) or *learning by doing* approach to History where second order concepts such as historical causation, change and continuity, similarity and difference are focused upon. Fallace (2010) points to Dewey's view that the study of History goes "beyond mere memorization of facts" and should instead "engage students directly in the interpretation of primary sources and the construction of original historical accounts" (p. 20). Similarly, Goodoory and Goburdhun (2012) note that memorisation of factual information such as dates, names and events does not allow students to engage in "imagination and critical thinking processes" (p. 1538). They should be able to demonstrate historical thinking skills which draw on key concepts as

proposed by Seixas (2017) which have some resemblance to the second order concepts. These include evidence, continuity and change, cause and consequence, historical perspectives and ethics. It is agreed that students specialising in History should be able to demonstrate the following: "develop historical thinking skills that emphasise causation, comparison, and contextualization; design research projects based on primary sources and informed by scholarship; and write well-argued papers substantiated by the use of relevant historical evidence" (Swarat et al., 2017, p. 6). However, opportunities for students to be able to demonstrate these aptitudes and skills rely on the approaches the History teachers use, the learning situations and contexts within which they operate.

Together with historical knowledge, gaining knowledge about one's heritage is important for a society to develop its identity and self-respect. Broadly speaking, heritage refers to what we have inherited from the past. It is our legacy that we live with today and that we will pass on to future generations. In an essay published on *Smarthistory* on Khan Academy website, Elena Franchi (n.d) suggests that cultural heritage is "a shared bond, our belonging to a community. It represents our history and our identity; our bond to the past, to our present, and the future" (para. 2). It is important to note that the notion of cultural and natural heritage is viewed from different perspectives across many countries as noted by Ahmad (2006). For example the latter refers to countries like Australia where cultural heritage is understood as "place, cultural significance and fabric", Canada aligns the term to 'material culture, geographic environments and human environments', New Zealand to 'place' and China to 'immovable physical remains' (p. 299).

Professionals in historical and cultural studies have their own way of understanding heritage. For instance, the Teaching Heritage website (http://www.teachingheritage.nsw.edu.au/), a joint initiative between the New South Wales (NSW) Heritage commission and the Board of Studies NSW gives access to a series of interviews produced during 1996-1998 with a group of professionals involved in issues related to heritage whereby they shared their understanding of heritage. For example, Australian researcher, Carol Liston (n.d) explained the meaning and significance of heritage:

> Heritage for me is very much about a sense of place, about the place where I live, about the places where I work, and the stories of the places in between. For me because

heritage is about physical things, it's about buildings, it's about ruins, it's about bits of archaeology hidden under the ground that we don't know [are there], and about landscapes, these are very tangible things that we look at and, to understand them, we really need to know the stories of why they were created, the stories of what happened in those places and how the people who once lived there and worked there influenced their environment and their communities, because for me heritage is living with a tangible part of the past, but it's also about deciding that it's sufficiently important that we want to make it part of the future, not just part of the present (Liston, para. 1).

Another Australian researcher, Paul Ashton (n.d), further stressed that people connect to their heritage "through ethnicity, through class, through locality" (para. 2), therefore it is understood as having multiple layers. According to him, when talking about heritage, one should acknowledge both the positive and negative aspects of our cultural legacy.

In a nutshell, a country's cultural and natural heritage consists of its tangible (material) as well as intangible (immaterial) cultural property. Tangible cultural heritage/ property as defined by the 1954 Convention for the Protection of Cultural Property in the Event of Armed Conflict is made up of material or physical artefacts such as "monuments of architecture, art or history, whether religious or secular; archaeological sites; groups of buildings which, as a whole, are of historical or artistic interest; works of art; manuscripts, books and other objects of artistic, historical or archaeological interest" (UNESCO, 1954, p. 8). Intangible cultural heritage would include what is passed on from one generation to another within a community. Such an intangible form of heritage include values, traditions, oral History, traditional craftsmanship, rituals, skills and knowledge. History learning can be more relevant for students if it is connected to the study of one's cultural assets/heritage (Magro, Ramos de Carvalho & Marcelino, 2014). Developing a critical eye and mind on our past and our cultural heritage is a necessity for our current generation.

Complementary to these various views of History and History teaching is the idea of historical consciousness itself. As Zanazanian (2015) writes, historical consciousness allows us to examine "the role history plays in informing human identity and agency", and thus, how that defines the "means of knowing and acting in instances of group interaction" (2015, p. 116). Although the article by Minear (1940) was written close to 80 years ago, some pertinent

discussions about historical awareness and historical consciousness are worth pointing out. For Minear, acquisition of historical knowledge is independent of motives, perspectives and uses as it is about "knowledge of what has happened in the past, a knowledge of important events arranged in their chronological sequence and set within their proper geographical, national, racial and cultural contexts" (p. 72). On the contrary, historical consciousness is deeper involvement with what happened in the past. It sees as "real the identification of one's own interests and existence with the past, the solidarity of a personal present with a personal past" (p. 73).

2.3.6 History teaching and learning at higher education

Many History educators and scholars in countries such as the UK, Canada, Australia and Europe, have shown a keen interest in examining and investigating the issues they generally encounter regarding the teaching and learning of their subject. They have embraced the concept of the Scholarship of Teaching and Learning (SoTL) (Ludvigsson & Booth, 2015) which involves investigating the one's teaching practices and student learning in view of improvement (Shulman, 2011). SoTL emerged from the need to define the type of scholarship performed by the academics (Boyer, 1990).

Ludvigsson and Booth (2015) note that supporters of this area of scholarship believe that SoTL may benefit higher education teachers as it can help them reflect on their practice, collaborate and discuss with other educators in order to learn and better understand the ways students learn the subject as well as the strategies that lead to effective learning. Even though there have been some History teachers who have embraced SoTL in the last two decades, Ludvigsson and Booth (2015) further points to the need for more empirical studies to address issues such as:

> new technologies and their implications for history teaching (in mass systems of higher education); the perennial (and growing) challenges of student transition to and within university history; the goals of history education beyond 'critical thinking' and 'employability'; the development of pedagogies that truly foster the creative capabilities needed for 21st century 'innovation societies'; the neglected emotional

dimensions of teaching and learning history; and the ongoing professional development of historians as teachers. (p. 9)

A. Booth (2006) suggests that the design and development of History curricula should be approached from a holistic perspective, considering the relationship between research and teaching and also that the curricula should be a progression from school to university History. Discussing about History teaching practice, Jordanova (2006) argues that there is no established approaches used for the teaching of History at HE level. This observation is supported by Alan Booth (n.d) in his article *The making of history teaching in 20th century British higher education* published on *Making History* website developed by the Institute of Historical Research (IHR) who notes that "curriculum content, teaching methods, assessment practices and learning resources are increasingly diverse, and notions of what constitutes 'good' and 'acceptable' practice have become blurred as they have in the practice of history more generally" (para. 39). This situation says A.Booth (n.d) may be regarded by some as problematic but to others it could present opportunities for creative approaches to History teaching and learning. Booth supports the latter view as he believes this may present new perspectives, open up the field of historical study to a wider audience, deepen understanding and also nurtures an appreciation for the subject while being a historically informed and active citizen.

2.3.7 Films and documentaries as multimodal texts in the History classroom

The digital revolution with its rapidly evolving media landscape has given rise to a range of multimedia resources (traditionally regarded as audio visual media) which students can access within and outside school boundaries. Rideout, Foehr and Roberts (2010) noted that young people aged between 8-18 years old are now frequent viewers of such resources. This observation can also be attributed to older people. A study conducted in Spain with adolescents and young adults on the amount of time they spend on different forms of media revealed that those between the ages of 10-34 were the most frequent users of the internet (Callejo, 2013). This growing interest in audio visual resources such as films can be explained by the fact that it is now possible to download or stream and view various types of films and documentaries via many online channels and buy DVDs which can be viewed on one's computer or on television.

Concerning the use of films within the educational sector, evidence of literature shows that there is a growing interest amongst the teaching community to use films and documentaries to facilitate teaching and learning in various disciplines such as Social Sciences and Humanities (T. Brown, 2011; Donelly, 2014; Fink & Foote, 2007; Liles, 2007; Ngcobo, 2012, 2015; Raheja, 2010), medical and health sciences (Darbyshire & Baker, 2010; Gallagher, Wilson, Edwards, Cowie & Baker, 2011), management studies (Burton, 2008) and environmental studies (Liu, 2018) to name a few. In the field of literature, Ngcobo's (2015) study investigated the pedagogical potential of film analysis in the literature classroom with Grade 11 students from a township secondary school in KwaZulu-Natal. Students were given the opportunity to watch an award winning South African film entitled *Yesterday* which was chosen to address social issues of gender, sexuality, HIV and Aids and violence. Through questions and discussions prior and following viewing of the film, students' responses towards these issues as represented in the film were collected and analysed. This pedagogical intervention showed that the students were able to engage critically with the film as a form of text and "were able to recognise and challenge discourses, such as perspectives, bias, and power relations that are embedded in texts" (p. 36). The researcher argues that films such as *Yesterday* which portray real life social issues, are texts that act as an "entry point for learners to discuss and talk about charged social issues such as gender, race, poverty, gender violence, and sexuality" (p. 34), which in turn help develop their analytical, interpretative, and critical skills. The students in discussing the film clip were able to deconstruct and reconstruct the text and challenge its embedded discourses. Their analysis and interpretation of the clip they viewed brought foreword other related issues such as power relationship and patriarchy. For Ngcobo (2015), "the use of film as a tool for social transformation has great potential in building the capacity of learners to become themselves agents of change" (p. 39). Similarly, Janks (2013) acknowledges the importance to teach students how to question power authorities through a pedagogical approach that promotes critical literacy. She argues that this can empower the students to become change agents who not only read about but take action against issues they feel connected to in the society and the world in which they live.

It is beyond the scope of this review to detail the way films are used in a variety of disciplines and therefore I will limit myself to the context of History teaching. Films/documentaries based

on historic events, also referred to as historical films have for long been privileged as a relevant tool to educate the population in general (Wagner, 2018). Access to such types of resources via channels such as the History channel (https://www.history.com/), YouTube, digital streaming services (Netflix) may be considered as easy and quick, especially for those who have no issue regarding internet facilities and who are at ease with internet technologies. There are also initiatives such as the portal http://docademia.com which promotes the use and creation of social documentaries in higher education. Social Science Educators have the possibility to choose from a list of short films focusing on various aspects of a culture and social issues. These films are based on people's lived experiences and are produced by local filmmakers. The latter are then invited to share and discuss with students so as to develop a deeper understanding of the key issues addressed in the films. Furthermore, through workshops faculty members have the opportunity to review contents of the Docamedia website, meet and discuss with independent filmmakers regarding core issues addressed in their films and find ways to integrate these in their courses. TED Talks videos are also used for educational purposes.

Research shows that there is a widespread use of films in History classrooms at various education level in many countries such as France (Héry-Vielpeau, 2013), USA (Marcus & Stoddard, 2007; Russell, 2012; Stoddard, 2012), Australia (Donelly, 2014), Canada (Sasseville & Marquis, 2015) and Norway (Wagner, 2018). What is clear from these studies is that multiple reasons are brought forward by educators to justify the use and pertinence of films/documentary films in their classrooms. For instance, Wagner's study investigated 19 History high school teachers in Norway to find out whether and to what extent they used films in their History classroom. Additionally, the researcher sought to understand the types, purposes and ways films were being used. The findings revealed that though both films and documentaries were used, there was a preference for documentaries. The main purposes behind using films were that they acted as valuable audio-visual resource to illustrate content subject matter, to bring in variation in the types of resources, and to promote empathy. At the same time, it appears that the ways they used films in the classroom did not encourage high order thinking skills as they were mainly used to support the contents addressed in lessons and the textbooks.

The second edition of Marcus, Metzger, Paxton and Stoddard's book published in 2018 entitled *Teaching History with Film: Strategies for Secondary Social Studies* presents case studies of teachers' use of films in their History classrooms and discusses strategies, practical considerations and pedagogical implications of using films for History teaching. They stress upon the fact that:

> movies are not a trivial or inconsequential contributor to how many young people learn about the past or what they think they know about history. By developing historical film literacy, students will be better equipped to be critical consumers of historical documents of all kinds long after they leave the confines of the classroom. This is certainly among the principal goals of powerful history and social studies education. (p. 16)

Films used in History classrooms range from feature films/movies based on historical events, also referred to as historical films (Wagner, 2018), and documentaries. Historically oriented Hollywood films produced for commercial purposes are considered to be "an important source of knowledge about the past and of historical representations among young people" but instead of viewing these films as reconstruction of the past, they consider them as "mirrors of the past, thus taking a rather naïve copier stance" (Van Nieuwenhuyse, 2016, p. 192).

Donelly (2014) notes that "from its invention, the motion picture has been a powerful vehicle for presenting people and events of the past" (p. 4). Scholars such as Stoddard and Marcus (2017) are of the opinion that films are potentially effective in triggering the audiences' emotions and feelings while influencing their understandings and beliefs of the past and the present. A number of studies provide reasons for teachers' usage of films in History lessons. For instance, a study by Marcus and Stoddard (2007) surveyed 84 American Social Studies teachers who supported their lessons on American History with films. Findings of their study revealed that films were used as content and also to develop empathy. Furthermore, they served to "motivate students, help them understand historical contents, and to make the lessons relevant to their lives" (Van Nieuwenhuyse, 2016, p. 193).

Some studies exploring teachers' practice of using films in their history classroom showed that that such a medium was used to enable students to identify the past from different

perspectives and develop historical empathy but failed to engage the students critically with what was represented in the film (Marcus, 2005, 2007; Metzger & Suh, 2008). This aligns to the non-optimal use of films and videos as education tools which has been addressed by Hobbs (2006) who finds that History teachers use films very much like they would use a text-book, without asking students to critique what is being told and shown in films. So it is clear from these cited research studies that as a medium to promote historical literacy, films are relevant but it is not just about showing students the story but they need to be guided through thoughtful engagement with the film which relies on the History teacher's teaching approach.

2.5 Summary of chapter

The review of the literature has been presented as two sections which brought into focus aspects related to students' experiences of learning, to the field of multimodality and multiliteracies, to how the emergence of new technologies are influencing the notion of literacy and pedagogical practices in various educational contexts. It appears that much of the research related to the application, design, and knowledge production/creation of DMTs are located within the primary and secondary level of education and within discipline such as languages. A multimodal approach to pedagogies supported by digital technologies have been given less attention in the higher education contexts. As outlined in the review, current research on Social Studies/History teaching across many countries shows that there is a growing concern in understanding how the discipline is approached and more importantly how the proliferation of new forms of texts are shaping learning and assessment. In consideration with the above review, this proposed qualitative study sets out to add to the body of knowledge to the field of multimodality and multiliteracies considered to be a developing area of academic research as well as to History teaching and learning. It further intends to bring a contribution to higher education pedagogies for the 21st century. The next chapter places emphasis on the different concepts and theories that have shaped the study.

CHAPTER 3: FRAMING THE STUDY THEORETICALLY AND CONCEPTUALLY

3.1 Orientation to the chapter

This chapter consists of two main sections. The first section provides an overview of the different theories, models and concepts I drew upon to map out the study. The second section introduces phenomenography which is used as a theory as well as a methodology in my study. However, the emphasis in this section is laid on the theoretical foundations of phenomenography, while the phenomenography methodological framework is addressed in the next chapter.

3.2 Overview of the related theories and models

There are several models and theories that help us understand how people learn, how people receive and process knowledge. The aim here is not to cover the panoply of theories and models that exist but to discuss the main ideas and concepts that were relevant to shape the conceptual framework of this study. These include the theories of communication and meaning with an emphasis on the theory of multimodality and the social semiotic theory of multimodal communication as proposed by Kress (2010), multimedia learning models of user experience and motivational theories such as the self-determination learning theory (Deci & Ryan, 2000) .

3.2.1 Theories of communication and meaning

In an age where multimodal forms of representations are predominant, new communication practices have paved the way to more contemporary theories of communication. One such theory is that of multimodality, which I introduced in the previous chapter from a conceptual perspective and as a field of research. It is now presented based on its theoretical assumptions. Multimodality theory together with social semiotic theory of multimodal communication are theories of communication which have emerged to better understand the complex nature of multimodal communication.

The theory of multimodality highlights that representation and communication utilise a range of modes which contribute to meaning making - modes that go beyond language or writing. The theory is underpinned by three interconnected theoretical assumptions. The first assumption is that without denying the fact that language has a significant role in communication, the role of other modes in creating meaning should not be overlooked. In any communicative event multiple modes are used simultaneously to convey meanings. The modes either complement, add on or refute each other. Describing and analysing how people make use of a full range of meaning-making resources in different contexts is the focus of the first assumption.

The second assumption is about the different communication modes or resources that people use which are believed to be socially shaped over time to become meaning-making resources. Adami (2017) explains that "what constitutes a mode depends on the social group that uses it and the range of meanings that the group can express through its resources" (p. 459). The theory also assumes that meaning making is a social act and that individuals play an active role deriving meaning from the different semiotic modes at play in communication.

The third assumption which is linked to the second assumption foregrounds the idea that "people orchestrate meaning through their selection and configuration of modes" (Jewitt, 2013, p. 251). Since meaning making involve the interaction between the modes, it becomes important to consider the specific characteristics of the different modes and how they can be combined to produce meaning.

In their book *Introducing Multimodality*, Jewitt et al. (2016, p. 3) formulate three key premises of multimodality as follows:

1. Meaning is made with different semiotic resources, each offering distinct potentialities and limitations.
2. Meaning making involves the production of multimodal wholes.
3. If we want to study meaning, we need to attend to all semiotic resources being used to make a complete whole.

Jewitt (2008) proposed to look at learning from a multimodal perspective with a focus on the contribution of new technologies to learning.

3.2.1.1 Social semiotic theory of multimodal communication

Theories of multimodality suggest the need for ways of looking at the complex meanings behind the interactions between the modes to create meaning, occurring in specific social contexts. Hodge and Kress (1988) and van Leeuwen (2005) proposed to look at multimodality from a social semiotics perspective to account for this complexity. As a field of study, social semiotics has its origins in linguistics but is expanding to account for other modes increasingly being used in our media driven environment. Studying how people create and interpret meanings, how semiotic systems are shaped by a society's interests and values, how signs in general are created and are understood within a social and cultural context are aspects that can be addressed through social semiotics. Hodge and Kress (1988) argue for a theory that accounts for the dynamic nature of semiotic systems within an evolving society. According to Winters (2010), Social Semiotic theories acknowledge the importance of the social context in using signs as communication tools. She argues that "signs are never devoid of the social systems in which they are practiced" (p. 7).

The social semiotic theory of multimodality assumes that signs are used by people in specific social contexts to fulfil specific purposes and functions (Bezemer, 2012; Kress, 2010). More than ever, particular attention is being given to communication using a visual and aural mode. Halliday's Social Semiotic theory focuses on how semiotic resources function as tools that work together to make meaning. In an article entitled *Halliday and Multimodal Semiosis* published on the website-Semiotix:A global information magazine[7], Kay O'Halloran (2012) explains that the theory acts as a meaning making framework which focuses on:

> the underlying design (or 'grammar') of semiotic resources and their relations with each other, specified as inter-related semantic systems which are seen to fulfil four functions: to construe our experience of the world (experiential meaning); to create logical relations between experiential meanings (logical meaning), to enact social relations (interpersonal meaning) and to organise meanings into coherent messages in text (textual meaning). In this way, the Hallidayan framework accounts for

---

[7] Semiotix: A global information magazine is a website aimed at sharing snapshots of semiotic research consisting of reviews, articles, and other events by active semioticians.

multiple strands of meaning with semiotic resources and their underlying systems as

the tools for meaning-creation. (para. 2)

From a multimodal social semiotic perspective, Kress (2010) sees learning as "the result of the transformative engagement with an aspect of the world which is the focus of attention by an individual ... leading to a transformation of the individual's semiotic/conceptual resources" (p. 182). The result of such transformation, according to Kress (2010) increases an individual's life experiences which in turn affects his/her identity (Andrews, 2011).

3.2.2 Multimedia learning theories

Learners irrespective of their age group and across disciplines engage with images and visual materials throughout the course of their education. Research in educational literature reports that the use of various types of visual representations in teaching may result in improved learning (Ainsworth, 2008; Stokes, 2002). Static as well as animated visuals have found their place in various subject areas such as sciences, languages, mathematics and others. Visuals have been found to provide better understanding to the students and act as support to the teachers for delivering lectures/lessons. When visuals are used with the intention to support learning, it is important to understand how individuals process visual content in different learning settings.

As human beings, much of what we understand from our surroundings depends on our sensory capabilities. Mayer (2001) is credited for popularising the cognitive theory of multimedia learning (See Figure 5) which clarifies how humans process information and learn from words and images. It is based on three cognitive science principles of learning: the dual channel assumption, the limited capacity assumption and the active processing assumption.

- The dual coding theory suggests that humans process information through dual channels, one auditory and the other visual. The dual channel assumption (Baddeley, 1986; Clark & Paivio, 1991) assumes that processing of information by humans is done in two separate overlapping channels, the visual channel to process visually represented material and the verbal channel to process auditory represented material.

- The limited capacity assumption is based on the premise that our working memory is limited (Baddeley, 1986) and therefore when exposed to a presentation consisting of pictorial and verbal information, one can process only a few elements in each channel at one time (Chandler & Sweller, 1991; Mayer, 2010).

- The active processing assumption emphasises that in order for humans to build a coherent mental representation of their experiences, they have to be actively engaged in some cognitive processes, namely selecting relevant material, organising the selected material and integrating the selected material with existing knowledge which is stored in the long-term memory.
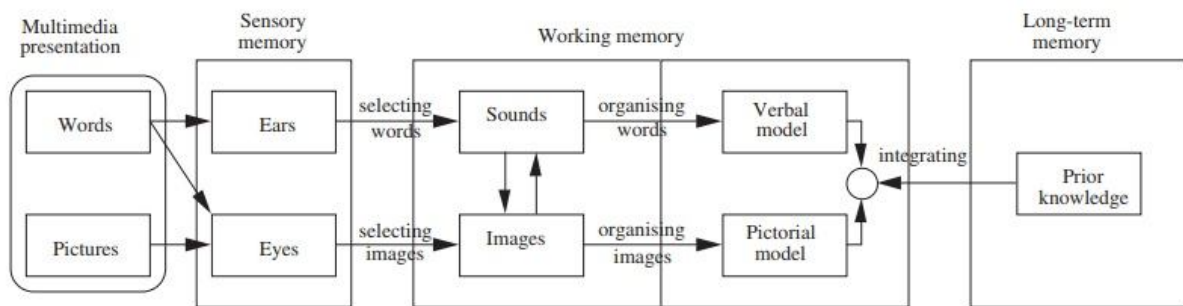
Figure 5. Mayer's cognitive theory of multimedia learning (cited in Mayer, 2010, p. 545)

From the cognitive theory of multimedia learning (CTML) (Mayer, 2001, 2005), we note that there are two separate channels (auditory and visual) for processing information. The visual and auditory channels can be further divided into verbal and nonverbal channels. Dual code theory (Paivio, 1986) suggests that there are qualitative differences between the ways words and pictures are processed during memory and concludes that the reason for superior picture memory is that pictures automatically engage multiple representations and associations with other knowledge about the world, thus encouraging a more elaborate encoding than occurs with words. The domain of visual perception is a function of our eyes and brain. We see images as a whole rather than in parts. However, images can be broken down into their visual elements: line, shape, texture, and colour. Together they allow our eyes to see images and our brain to recognise them. Our visual perception is not only shaped by the physical qualities of the visual but is also shaped by other factors such as age, context, physiology and psychology.

An expansion of the cognitive theory of multimedia learning is proposed by Moreno (2007) who considers the influences of motivational factors on cognitive processes when one is engaged in learning from multimedia resources. Moreno's (2006, 2007) cognitive-affective theory of learning with media (CATLM), as noted by Morrison, Clemens and McClellan Ribble (2015) is a theory that considers that features in multimedia learning enviroments such as "visual attention cuing, color, shapes, representational images, and arrows can all be used to increase motivation, positive feelings, and situational interest" (p. 3). Some studies have found that design elements such as colours and shapes contribute to positive feelings towards content presentation. Moreno's model enhances Mayer's model by adding "tactile, olfactory, and gustatory sensory input" (Morrison et al., 2015, p. 3) thus attaching more of our senses. In the CATLM, it is understood that the learner is involved in processing instructional media that consist of a combination of verbal and non-verbal forms of knowledge presentations such as words (spoken or written) and pictures and sounds (Moreno & Mayer, 2007).

3.2.3 User experience models and frameworks

In this study, the term "user" relates to the participants whose experiences are created and shaped through technology. This led me to consider ideas from user experience models and frameworks which I felt were relevant for the development of the conceptual framework of this study.

As mentioned in Chapter 1, two learning situations (LS) were considered for the purpose of this study. Both situations involved students (the participants) as users of digital media and technologies. In the first learning situation they were considered as being a user of learning materials which were accessed and viewed using a digital device such as a computer or a mobile phone. In the second learning situation, they were involved as a user and a producer where they made use of digital technologies to create a video.

Experience forms part of our life and generally covers everything that one personally encounters, lives through or undergoes. Roto, Law, Vermeeren and Hoonhout (2011) published a White Paper following a seminar held in Dagstuhl, Germany between 15-18 September 2010 about *Demarcating User Experience*' where they make a clear distinction between the term "experience" and "user experience". Roto et al. (2011. p. 4) explain that the

experience derived from using, interacting with (even passively) a service, a product or an artefact through a user interface (e.g a website, a mobile application, etc) is what is referred to as user experience.

The term User Experience also referred to as UX is a term popularised by Donald Norman, during the time he was the Vice President of the Advanced Technology Group at Apple and a thought leader in the field of human computer interaction. It first appeared in his book "*The Design of Everyday Things*" published in 1998. It was in the early 1990s that the term started to gain attention from a wider audience. In an interview with Peter Merholz from Adaptive Path[8], a, San Francisco-based design and user experience consultancy on 13 December 2007, Donald Norman (2013) said that he coined the term to extend the notions of human interface and usability which he believed were too narrow. He further explained that it was important to consider the whole range of a person's experience with a product or system such as a website, an application (app) or a device. Thereafter there have been several researchers interested in the field of Human Computer Interaction (HCI), organisations and designers who have provided their own definitions and understandings of the concept of user experience. User experience according to the International Organization for Standardization (ISO) 9241-11 (2018) "includes all the users' emotions, beliefs, preferences, perceptions, physical and psychological responses, behaviours and accomplishments that occur before, during and after use" as well as the influence of "prior experiences, attitudes, skills, abilities and personality; and from context of use" (p. 4). This view is further extended by Hassenzahl and Tractinsky (2006) who consider user experience as:

> a consequence of user's internal state (predispositions, expectations, needs, motivation, mood,etc), the characteristics of the designed system (e.g. complexity, purpose, usability, functionality, etc.) and the context (or the environment) within which the interaction occurs (e.g. organisational/social setting, meaningfulness of the activity, voluntariness of use, etc.). (p. 95)

---

[8] http://www.adaptivepath.com/ideas/e000862/

The user experience may be viewed from the designer perspective while also being addressed from the user perspective. When designing a web site, for instance, the user experience designer would normally follow some principles that take into consideration the individual user's possible perceptions and expectations. The role of the user experience designer is to ensure that the user finds value in what is being provided to him/her through the engagement and interaction with the system. The individual user may eventually experience the website in various ways depending on his/her previous experiences and expectations. To further explain the concept of user experience in terms of its key aspects/components, researchers have established various models (Arhippainen & Tähti, 2003; Forlizzi & Ford, 2000; Hassenzahl & Tractinsky, 2006; Jordan, 2000; Mahlke, 2008; Mäkelä & Fulton Suri, 2001; Morville, 2004; Thüring & Mahlke, 2007). Such models are aimed at describing "the experience of using interactive products, the consequences of those experiences, and the ways experiences and consequences are connected" (Hornbæk & Hertzum, 2017, p. 2).

My objective is not to detail all the existing models of user experience but to highlight those which I considered to be useful to support the conceptualisation of this study. Hassenzahl and Tractinsky (2006) propose a model of user experience (UX) consisting of three overlapping aspects as shown in Figure 6 which helps in better understanding the construct of user experience.
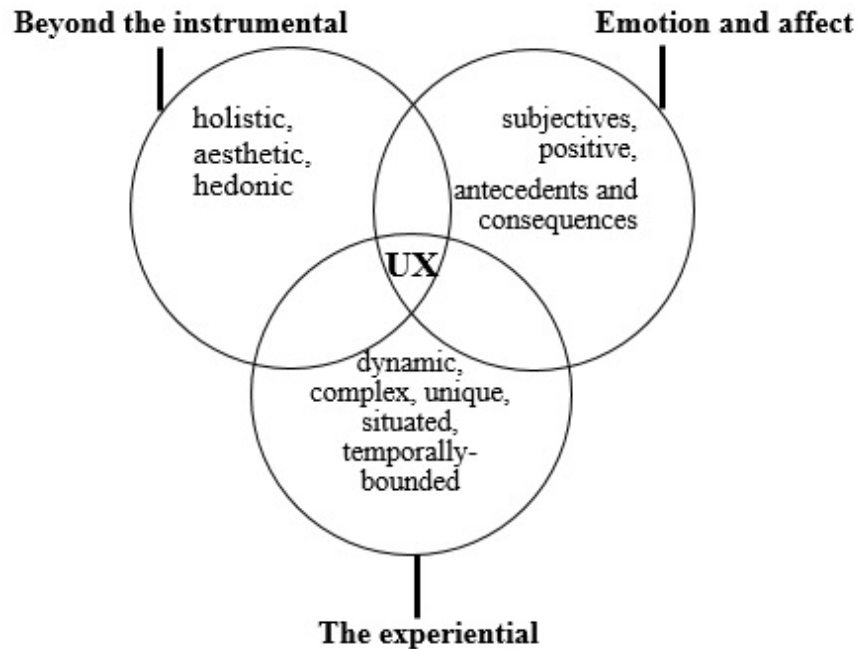
Figure 6. Three aspects of user experience as presented by Hassenzahl and Tractinsky (2006, p. 95)

The aspect labelled *Beyond the instrumental* focuses on the values the users attach to the product such as the aesthetics qualities rather than on their usefulness and usability. The *emotion and affect* aspect give importance to the affective dimension of the experience of interacting with a product (for example a mobile app or a website). The quality of interaction is thought to be largely influenced by the users' emotions and as a result of interaction with the product, the users' emotions may change. The experiential aspect takes a holistic approach towards an experience with a system (Zimmermann, 2008) and emphasises the temporal, momentary, situatedness dynamic attributes of user experience.

Another familiar user experience model used often in the context of design was proposed by Peter Morville, a designer and a pioneer in the fields of information architecture and user experience who drew the honeycomb shaped model in 2004 (See Figure 7). Morville (2004) explains that the model was created to address facets of user experience and is viewed as a helpful tool for designers. The model has been widely used as a user experience framework within domains such as digital customer experience with social media, web user experience as well as e-learning contexts (Morville & Sullenger, 2010; Rosenbaum, Glenton & Cracknell, 2008). This framework has been used and adapted by the Centre for Extended Learning (CEL)

of the University of Waterloo to create valuable online experience within the context of e-learning (http://cel.uwaterloo.ca/honeycomb/). The centre called the model UXDL (User Experience Design for Learning) and suggests that the different principles represented in each cell can be used to create well-designed online learning content.

Figure 7. The User Experience Honeycomb (Morville, 2004) retrieved from http://semanticstudios.com/user_experience_design/

The user experience honeycomb consists of seven cells, each representing one specific facet labelled as usable, credible, desirable, accessible, findable, valuable, and useful. These facets of the user experience need to be considered if we want the user to have a valuable and meaningful experience from interacting with for instance information presented in an app or a website. For instance in the context of online learning content, the different criteria relates to the usefulness of the content or the extent to which the content is desirable and pleasurable, the extent to which it is accessible to all, the credibility of the information presented, the ease of use which would include the ease of navigation through the online content– all these are believed to contribute in making the users' experience of using and interacting with the system or product valuable and meaningful.

Mäkelä and Fulton Suri's (2001) model of user experience (Figure 8) foregrounds the relationship between past and present experiences and how this impacts on the current and future experience of a user. The model "breaks down the moment of experiencing to the elements that can be analysed: the context, motivations and actions" (Battarbee, 2004, p. 48).

It addresses the temporal aspect of user experience and is based on the assumption that experience is something personal and that there are things that the designer may not be fully aware of such as expectations or prior experiences of the user.
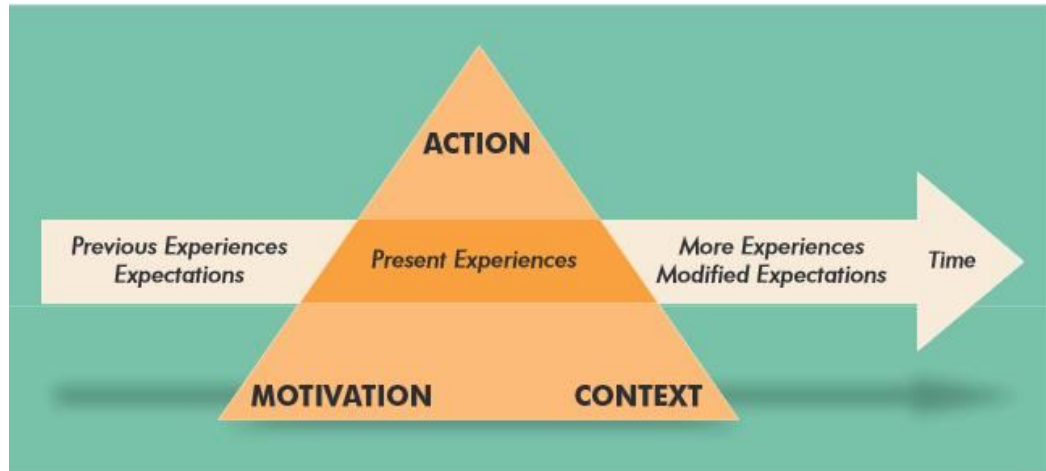
Figure 8. Model of user experience by Mäkelä & Fulton Suri, 2001 (Cited in Kankainen, 2006)

The model further emphasises that experiences are very much dependent on the users' expectations which generally are created from past experiences. According to the authors of the model, the three main components (i) action, (ii) motivation and (iii) context should be viewed in relation to each other. Any human activity always occurs in a specific context and is driven by certain motives or needs. Needs and motives should be distinguished from each other. Needs do not necessarily press someone to take action while motives are the reasons that drive someone to perform an action. From the model, it is understood that the past experiences and expectations that a user has before performing a specific task will impact on the present experiences of performing the task. The current experiences may or may not be positive, meet the users' expectations, or exceed these expectations. The current experiences in turn lead to more experiences and modified expectations.

Arhippainen and Tähti's (2003) model of user experience lays emphasis not only on the interaction between the person and the product in a particular context or condition but also on social and cultural factors that may influence the user experience. Figure 9 categorises five key components affecting user experience along with detailed attributes for each component.

78
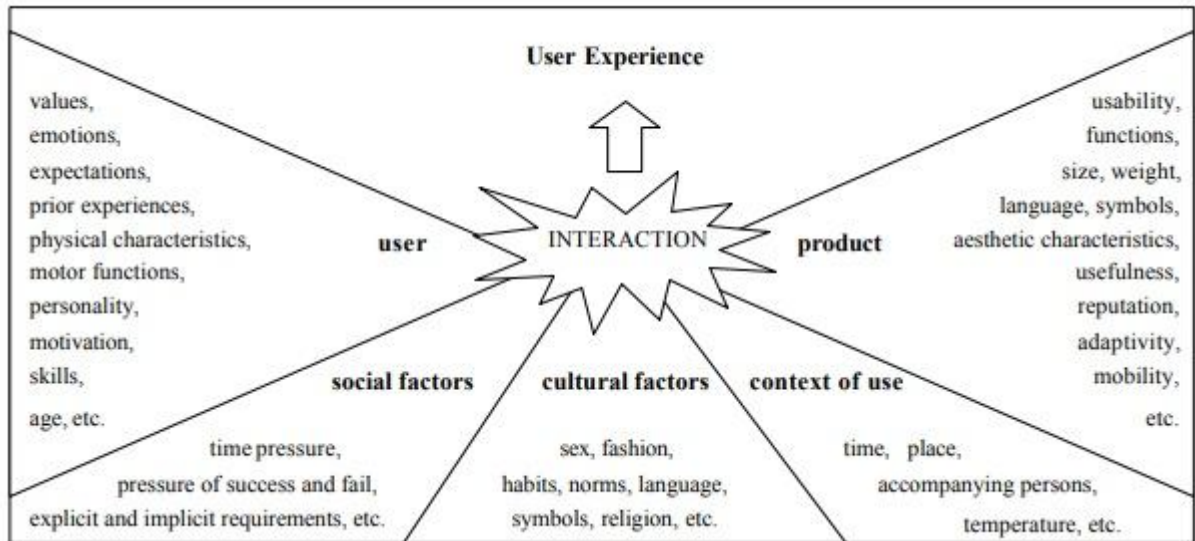
Figure 9. User experience components by Arhippainen & Tähti (2003, p. 28)

The authors of the model argue that interaction with a product occurs by different people, products and contexts which in turn influence how the experience of the interaction is lived. The conditions or contexts of the interaction are also influenced by social and cultural factors. All the factors highlighted in the model are believed to influence the user-product interaction. Roto (2006) in discussing this model of user experience considers that some of the attributes can be combined as there are some overlaps. For instance according to Roto's opinion the age attribute listed under the user component is not necessarily by itself a factor that affects user experience since one's previous/prior expectations are related to age. Roto (2006) sees a close link between social and cultural factors stating that "the cultural factors influence the user and social context, and are not a separate topic. Social factors fall inside the context of use" (p. 25).

Similarly, Väänänen-Vainio-Mattila, Väätäjä and Vainio (2009) state that user experience "promotes broader views of users' emotional, contextual and dynamically evolving needs, and the impact of users' previous experiences on the new experiences" (p. 124). The subjective, contextually influenced, and changing dynamic nature of user experience is further acknowledged by Forlizzi and Ford (2000) and Roto et al. (2011).

Another model used to understand user experiences is the S-O-R model which presents a connection between stimuli, organism and response. The "S-O-R" (Stimulus-Organism-Response) model developed by Mehrabian and Russell in 1974 has been widely used in studies on consumer behaviour and user experiences. S-O-R is composed of three components namely the "environmental stimuli, emotional states and the approach-avoidance response" (Yuniarinto, Thoyib, Solimun, & Sularso, 2017, p. 27). According to the Mehrabian and Russell model which is referred as the classic environment model, the emotional state of the person is influenced by the environmental stimuli which is external to the person and which will determine the positive or negative reaction towards the stimuli.

This model emphasises the importance of the organism (which I refer to as the participant) and the stimulus (the DMTs) in creating meaningful experiences. An adaptation of this model to learning context has been done by Nick Bowman (n.d), on his website. He presents a triadic model where the 'Stimulus' is the learning material, the 'Organism' is the student and the 'Response' is the experience. Concepts from this model appeared relevant for this current study where participants are engaged with DMTs and develop either a positive or negative response towards the use of such resources as consumers and producers.

The variations in the above definitions show that there is not an established definition for the concept of user experience. Rather there are multiple perspectives where some definitions seem to include more aspects as compared to others. The concepts addressed through the above mentioned user experience models were felt to be related to the main idea behind the intervention study that is creating, designing and delivering learning experiences to first year undergraduate students through the introduction of digital learning technologies and pedagogies. Weigel (2015), the Director of Curriculum and Learning Experience Design at Six Red Marbles[9] suggests that Learning Experience Design and User experience share the same idea regarding the learner/the user being the one to drive the product design (the product in a learning context could be an educational website). She goes on to explain that "both disciplines typically employ a research phase that uncovers what defines the user: their likes

---

[9] http://www.sixredmarbles.com/

and dislikes, their previous experiences, their habits of mind and their goals, to name a few"
(Weigel, 2015, para. 9). These attributes of the user experience have been taken into
consideration in framing the study.

3.2.4 Motivational theories

Another important construct which I considered to be relevant to the study is that of motivation
which was touched upon in the Mäkelä and Fulton Suri (2001) model of user experience which
is looked at from the perspective of motivational theories. Motivation as a concept, as a field
of research, and as theory has been of interest not only to the academic community but to
people at large. Motivation is central to human beings. Whether it is about getting oneself to
do something or to make others become motivated in acting one way or another, motivation
is an important factor that helps one to achieve specific goals set for specific tasks or in life in
general. Motivation at the workplace and how it relates to employee engagement and
performance is the concern of many employers/managers. Similarly in a teaching and learning
context, instructors/teachers are often concerned about how to motivate their students so that
they develop an interest in learning and as a result achieve their goals. Prior to the end of the
1980s, motivational aspects of learning were not considered as being influential factors in the
learning process. Motivational aspects of learning were studied from a cognitive perspective
and no attempt was made to understand whether or not the interaction between motivation and
cognitive processes had an impact on human learning and behaviour (Järvelä, 2001).
Researchers did not pay attention to the motivational constructs in the teaching and learning
process. The focus was rather on what was produced, that is the end outcome of learning
resulting from a performance of some task. With the development of computer technology
came the "mind-machine" metaphor (Lepper, 1988, p. 290), where there was more emphasis
on the cognitive science approach to understanding learning. There was no place for
motivation, personality and affect in such an approach. Brown, Bransford, Ferrara and
Campione (1983) urged for researchers to give due consideration to emotional and
motivational aspects of learning and concluded their work on developmental cognition by this
statement: "The emotional cannot be divorced from the cognitive, nor the individual from the
social" (p. 149). Consequently, the literature on research on motivation in the educational field
has shown an interest for the exploration of the link between motivational constructs and

cognitive aspects of learning. A study by Bassili (2008) explored the relation between young university "students' motivational and cognitive orientations and success in learning by attending lectures or watching them online" (p. 129). The results suggested that students' choice to watch the lectures online was linked to motivational orientations while the choice to attend lectures was linked to cognitive orientations. The choice of the learning method was not linked to academic performance. A study by O'Mahony (2014), explored the impact of multimedia and interactive e-book content on the cognitive learning and motivation of first year Irish secondary school using a quantitative approach to research. The result showed that students were motivated by the e-book format, especially the presentation mode which used animation, audio features and 3D objects. Some studies have laid focus on the relation between emotions and motivation on academic achievement and engagement (Ketonen, 2017), on the relatedness between emotions and intrinsic motivation (Vandercammen, Hofmans & Theuns, 2014), on the influence of positive affect on self-regulation and self-control (Isen & Reeve, 2005).

3.2.4.1 Intrinsic and extrinsic motivation

Motivation has been found to be a complex construct and hence the increased interest in addressing this important aspect of human behaviour and action in life in research studies. Even though there exists several theories of motivation, what will be focused upon here is the Self-Determination Theory (SDT), a theory of motivation developed by Edward L.Deci and Richard M.Ryan around the mid 1980s. Emanating from SDT is the concept of learner/student agency which assumes that learners are "generally curious, self-motivated, agentic, and inspired-striving to learn, to extend themselves, to master new skills, and to apply their talents" (Ryan & Deci, 2000a, p. 68).

The theory has since been expanded upon by many researchers since. The theory considers that motivation can be broadly categorised as intrinsic and extrinsic. Both are influential in shaping our identity and the way we behave. Intrinsic motivation is what comes from within the individual and is believed to lead to "high-quality learning and creativity" according to Ryan and Deci (2000b, p. 55). Intrinsic motivation is when one is willing to do something for its own sake, because it is personally rewarding or is enjoyable and engaging. We are driven

by our core values and beliefs, interests and curiosity to behave in a certain way. When one is intrinsically motivated to do something, one does not expect any sort of external rewards or support. On the contrary, extrinsic motivation is the external forces or incentives that move an individual to act upon something. Examples of such incentives include rewards, grades and opinions from others. The interaction between intrinsic and extrinsic sources of motivation is at the core of the SDT. The theory also considers the influence of socio-cultural factors on motivation, which may either support or hinder an individual's cognitive and social development. This theory further highlights the importance of three psychological needs namely autonomy, relatedness and competence in addressing motivation. It is believed from the perspective of SDT, that conditions that consider these three needs encourage one's sense of volition and enhances motivation and engagement with tasks. This may lead to improved performance, persistence at work and demonstration of creativity.

The assumption underlying the SDT, is that human beings are active organisms living in a social context and it is believed that they have inherent tendencies to face challenges, to be proactive, grow and develop as a consequence of lived experiences. However, this is not something that occurs automatically. Similar to a seed that needs nutrients and care to grow into a plant, the human being will either be motivated or demotivated depending on the societal support he/she receives within a given context. SDT suggests that it is through autonomy and competence that intrinsic motivation can be maintained. The need for autonomy within a teaching and learning context, is reflected when for instance, students out of their own will and initiative, decide to invest time and energy in their studies or experience the feeling of freedom to act without being controlled or pressured to do something. Competence is associated with one's self-belief regarding the ability to perform a task successfully. It is about "feeling efficient, effective and even masterful in one's behavior, rather than incompetent and ineffective" (Sheldon & Filak, 2008, p. 267). Relatedness is about the feeling of being cared for and not ignored. According to Ryan and Deci (2000b) these three basic psychological needs are believed to be universal and applies to all people irrespective of cultures.

The taxonomy of human motivation proposed by Ryan and Deci (2000b) presents motivation as a continuum showing varying levels of motivation ranging from "amotivation or unwillingness, to passive compliance, to active personal commitment" (p. 60). Amotivation refers to a state when an individual does not show any intention to engage in an activity. This may happen as a result of feeling incompetent at doing it, of not seeing any value in doing it, or not confident that it is going to produce the expected outcome. The taxonomy of motivation considers that in between amotivation and motivation, there lies extrinsic motivation that consists of varying levels of behavioural regulations which include (i) external regulation (ii) introjected regulation (iii) identified regulation and (iv) integrated regulation.

REGULATORY STYLES	Amotivation	Extrinsic motivation				Intrinsic Motivation
		External Regulation	Introjection	Identification	Integration	
ASSOCIATED PROCESSES	Perceived non-contingency Low perceived competence Nonrelevance Nonintentionality	Saliance of extrinsic rewards or punishments Compliance/Reactance	Ego involvement Focus on approval from self or others	Conscious valuing of activity Self-endorsement of goals	Hierarchical synthesis of goals Congruence	Interest Enjoyment Inherent satisfaction
PERCEIVED LOCUS OF CAUSALITY	Impersonal	External	Somewhat External	Somewhat Internal	Internal	Internal

Figure 10. Taxonomy of human motivation proposed by Ryan and Deci (2000b, p. 61)

Figure 10 details how each regulation is processed. Ryan and Deci (2000b) explain that external regulation type of behaviour is performed "to satisfy an external demand or obtain and externally imposed reward contingency" (p. 61). It is a controlled type of behaviour which displays the least autonomy. Introjected regulation type is still a controlled type of behaviour to some extent as the person will act towards an activity because there is a feeling of being pressured, to "avoid guilt or anxiety or to attain ego-enhancements or pride" (p. 62). It is also

84

about doing something because you do not want to feel like a failure or to develop self-esteem. A form of extrinsic motivation that tends to be more autonomous and self-determined is identification regulation where someone "has identified with the personal importance of a behaviour and has thus accepted its regulation as his or her own" (p. 62). Integrated regulation is the most autonomous type of extrinsic motivation where the behaviour is fully integrated into personal values and beliefs. This occurs through a self-reflection process whereby one sees the value in doing the activity for one's self. Though this type of extrinsic motivation share characteristics of intrinsic motivation, Ryan and Deci (2000b) note that it is still considered as extrinsic since "behavior motivated by integrated regulation is done for its presumed instrumental value with respect to some outcome that is separate from the behaviour, even though it is volitional and valued by the self" (p. 62).

Concepts of motivation and SDT are relevant to the field of education. Some studies have found that internal motivational factors have more potential to contribute to the academic achievement and level of motivation for learning as opposed to social factors (Renninger, 2009; Ryan and Deci, 2000b; Marić & Sakač, 2014). For instance, individual factors such as high consciousness, internal aspirations, cognitivement engagement are important contributors to motivation.

3.3 Assumptions underlying phenomenography

I chose to work with phenomenography as both the theoretical framework and as the methodology for this study. In this section, the focus is on the philosophical stances of phenomenography. Phenomenography is further described in terms of its methodological approach in Chapter 4. Like many qualitative approaches that emerged to counter or to be an alternative to the dominant tradition of the positivist quantitative research, phenomenography emerged as a qualitative methodological approach to investigate students' learning and experiences of learning in different contexts (Svensson, 1997; Yates, Partridge & Bruce, 2012a). Though originally developed in the mid-seventies as a result of studies led by Ference Marton and other researchers in Sweden, the term phenomenography is said to have been coined in 1979 but was only considered as a research specialisation in its own right, two years later in 1981 (Marton, 1981).

Phenomenography has been described as a research approach which aims at the "description, analysis, and understanding of experiences" (Marton, 1981, p. 180). It is particularly concerned with "mapping the qualitatively different ways in which people experience, conceptualise, perceive and understand various aspect of, phenomena in, the world around them" (Marton, 1986, p. 31). According to Åkerlind (2012) phenomenography lays emphasis on the collective human experience of a certain phenomena. Knowledge in phenomenography is related to the research object where the ontological and epistemological assumptions are the same (Ireland, Tambyah, Neofa & Harding, 2009; Svensson, 1997; Uljens, 1996). Phenomenography adopts a non-dualistic ontology and a relational epistemology.

3.3.1 Ontological and epistemological stance

Since phenomenography is concerned with describing the different ways the world is experienced by a group of people, it does not treat the aspects of the world being experienced separately from the persons involved in the experience. Marton and Booth (1997) explain that:

> We cannot describe a world that is independent of our descriptions or of us as describers. We cannot separate out the describer from description. Our world is a real world, but it is a described world, a world experienced by humans. (p. 113)

As an interpretive approach to research, phenomenography therefore views the nature of reality as non-dualistic, meaning that there is only one world which is experienced in different ways by different people. This is further emphasised by Marton (2000):

> From a non-dualistic ontological perspective, there are not two worlds: a real world, objective world on the one hand, and a subjective world of mental representation on the other. There is only one world, a really existing world, which is expressed and understood in different ways by human beings. It is simultaneously objective and subjective. An experience is a relationship between objects and subjects encompassing both. The experience is as much an aspect of the object as it is of the subject. (p. 105)

The intentional nature of human experience means that to have an experience, one is supposed to be involved in experiencing something. Learning from the perspective of phenomenography is seen as relational since it occurs as an interaction between the student,

86

the content of the learning material, and the overall learning environment. As explained by Yates et al. (2012a), "a non-dualistic stance therefore assumes there is an inseparable relationship between people and aspects of their world, and exploring this relationship is the focal point of phenomenographic research" (p. 99).

In phenomenographic research, the focus is not directly on the phenomenon or on the procedures that support the conceptions that individuals construct of an experience. Instead, the focus is on describing the relationship between the phenomenon and the ways individuals experience a given situation. It is the relational nature of experience that is foregrounded. Marton & Booth (1997) clarify this as follows:

> There is not a real world 'out there' and a subjective world 'in here'. The world [as experienced] is not constructed by the learner, nor is it imposed upon her; it is constituted as an internal relation between them. There is only one world, but it is a world that we experience. (p. 13)

Therefore it is understood that the ontological and the epistemological stances of phenomenography are closely linked.
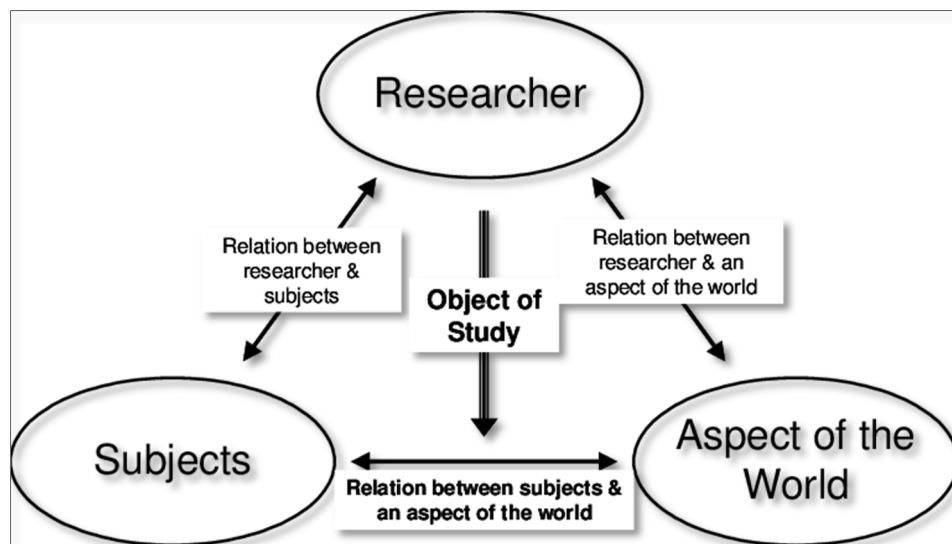
Figure 11. Focus of phenomenographic research (based on Bowden, 2005, p. 13)

Figure 11 illustrates this relational nature of phenomenography where aspects of the world, the subjects and the researcher are not separate and independent of each other.

Another important assumption of phenomenography relates to the second-order perspective that is used to explore a certain phenomenon or object of learning. In contrast to a first order perspective where the researcher focusses attention directly on the phenomenon, a second-order perspective studies experiences of the research participants from their perspectives, giving importance to their voices. Yates et al. (2012a) in distinguishing between first-order and second-order perspectives observed that:

> research approached from a first-order perspective was concerned with how something really is while the second-order perspective is concerned with how a phenomena is conceived. Consequently the second-order perspective has influence on ways in which research questions are formulated, posing questions of a 'how' and a 'what' nature instead of 'why'. (p. 99)

3.4 Variation theory

Variation theory as understood by Marton and Booth (1997) and which has emerged from the phenomenographic research approach sees learning as the capacity to distinguish between aspects of what is being learned. While the focus of phenomenography is on "describing and discovering variation in the ways people experience a particular phenomenon" (Sabbaghan, 2015, p. 159), the theory attempts to provide an explanation regarding the existence of the variations in the experience. Developed by Professor Ference Marton, it is used as a framework for learning studies. It is an important theory of learning and experience which provides the scope for supporting educators in better understanding how a given phenomenon might be seen, understood and experienced in a specific way by a learner (Orgill, 2012). Runesson (2006) notes that it "is not a theory of the mechanisms of learning but a theory of the relation between the object of learning and the learner" (p. 406). The notion of "discernment of critical features" (Marton & Booth, 1997; Marton & Sui, 2004) is important in understanding the theory of variation. To experience something a certain way, one needs to be able to discern critical features of the thing being experienced to which meanings are assigned. Marton and Booth (1997) explain how the individual comes to experience in a certain way by stating that: "The aspects of the phenomenon and the relationships between them that are discerned and simultaneously present in the individual's focal awareness define the individual's way of experiencing the phenomenon" (p. 101). Using variation theory it is possible

to gain an understanding why people/students experience the same phenomenon in different ways and this can be helpful in improving teaching and learning contexts (Tan, 2009).

Therefore according to this theory, there is considerable variation in the way an individual understands, experiences or thinks about a particular phenomenon. Each individual learner makes sense of new concepts depending on his/her existing understandings and knowledge. In this current study, whereby students are involved in using varied form of DMTs, it is expected that they will be focusing on the critical aspects of the DMTs which they are aware of such as the form, the content, the usability, and so on which in their eyes are more meaningful than other aspects.

3.5 Mapping the study

The diagram (Figure 12) was derived taking into consideration the above review of relevant theories and models.
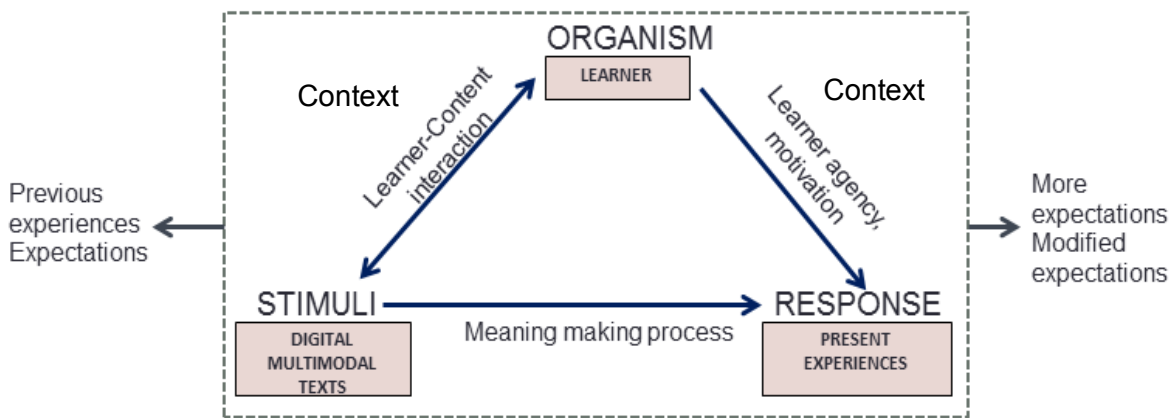
Figure 12. A visual map of the study (Adapted with permission from Bowman's (n.d) website at http://ndbowman.info/teaching.htm)

It highlights the main concepts which are relevant to the current study. The various components/concepts as illustrated in the framework demonstrate that to understand the participants' actual experiences of DMTs, it is crucial to look at their past experiences and to explore the DMTs not in isolation but in relation to other key constructs that come into play in the meaning making process such as the context, the agency and motivation of the learner,

the interaction between the learner and the DMTs. This framework has been used as a lens to guide the design of the instruments for the data collection phase as well as to support the data analysis.

3.6 Summary of chapter

This chapter highlighted the different theories and models that I considered pertinent for this current study. Theories of communication were presented with an emphasis on multimodality and social semiotics. At the same time, multimedia learning theories which are related to multimodality were also considered. Several user experiences models and frameworks were explained to bring into focus the interaction between the user, the product, the context and expectations. The concepts of motivation were also discussed with a particular attention to SDT. Moreover, since I chose to explore students' experiences of learning through a phenomenographic research approach, I presented the epistemological and ontological assumptions underlying this approach. The next chapter continues with a presentation of the methodology and methods used to address the research questions set as indicated in Chapter 1.

CHAPTER 4: METHODOLOGY

4.1 Orientation to the chapter

While the preceding chapter explored theories and presented the conceptual lens used to guide the design of the data collection tools, this chapter sets out to discuss the research design and methodology used in this study. It starts with a brief discussion about the ontological and epistemological assumptions underlying research paradigms and follows with the choice of research paradigm informing the methodology and methods chosen for the current research inquiry. The methodological orientations of phenomenography are discussed in this chapter and the decision for choosing this methodology is explained. The research design section presents the research questions, the research setting, the selection of participants, the data collection procedures and methods used. Justifications for the choice of the different research methods are herein provided. Furthermore, the trustworthiness of the study is discussed in light of the chosen methodology. Additionally the procedures for phenomenographic data analysis are presented illustrating the different steps involved in doing such analysis. Lastly the ethical considerations of the study are spelt out.

4.2 Research paradigms

Each of us holds assumptions about what reality consists of and how we come to know about this reality. The way research studies are conducted vary as various approaches to research exist. The methodological approach considered to be most appropriate to respond to the research questions set in a study will generally be guided by a set of beliefs or worldview that the researcher chooses to subscribe to. These are referred to as a "paradigm", a term which has its origin from the Greek word *paradeigma* meaning *pattern or example* and was first promoted by Thomas Kuhn (1962, 1970), an American professor of philosophy and History of science in his book entitled *The Structure of Scientific Revolutions*. Kuhn (1970) refers to a paradigm as "the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community" (p. 175). He argues that paradigms are important for scientific inquiry as they provide theoretical and methodological groundings for investigating problems and proposing solutions. In his opinion, scientific knowledge does not progress in a

linear and continuous manner but undergoes periodic changes. Similarly, Guba and Lincoln's (1994) concept of a paradigm is explained as being "a basic belief system or worldview that guides the investigator not only in choices of method but in ontologically and epistemologically fundamental ways" (p. 105). Paradigm shift occurs as a consequence of changing patterns of beliefs. As noted by Weaver and Olson's (2006) "paradigms are patterns of beliefs and practices that regulate inquiry within a discipline by providing lenses, frames and processes through which investigation is accomplished" (p. 460). MacNaughton, Rolfe and Siraj-Blatchford (2001) consider a paradigm to be more than a theory which consists of three elements- "a belief about the nature of knowledge, a methodology and a criteria of validity" (p. 32). It is clear from these varied definitions that research is not just about philosophical assumptions but also "practical decisions made about how to collect and analyze data" (Cresswell, 2003, p. 5).

4.2.1 The debate about paradigms

In the 1970s and 80s, the debate between qualitative and quantitative paradigms which Gage (1989) referred to as *paradigm wars* gave rise to a new philosophical assumption which is known as pragmatism which is discussed in much detail later in this section. Jones and Kennedy (2011) explained that this war between paradigms brought proponents of the different positions on knowledge claims to argue that their approach to research was the most appropriate one. Also the debate raised issues of "incommensurability and incompatibility" (Azorin & Cameron, 2010, p. 96) which means that quantitative and qualitative methodologies cannot be used and should not be used within the same study due to the different ontological and epistemological beliefs underlying the different paradigms. At the same time, Azorin and Cameron (2010) also point to those authors who are called "pacifists" (p. 97) who state that the different philosophical paradigms and methods are compatible but not fundamentally linked, meaning that research methods do not always depend on the epistemological and ontological assumptions. Those proponents favour a mixed method approach to research (Bryman & Bell, 2007; Mir & Watson, 2000).

4.3 Ontological and epistemological assumptions

It is important for the researcher to understand what his or her orientation or perspective is in relation to the study being undertaken as this influences "how one undertakes a social study from the way of framing and understanding social phenomena" (Wahyuni, 2012, p. 69). As philosophers argue, an individual's "orientation is formed by sets of deep assumptions one holds, perhaps unconsciously" (Rallis & Rossman, 2012, p. 28) and this has implications on the 'what' of knowledge and 'how' we go about knowing and what relevance it has to one's own and other's world.

Ontology is concerned with the nature of reality and human existence. Questions about the assumptions that one has regarding the world and how it is made up are dealt with when addressing ontology. It deals with questions such as *how do we determine if things exist or not?*; *what is reality?* or *what can be said to really exist?* This is further pondered upon by Agarwal (2015) who relates ontology to the question of "whether or not there is a social reality that exists independently from human conceptions and interpretations and, closely related to this, whether there is a shared social reality or only multiple, context specific ones" (p. 260).

The second set of assumptions concerned with the nature and scope of knowledge is called epistemology. Epistemological assumptions are concerned with how knowledge can be created, acquired and communicated, in other words what it means to know. According to Bryman (2008) epistemology raises "question about what is (or should be) regarded as acceptable knowledge in a discipline" (p. 13). Both ontology and epistemology are interrelated. As pointed out by Stahl (2008), "one can only gain knowledge about entities that exist" (p. 67) which means that without knowing what exists or what is, the researcher cannot set about researching about it. Ontological and epistemological assumptions therefore form part of every piece of research.

Furthermore, the way to investigate reality is also influenced by axiology and methodology. The axiological perspective concern the values and ethical considerations that the researcher brings along which will influence the researcher's decisions and actions in his/her search for truth and understanding of knowledge. The methodology is a framework or a model that the researcher will use to practically find answers to the research questions set in the study. It is

the research design process that consists of methods used to carry out the research within the context of a particular paradigm. So it is commonly agreed that researchers are guided by a system of ontological, epistemological, axiological and methodological assumptions to carry out their research (Cresswell, 1998; Guba & Lincoln, 1994).

4.4 Overview of research paradigms

Many studies have provided accounts of the common paradigms with their underlying epistemological, ontological and methodological assumptions (Luo, 2011; Mackenzie & Knipe, 2006; Wahyuni, 2012). Different disciplines tend to be ruled by different theoretical paradigms which Mackenzie and Knipe (2006) classified as post-positivist (positivist), constructivist/interpretivist, transformative and pragmatic. Guba and Lincoln (1994) and Pontoretto (2005) for instance discussed differing worldviews of research - positivist, post-positivist, critical, and constructivist-interpretivism and the critical-ideological perspective. Similarly Wahyuni (2012) presented a classification of four research paradigms and their associated fundamental beliefs namely positivism (naïve realism), postpositivism (critical realism), interpretevism (constructivism) and pragmatism.

Before explaining the rationale behind the chosen paradigm for my study, I shall present a brief overview of some common paradigms as discussed in the literature focusing mainly on positivism, postpositivism, interpretivism and pragmatism.

4.4.1 From positivism to post-positivism paradigm

Positivism, a philosophical ideology and movement which originated from the works of the French philosopher Auguste Comte in the 19th century, has since undergone a shift to what is now termed as post-positivism. The position held by the positivists is that knowledge beyond what can be measured and observed is impossible. The researcher who subscribes to a positivist approach would start with hypotheses and use surveys, statistical tests and other numeric measures to test a theory (Wahyuni, 2012). The positivist paradigm "reflects a deterministic philosophy in which causes probably determine effects or outcomes" (Creswell, 2003, p. 7). The ontological position of positivism is one of realism (Scotland, 2012) where realism assumes that the existence of things which can be discovered in reality is independent of the researcher. Epistemologically, positivists believe that authentic knowledge can only be

based on observable phenomena and that findings can be generalised irrespective of contexts. So as put forward by Wahyuni (2012), the type of realism associated with positivism is a naïve one.

Post-positivism, which is considered as the successor to positivism bears very few differences from each other and viewing them as two distinct epistemological stances is not justified (Hall, 2013). Post-positivists to some extent, do hold the same ontological and epistemological assumptions as the positivists but they challenge the fact that there is an absolute truth which can only be found through quantitative methodologies. Instead, as acknowledged by Adam (2014) postpositivists are rather "cautious concerning strong and one-sided interpretations and restrained regarding the too extensive (or obsessive) use of (quantitative) data and methods" (p. 5) as compared to the positivists. Therefore post-positivists would opt for either a quantitative or qualitative methodology.

4.4.2 The interpretivist paradigm

In contrast to post-positivism, the interpretivist paradigm is based on the assumption that reality is socially constructed together with the researcher and the participants and this reality therefore consists of multiple meanings.

The interpretivist approach to research is concerned with understanding "the subjective world of human experience" (Cohen, Manion & Morrison, 2011, p. 17). Within this framework, the researcher relies on the "participants' views of the situation being studied" (Cresswell, 2003, p. 8) and the methodological approaches used allow the voice, concerns and practices of the research participants to be heard (Weaver & Olson, 2006). For interpretivists, it is crucial to understand the context in which the study is being conducted to enable careful interpretation of the data gathered. Context therefore is of prime importance and as such "data sources close to the point of application" (Willis, 2007, p. 111) are favoured. Willis (2007) further argues that interpretivists as compared to the post-positivists value subjectivity, are less firm in their research approaches, and reject the idea that there are universal standards that guide research. The interpretive researcher begins "with individuals and sets out to understand their interpretations of the world around them" (p. 18).

4.4.2.1 Pragmatism paradigm and mixed methods

The paradigm that was considered best fit for applying mixed method research was pragmatism. Advocates of mixed methods acknowledge the compatibility between paradigms and see more similarities than differences between the paradigms. Rather than based on assumptions on philosophy of knowledge, pragmatism has been favoured for its more "practice-driven" nature (Denscombe, 2008, p. 280) and its varied and pluralist methodological approach to research.

The purpose therefore of the mixed methods research is to combine both the qualitative and the quantitative approaches so as to better understand research problems. For the researcher who adopts the mixed methods approach, pragmatism therefore "opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis" (Creswell, 2014, p. 40).

4.5 Choice of paradigm

This study has been carried out within an interpretivist paradigm which "adopts the view that reality represents an interpretive device and that humans process experience and make such experiences meaningful" (Ireland et al., 2009, p. 4). It takes a relational and non-dualistic ontological perspective whereby the object and subject are not separate and independent of each other. My focus in this study is to explore and understand students' experiences of learning with digital multimodal texts (DMTs) within the context of a specific module of their academic programme of study. The decision for carrying out this enquiry using a qualitative methodology falling within the interpretive framework is linked to my assumptions about reality – a reality which is the product of one's individual and social experiences, a reality which is constructed differently by people, depending on the meaning they make of their world, a subjective reality. Therefore, I subscribe to a non-dualist ontology that assumes that there is an inseparable relationship between people and aspects of their world (Yates et al., 2012a). In this current study, the aim is to understand the relationship that exists between the participants and their experiences of learning with digital multimodal texts. Epistemologically, the interpretive paradigm is transactional or subjectivist. This means that as a researcher, during the whole process of the enquiry, I bring my own values and I

acknowledge that these along with the values of my participants would no doubt have an influence on the enquiry (Guba & Lincoln, 1994; Willis, 2007). As the focus of the study is to explore the experiences of people, the meaning they assign to these experiences and to understand why they give such meanings, an interpretive framework thus allows me as the researcher to enter into meaningful interaction with my participants through conversations and to view the world from their perceptions, interpretation and experiences in addition to my own. L. Walsh (2009) points out that "to understand learning contexts and how different individuals act within them it is not sufficient to only examine what is happening, it requires an examination of the individuals" (p. 79). The focus of the research questions is on the students' experience of learning which cannot be objectively observed and measured. As such a qualitative methodology within the interpretivist paradigm known as phenomenography was considered for the study. Phenomenography as a methodological approach lends itself well to the context and focus of the study since I am interested in understanding how a group of first year undergraduate students conceive their experiences of DMTs within the context of learning about Mauritian History as users and creators. Phenomenography as mentioned in the previous chapter is used both as a theory and methodology in this study. Having introduced phenomenography and its philosophical assumptions in Chapter 3, I focus on the methodological aspects of this research orientation in this chapter.

4.6 Phenomenography as methodology

There has been growing interest in the phenomenographic research since it became into existence. To investigate the interest in phenomenography, Tight (2016) carried out a google scholar search in September 2014. He limited his search from 1939- 2014 and noted over 12000 academic publications (conference papers, journal articles, books and book chapters, online documents) that mentioned either or both of the terms 'Phenomenography' or 'Phenomenographic' (p. 326). Tight (2016) advanced figures to show that this interest about phenomenography has since been expanding. He noted that "90% of the articles mentioning phenomenography or phenomenographic, and 84% of the articles using one of these terms in their titles, have been published since 2000" (p. 326). I carried out a similar search on 5th May 2018 to see what has been the trend since 2017 till now. My search revealed that over 1000 publications using the term phenomenography or phenomenographic have been published

over this period, thus it is clear that phenomenography has been gaining interest amongst the research community.

Phenomenography is often confused with 'phenomenology' which has its roots in the philosophical work of Edmund Hursell. Phenomenology is considered as a precursor to phenomenography or a "subset of phenomenology" (Cibangu & Hepworth, 2016, p. 148) or a "child of the phenomenology family" (Marton & Booth, 1997, p. 117). Phenomenography was developed much later than phenomenology and is considered to be less familiar to qualitative researchers than phenomenology (Larsson & Holmström, 2007).

Though both research approaches share some similarities, there are some distinct differences. First of all both the terms share the term *phenomenon*. Larsson and Holmström (2007) provide an etymology of both terms. They note that the suffix 'graph' relates to a research approach that aims "at describing the different ways a group of people understand a phenomenon" as stressed by Marton (1981) while the suffix 'logos' in phenomenology lays emphasis on explaining the "structure and meaning of a phenomenon" (p. 55). Secondly both have human experience and awareness as the object of research (Ornek, 2008) but the methods used to study experiences and the related theories differ. Barnard, McCosker and Gerber (1999) distinguish between phenomenography and phenomenology highlighting how they differ in philosophy, in focus, in approach and in the research outcomes. According to these authors, the phenomenographical approach lays emphasis on "reflective rather than prereflective experience" (p. 213) as is the case in phenomenology. In phenomenography the researcher focuses on the variations in experiences rather than singular essence of experience, on collective meanings rather than individual experience. While phenomenology adopts a more philosophical approach to research whereby the aim is to better understand the essence of the phenomenon through a first-order perspective, phenomenography leads to a better understanding of the perceptions and experiences of a phenomenon through a second-order perspective, in other words the researcher describes people's experiences of the phenomenon and not the phenomenon itself (Marton, 1981).

4.6.1 Applications of phenomenography

The phenomenographical approach which was developed originally within an educational framework by a group of scholars in Sweden, has been used to study aspects mainly related to conceptions and experiences of teaching and learning (Andretta, 2007; Entwistle & Ramsden 1983; Marton & Booth, 1997; Marton, Hounsell & Entwistle, 1997) to better understand how students of different level (undergraduate and postgraduate) approached and conceived their learning in relation to real academic tasks and what they learnt (Marton & Booth, 1997). Earlier phenomenographic studies focused on exploring the relationship between students' learning outcomes and their approaches to learning. Other studies focused rather on conceptions of teaching and learning of a particular domain. For example, Petocz and Reid (2003) explored the relationship between students' experience of learning statistics and their lecturers' teaching of the subject. Reid, Wood, Smith and Petocz (2005) conducted a phenomenographic study to explore students' experiences of learning mathematics as well as their understanding of mathematics as a discipline, and how they perceived the work of a mathematician. Another study that used a phenomenographic approach was that of Ingerman, Linder and Marshall (2009) which examined variations in the ways students in physics learn using a computer simulation. L. Walsh's (2009) doctoral thesis considered the variations in Irish undergraduate students' conceptualisation of knowledge and approaches to problem solving in an introductory physics course. Within the field of economics or finance, Speer and Seeber (2013) conducted a phenomenographic study where they used focus groups with a group of secondary school and university students to investigate their understanding of 'credit' as a fundamental financial concept. Zygmont's (2014) phenomenography study explored the variations in the ways a group of Grade 9 high school pupils in a South African school experienced an outdoor education adventure programme. Lastly, Ojo's (2016) doctoral thesis aimed at revealing the qualitatively different ways in which university lecturers and tutors involved in the delivery of an introductory Economics module to first year students at a South African University experience and understand their roles as tutors and teachers.

Furthermore, a phenomenographical methodological approach has also been applied to research phenomenon outside educational settings. For example, it has been used to understand medical practice in health care and services (Larsson & Holmström, 2007); to

explore healthcare experiences of women who choose not to breastfeed (Wirihana & Barnard, 2012). Some researchers have focused their studies on how health information literacy is understood among older Australians in everyday contexts (Yates, Stoodley, Partridge, Bruce, Cooper, Day & Edwards, 2012b). Forster's (2013, 2015, 2016) studies using phenomenography focused on information literacy in nursing practices. Within the field of library and information research, researchers such as Wakimoto and Bruce (2014) have focused on academic librarians' varying experiences of archives and more recently, others like Morrison and Secker (2017) have explored variations in the ways academic librarians in the UK experience the concept of copyright which is an important aspect of their profession.

It is evident from the above that phenomenography as a methodological approach can be applied to a broad spectrum of domains. Phenomenography is an appropriate methodology for studies where:

> experiences are investigated subjectively; the individual and experience are not treated as wholly separate phenomena; experiences are investigated in a way that is sensitive to the variation in the contexts in which the phenomenon is experienced; experiences are investigated in a way that is sensitive to the variation in how different individuals experience the phenomenon in any one context; variations in experiences can be generalized so that a structured picture can be produced of the ways the phenomenon is experienced". (Forster, 2013, p. 31)

4.7 Research design

A research design is used to structure a research study and acts as a road map or "a framework" which guides data collection and data analysis (Bryman & Bell, 2007, p. 40). Cresswell (2014) refers to research designs as "procedures of enquiry" (p. 31). It shows how the different components of the study that is the research questions, the methodology, the methods, the data collection and data analysis work together in a coherent manner to respond effectively to the key questions of the study. Singh (2014) emphasises that:

> research design stands for advance planning of the methods to be adopted for collecting the relevant data and the techniques to be used in their analysis keeping in

view the objective of the research and the availability of staff, time and money. (p. 319)

The research design therefore allows the research to be conducted in a systematic manner. The research problem and the research questions generally help the researcher in making decisions regarding the most appropriate research design.

4.7.1 Types of research designs

Literature on research methods often present research designs under two or more types. A research project can be classified as exploratory or conclusive. In an exploratory research design, the aim is to explore a research problem to discover new insights, new ideas and thoughts. The idea is not to arrive at final conclusive solution to the problem but to better understand the problem thus allowing room for further research. Exploratory research would generally use qualitative methods to achieve its objectives. The conclusive research type which is classified as either descriptive or causal research (Neelankavil, 2015) is used when the researcher wants to arrive at a final answer to the research problem identified. Parasuraman, Grewal and Krishnan (2006) make a distinction between exploratory and conclusive research design specifying that while exploratory research allows "investigators gain some initial insights", conclusive research enables "investigators to verify insights" (p. 35). Survey-based or hypothesis testing methods would be used in a conclusive type of research.

Other authors, such as Cresswell (1998, 2014) and Harwell (2011) classify research design into three categories namely quantitative, qualitative and mixed methods. In quantitative research projects, Cresswell (2014) claims that the research problem "is best addressed by understanding what factors or variables influence an outcome" (p. 152). The quantitative type of research is similar to the conclusive type of research design which can be either descriptive or experimental. The type of data generated in quantitative research is numerical and instruments such as tests or surveys are used to collect data. The findings of a quantitative research are generally obtained through a deductive approach whereby the researcher establishes hypotheses and uses experiments and statistical analysis to test or confirm these hypotheses against theories.

Qualitative research which is dominant in the field of social science research is defined by Cresswell (1998) as:

> an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyses words, reports detailed views of informants, and conducts the study in a natural setting. (p. 15)

Denzin and Lincoln (2000) further note that in qualitative research, the researcher interprets the phenomena from the meanings that people attribute to it. Utmost importance is attached to the participants' perspectives. Qualitative researchers would normally go about studying things as they occur in their natural settings. These characteristics as such bring out the interpretive and naturalistic nature of qualitative research enquiry. Unlike quantitative data analysis which is deductive as explained above, qualitative data analysis is carried out using an inductive approach where the researcher derives concepts, themes and categories from the raw data.

Another type of research uses mixed methods to respond to research questions. Johnson, Onwuegbuzie and Turner (2007) carried out a study to find out the different definitions leaders in the field of mixed methods used which they then analysed using a qualitative approach. They offered their own definition of mixed method based on this analysis:

> Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration. (p. 123)

Mixed methods research approaches provide more scope for identifying and fixing errors that could occur in single approaches, and allows for "meanings in data to be probed, corroboration and triangulation to be practiced, rich(er) data to be gathered and new modes of thinking to emerge" (Cohen, Manion, & Morrison, 2011, p. 23). Mixed methods research is driven by the research questions of the study and it can adopt different designs that allow these research questions to be answered through both quantitative and qualitative data. There are many

102

strategies used to combine qualitative and quantitative approaches. While some studies take a quantitative dominant approach, others are more qualitative dominant. Azorin and Cameron (2010) provide an explanation of how a mixed methods study is designed and conducted:

> when qualitative data collection precedes the quantitative data collection, the intent is to first explore the problem under study and then follow up on this exploration with quantitative data that are amenable to studying a large sample so that results might be inferred to a population. Alternatively, when quantitative data precede the qualitative data, the intent is to test the variables with a large sample and then carry out a more in-depth exploration of a few cases during the qualitative phase. (p. 98)

Cresswell (2003) also suggests that along with the sequential approach which is similar to what is defined by Azorin and Cameron (2010), mixed methods research can be structured following a concurrent or transformative procedure. In a concurrent procedure, the researcher collects both quantitative and qualitative data at the same time during the course of the study and the overall results of the study integrate the interpretation of both forms of data. In a mixed method, research is structured using a transformative procedure where the researcher "uses a theoretical lens as in overarching perspective within a design that contains both quantitative and qualitative data". It is an embedded type of research design in which sequential or concurrent procedures are adopted either between phases or in discussions after analysis in view of consolidating the results of a study.

The research design of this study was influenced by the research questions and guided by the qualitative and interpretive framework of phenomenography as previously discussed. Amongst many other qualitative methodologies available, phenomenography was selected for my research study as I felt it was an appropriate means which would allow me to know from the perspective of the participants the different ways they experienced the use of digital multimodal texts in learning about a specific module in their programme of study, namely Mauritian History (HIST1002Y). Since the History-related DMTS were experienced under two learning situations (LS1 and LS2), it was assumed that they would have different experiences to share as users of ready-made DMTs (LS1) as well as creators of their own DMT.

4.8 Study context and recruitment of participants

Designed as pedagogical intervention, this study commenced with the identification and formulation of a research problem/issue. The study sets out to respond to the research questions specified in Chapter 1. It concerns first year undergraduate students studying a History module as part of their programme of studies at the University of Mauritius, a public higher education institution (HEI). Undergraduate study programmes generally require students to complete a number of core and elective modules. This module HIST1002Y, is included as a common core module in the first year undergraduate programmes of studies namely:-

- BA (Hons) Joint Humanities
- BA (Hons) History and Political Science
- BA (Hons) History and Sociology.

HIST1002Y provides an introduction to the main events, developments in the History of the Republic of Mauritius from its beginnings to the present, considering the events and developments from 1598 to the contemporary period. Through this module, students are expected to gain an understanding of concepts of change and continuity and to understand causation. The module allows for the development of skills such as empathy and being able to distinguish between facts and opinions by critically analysing historical sources.

The module in this study was delivered using a web-enhanced modality whereby the lecturer had face-to-face lectures and the content was made accessible via an e-learning platform. HIST1002Y was delivered over two semesters, comprising of live lectures and online access to learning resources in various forms such as PowerPoints, films, websites, quiz activities and interactive multimedia. In the current study, these digital resources/materials/content are referred to as digital multimodal texts (DMTs). In the thesis, I used the terms DMTs, digital learning resources, multimedia text(s) or content interchangeably.

For the academic year 2015/2016, the class of HIST1002Y consisted of 109 students from the three above mentioned undergraduate programme of studies. Though the students belonged to different study programmes, they all had common lecture sessions and had access to the digital multimodal texts included as instructional materials mainly during the first semester.

Furthermore, the students were involved in the creation of a History-related video as part of the module assessment. However, for the purpose of the study only a sample of 19 participants were considered. This decision was taken based on the phenomenographic approach to data collection. The recruitment of participants involved two phases.

- *Phase 1- Student background profile questionnaire*

The selection of participants for my study was guided by the information obtained from this profile questionnaire which the whole cohort of students enrolled for the module HIST1002Y was invited to complete. Having briefed the whole class of HIST1002Y about the main purpose of the research, I gave all students a student background profile questionnaire (See Appendix A) which was accompanied by an informed consent letter. They were free to choose whether to respond or not. Prior to being handed over to the students, this questionnaire was tested with four students who were not eventually considered as participants for the research. Following the peer review, a few amendments were brought to the questionnaire mainly with respect to the terms used and an additional question was added.

Most of the students agreed to complete the questionnaire and 85 out of the 109 students, returned it. The student background profile questionnaire which was not part of the data set allowed me to gather information about potential participants for my study such as biographic details, access to and usage of Information and Communication Technology (ICT), communication skills, software skills, learning preferences and attitudes, educational background and interest in the chosen field of study.

- *Phase 2- Identifying the sample*

Since the aim of this study is to uncover the diversity in the ways individuals experience a specific phenomenon of interest, in this case the interaction and engagement with digital multimodal texts, it was considered appropriate to opt for a maximum variation sampling (Patton, 1990). This type of purposive sampling is commonly used in phenomenography to capture a wide range of perspectives in relation to the phenomenon under study. For Yates et al. (2012a) selection of participants is not done randomly but "should be based upon their appropriateness to the purpose of the research study, that is, they have experience of the phenomenon being explored" (p. 103). In the context of HIST1002Y, the learning conditions

provided participants with the opportunity to experience the phenomenon being explored that is their experiences of learning of History using the digital texts both as consumers and producers.

In phenomenographic studies, Bowden (2000) and Trigwell (2000) recommend a minimum of 15 to 20 participants as a manageable sample size and to ensure a sufficient number of variations whilst Marton and Booth (1997) argue for 10 to 12 participants as being sufficient. Though the whole class was initially briefed about the main purpose of the research, it was initially planned to consider a sample of 18 students while still remaining within the number of participants generally recommended for phenomenographic studies.

Once all the completed student background profile questionnaires were obtained, I selected six participants from each programme of studies based on their access and usage of digital technologies, varying level of ICT competencies, level of interest for the chosen field of study; diverse educational backgrounds and learning habits, a mix of male and female from varied places of residence (urban or rural regions) and communication skills, thus bringing the total of participants to 18. I contacted the selected students by phone and by email to find out whether they were interested in being participants for my study. The informed consent letters to participate in the interviews (See Appendix B) was sent as an attachment in the email. I hoped they would all agree. However, a few days before the first round of interviews, one participant from the BA (Hons) History and Sociology informed me that due to some medical issue, she would not be able to participate. Therefore I had to recruit additional participants and decided to contact students who were willing to participate. Two additional students agreed to participate which finally brought the sample to 19 participants, which was still within the range recommended for the sample size of a phenomenographic study. The final sample comprised of 19 participants aged between 18 to 22 years old. Details of the sample as per the programme of studies which were identified for the study is shown in Table 2.

Table 2

Composition of participants as per programme of studies

BA(Hons) Joint Humanities	BA (Hons) History and Sociology	BA(Hons) History and Poilitical Science
• 5 females • 1 male	• 6 females • no male	• 5 females • 2 males

It should be noted that the BA (Hons) History and Sociology group consisted only of females. The whole class of HIST 1002Y that is the three programmes of studies consisted of only three males. I felt that it would be logical to consider them in my sample since it may add to contribute to variations in the sample, an important aspect to consider when identifying the sample of participants in phenomenography. As far as this student profile questionnaire is concerned, it should be pointed out that it did not form part of the data set but was solely used to help me identify the sample of participants.

4.9 Data collection methods

There are many means by which one can go about discovering how people conceive aspects of the world around them. The research philosophy the researcher subscribed to and the objectives he or she sets out to achieve determine the research approach, the data collection methods and instruments employed to respond to the research questions. While some studies seek to measure, make comparisons and test hypotheses, others seek to explore, to investigate and/or understand a phenomenon, a situation, conceptions and perceptions.

In quantitative studies, data is often collected through quantitative surveys, polls, questionnaires, experiments and test scores whereas a range of methods are available to the qualitative researcher. Questionnaires, interviews, focus group discussion/interviews, observations, drawings, photovoice are among the many methods that are used in qualitative studies. For instance drawings as research methods are often used in studies involving children as well as adults (Mitchell, Theron, Stuart, Smith & Campbell, 2011) where they serve as stimulus and elicit discussions, reflections and views about certain phenomena. Interpretation based on observations of people's behaviour in natural contexts or under controlled situations is also another method commonly used in research. Data can also be collected by interviewing

people to better investigate the variety of human experience and to better understand aspects of the world through the participants' point of view. Data collected to respond to qualitative research questions can be based either solely on one particular method or can rely on multiple methods, depending on the methodology chosen for the research. Though it appears that methods used to collect data for quantitative studies are distinct from those used for qualitative studies, both are valuable and the researcher may, depending on his or her assumption decide to collect data in both quantitative and qualitative format. For instance, open-ended questions are often included in quantitative surveys to allow respondents to share or elaborate on anything they think they may not have been able to expand upon given the nature of the closed-ended questions in surveys.

An interview is an interchange of views between an interviewer and an interviewee. It is a form of conversation where knowledge is produced through the interaction between an interviewer and an interviewee (Kvale, 1996). Cohen, Manion, and Morrison (2011) differentiate an interview from the everyday type of conversation to something which involves questions being asked by the interviewer to the interviewee to which responses are expected from the interviewee. It is a "constructed and usually planned event rather than naturally occurring situation" (p. 409). Kvale (1996) views the interview as an exchange of views between the interviewer and the interviewee which results in knowledge production. Interviews can take many forms. They can be either structured, semi-structured or unstructured depending on what the researcher wants to achieve.

4.10 Data collection methods and procedures used in this study

In phenomenographic research, interviewing is the dominant means to collect data (Green & Bowden, 2009; Marton, 1986; L. Walsh, 2009) though the literature points to other methods. Other than interviewing, Collier-Reed and Ingerman (2013) point to other methods such as written accounts of respondents and less common are reviewing video recordings to understand how an experience was lived. Edwards (2007) further refers to other data collection methods such as drawings and focus groups. There are some specific characteristics and considerations attributed to phenomenographic interviews (Bruce, 1994). The aim of the phenomenographic interview is to allow the participants to reflect on a phenomenon they experienced and to achieve this, semi-structured questions are favoured. Semi-structured

interviews provide the opportunity for the interviewer to probe further in order get additional information allowing the interviewees to elaborate and clarify their responses. Interviewees are encouraged to speak openly about their experiences while providing concrete examples of what and how they experienced a certain phenomenon (Larsson & Holmström, 2007).

In this study, primary data was collected through semi-structured interviews (See Appendix C-1 & C-2 for interview schedules). Other than the semi-structured interviews, participants' written reflections on their experience of creating a video as an assignment and also data from a focus group discussion were considered. These additional methods were used to complement the data collected from the semi-structured interviews. It has to be noted that the focus group allowed to have a consolidated perspective of the participants' experiences of having experienced both learning situations.

The interviews and the focus group discussion were conducted on the premises of the HEI and as far as possible at the convenience of the participants. The phases for the collection of data spanned over the two semesters[10] of the academic year 2015/2016 at different moment in time. The first round of semi-structured interviews took place during the period end October to third week of November 2015 (semester 1 of the module) and the second round of interviews was held in February 2016 (semester 2 of the module). The focus group discussion was carried out in April 2016 (semester 2 of the module). Being a pedagogical intervention, the different phases earmarked for the data collection were dependent on the structure of the module, the topics addressed and the timing when the assignment was supposed to be introduced.

4.10.1 First round of semi-structured interviews

The first round of semi-structured interviews was based on LS1 where participants were involved as viewers/readers/users of History-related multimodal texts. Since the start of the module in August 2015, the participants became exposed to these DMTs during the face to face lectures as well as through online modality. The first round of interviews took place after they have had the opportunity to access and use these DMTS. The first semester topics of the

---

[10] An academic year consists of two semesters. Semester 1 (August to December) and Semester 2 (January-May)

module were supported by a variety of digital multimodal texts. For the purpose of this study, these have been categorised as DMT1, DMT2 and DMT3 as shown in Table 3.

Table 3

Categories of DMTs included in the Mauritian History module (HIST1002Y)

Digital multimodal texts (DMTs)	Modes of expression and communication	Notes
DMT1. PowerPoint presentations	Static text and images	Created by module instructor and used as instructional materials to support lectures and also available on the e-learning platform for students to download.
DMT2. Documentary films	Moving images, speech, gestures, music	Produced for commercial purpose by professionals and identified by the module instructor to be screened in class.
DMT3. Interactive multimedia resources (*a multimedia enhanced CD on the French in Mauritius and an interactive multimedia quiz game on the British in Mauritius*)	Static and dynamic graphics, text, audio and interactivity	Internal collaborative production (Researcher and module instructor)

As noted in Chapter 1, the module instructor made use of PowerPoint presentations (DMT1) to support her lectures and these were also made accessible via the e-learning platform. Several topics were introduced and the presentations consisted mainly of textual information supported by still images.
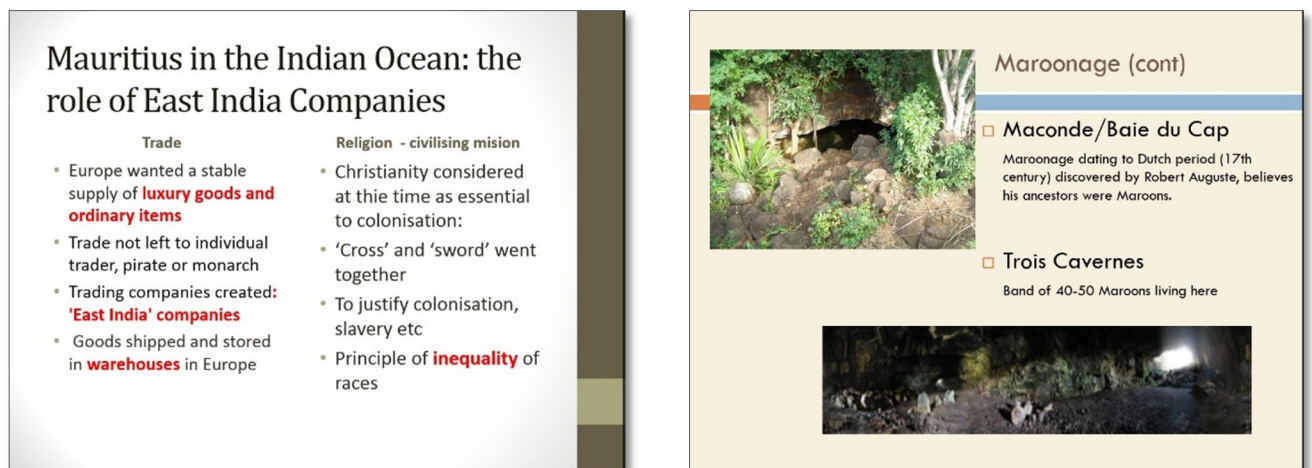
Figure13. Sample screenshots from PowerPoint presentations (DMT1)

These presentations varied in terms of the design and the presentation of content. They all used different designs, some of them had more images than others and textual information

was emphasised. Figure 13 shows some sample screenshots from the PowerPoint presentations consisting of a mix of still images and textual information.

DMT2 included History-related documentary films (DMT2) which were produced by local film makers, Alain Gordon-Gentil and David Constantin and were targeted to the general public. As pointed out in Chapter 1, these two films focused on the topic of Indian immigrants and African Immigration and slavery respectively and were identified by the module instructor to be screened during the lecture session since she considered these to be relevant and pertinent as learning materials to encourage students' historical thinking, even though they were not specifically produced for an educational context.

Figure 14. Sample screenshot from one of the documentary films screened (DMT2)

A film on Indian Immigration entitled *From so far-the story of Indian immigration in Mauritius* retraced the hardships faced by the Indian immigrants who left their native land for an island, with the thought of a better life. Instead, they faced the tough conditions of working as labourers in the field. Their contribution towards the construction of the nation is acknowledged in the film (Gordon-Gentil & Constantin, 2007). Figure 14 is a sample screenshot from the film on Indian Immigration.

A film on African Immigration entitled *From so far- The story of African immigration to Mauritius* portrayed the story of the Africans brought to Mauritius as slaves and their long path from the violence they suffered as slaves before they started to discover renewed hope (Gordon-Gentil & Constantin, 2008). These historical documentary films targeted towards the general public and are available in digital format (DVD).

The DMT3 included interactive multimedia learning resources as noted in Chapter 1. Topics related to the 18th to 19th Century Mauritius focusing on the French period were presented in the form on an interactive multimedia enhanced CD. For instance, the arrival of the French in Mauritius was presented as an animated digital story with audio narration. Other resources included an interactive timeline, quizzes, videos and an archaeology game. Figure 15 shows some screenshots from the interactive multimedia enhanced CD.

Figure 15. Some sample screenshots from the Interactive multimedia CD (DMT3)

Another interactive multimedia resource entitled *The British Treasure* which took the form of a quiz game focused on the British in Mauritius. It was presented as a game where the user (student) needs to respond successfully to a series of quizzes (challenges) while learning facts about the British period in Mauritius through question and answers. It is only after completing three challenges that the user get the three keys (rewards) to move forward till the discovery of the treasure left behind by the British in a shipwreck. Some screenshots of the interactive quiz games are provided in Figure 16.
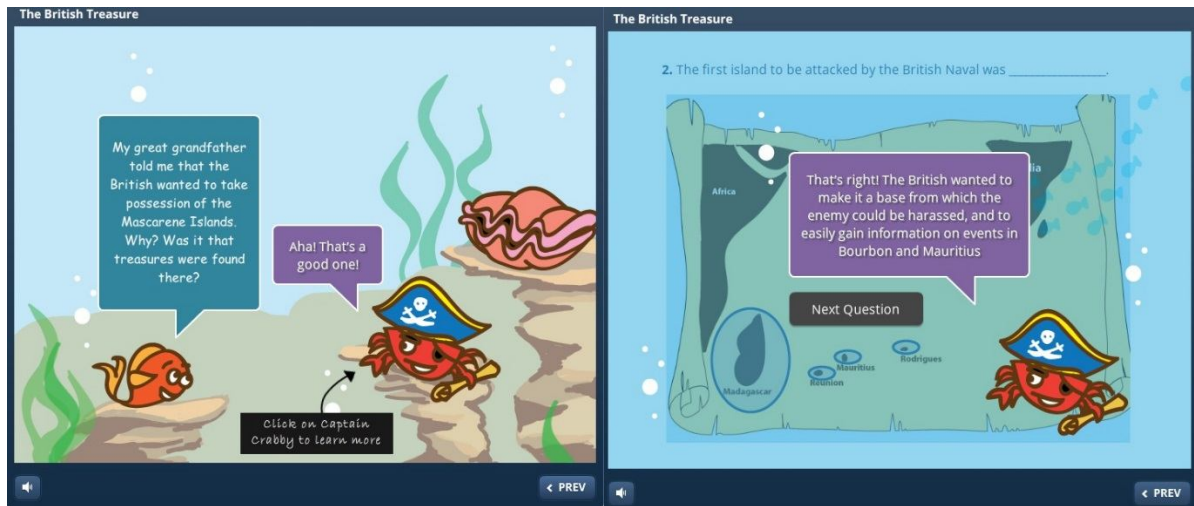
Figure 16. Sample screenshots from 'The British Treasure' quiz game (DMT3)

4.10.2 Second round of semi-structured interviews

The second round of interviews focused on the experiences of LS2 where the participants were involved in the creation of a DMT as part of their assessment of the module HIST1002Y, namely a 3-5 minutes History-related documentary video. Following discussions with the Mauritian History instructor, it was decided that integrating a video assignment could be an opportunity for the students to develop additional cross-curricular skills. Therefore students were given a choice of two topics on which they could base their video as follows:

> (i) What's in a name: Family name or family History
> (ii) What's in a name: Your street name

In fact, these two topics were already given to students at the start of the semester (prior to being introduced to the video assignment) so that they could research them and practice writing short essays of around 350 words. The module instructor proposed that the same topics could be further researched and presented differently. Therefore, the video assignment was in a way an extension of the research work carried out in the context of the short essays. Instructional guidelines on how to proceed with the video assignment were provided to the participants highlighting some specifications they were supposed to adhere to such as the duration (3-5 minutes), the production of a storyboard prior to the making of the video along with a consideration for narration (written and/or audio), including opening and closing

credits. To help them get started with the assignment, participants were provided with a basic video editing workshop (8 hours covered over 4 weeks). The video assignment was introduced to the students around mid-November 2015 and they were expected to complete and submit the assignment mid-January 2016.

The second round of interviews therefore took place after the submission of the assignment in February 2016 as it was important that students had undergone the experience of creating their own video, so that they can reflect and talk about same during the interview sessions.

4.10.3 Participants' written reflections

Although interviews are considered to be the most dominant way to collect data in phenomenographic studies (Bruce, 1994), other forms of written data have been used. Crawford, Gordon, Nicholas and Prosser (1994) based their phenomenographical analysis on responses from a questionnaire that participants completed. Other researchers used participants' written reflections from online learning diaries (Prinsloo, Slade & Galpin, 2011) or participants' written accounts on situations experienced during their practices, how they managed these and what resulted came out from their actions (Zwedberg & Naeslund, 2011). However, relying solely on written accounts may yield limited data as this strategy does not allow the interviewer to probe deeper into the interviewee responses (Watson, 2016).

Having piloted the interviews, I noted that some participants' responses were at times restricted and I felt that supplementing the interview talks with some form of written text by the participants themselves could help in having more in-depth data. With this in mind, I thought that it might be useful to have interviews as well as written reflective accounts, especially for experiences related to LS2, where participants would be given the chance to express in writing their reactions, attitudes, feelings and emotions regarding the different phases of the video assignment. Therefore to supplement the data collected through the second round of interviews, participants' written reflections (See Appendix D for a sample of one of the reflection sheets) before, during and after the video creation assignment were also considered. Participants were asked to complete three reflection sheets as part of the outcomes to be delivered in the contexts of the video assignment. To help them write their reflections, I included guiding questions in the different reflection sheets. Some YouTube videos on

reflective writing were also made accessible on the e-learning platform to help them. Along with the guiding questions, the participants were also given the chance to visually represent how they felt or what their state of mind was at each of the three different phases of the video making activity, by choosing from a series of emoticons.

Each of the different reflection sheets was to be completed at different stages of the video assignment and focused on the following:

- The first reflection sheet entitled '*Before the creation of the video*' was to be completed before the creation of the video where participants were expected to write about their thoughts and reactions towards having to create a video as part of the module assessment. Questions such as *How did you react when you learnt that you had to create a video? What did you think about having a video assignment as part of the assessment of this module?* were used to guide their reflections.

- The second reflection sheet entitled '*During the creation of the video*' was to be filled during the making of the video where participants were expected to think and reflect while going through the different phases of the making of the video. They were asked to share their emotions and feelings, the moments which were enjoyable and/or frustrating moments, any difficulties they were encountering and how they were addressing these.

- The third reflection sheet entitled '*After the creation of the video*' was to be completed only after the video was completed and was expected to provide insights about the participants' self-evaluation of their work along with their feelings and emotions about what they had achieved.

4.10.4 Focus group discussion

Another data set which I considered for this study was that obtained from a focus group discussion which was held nearing the end of the second semester (April 2016) after the participants had experienced both learning situations. This focus group discussion was intended to provide insight into the participants' collective views regarding their experiences

as consumers and producers of digital multimodal texts in the context of the module HIST1002Y and also to gather their learning expectations at higher education. A focus group discussion guide was prepared in advance (See Appendix E).

For the focus group, I initially planned to have a total of nine participants, three from each programme of studies but at the last minute one participant did not turn up and therefore only eight participants were present at the focus group discussion. The event was held in a small conference room located on the HEI campus as per the participants' convenience. To facilitate the interaction amongst participants and also for moderation purposes, three teams were formed as shown in Table 4.

Table 4
Participants regrouped as teams for focus group discussion

TEAMS	PARTICIPANT PSEUDONYMS & IDENTIFICATION CODES
JH- BA(Hons) Joint Humanities	Poonam - JH1 Mustafa - JH2 Romika - JH3
HS- BA(Hons) History and Sociology	Farida- HS1 Heshani- HS2 Khajifah- HS3
HPS- BA(Hons) History and Political Science	Alvin - HPS1 Urmila- HPS2

The focus group discussion was a collective event where I acted as the moderator and facilitated the discussion amongst the participants. Along with verbal discussions between the participants and the researcher/moderator, part of the focus group required the participants to engage into a hands-on activity which included writing down their reflections in the form of a tweet in response of the following prompt:-

> *Learning Mauritian History with digital multimodal texts: As a first year undergraduate, what does it mean to you?*

Participants were given approximately 15 minutes to write their individual tweets (Figure 17) on a sheet of paper. Once the individual tweets were completed, each team typed the individual tweets as a single document so that everyone from the team could have an overview of the responses.

116

Figure 17. Example of a hand written tweet by one participant during the focus group

Each group was then invited to discuss amongst themselves before verbally summarising what the combined tweets reflected. Once this was done, they were asked to voice their views to the whole group. This hands-on activity gave the participants the opportunity to think deeper about the prompt before voicing their views. Additionally, in order to gain a visual and more collective sense of the thoughts shared across the panel of participants, a visual representation called a word cloud (Figure 18) was generated from the combined tweets using an online software called Wordle (http://www.wordle.net/).
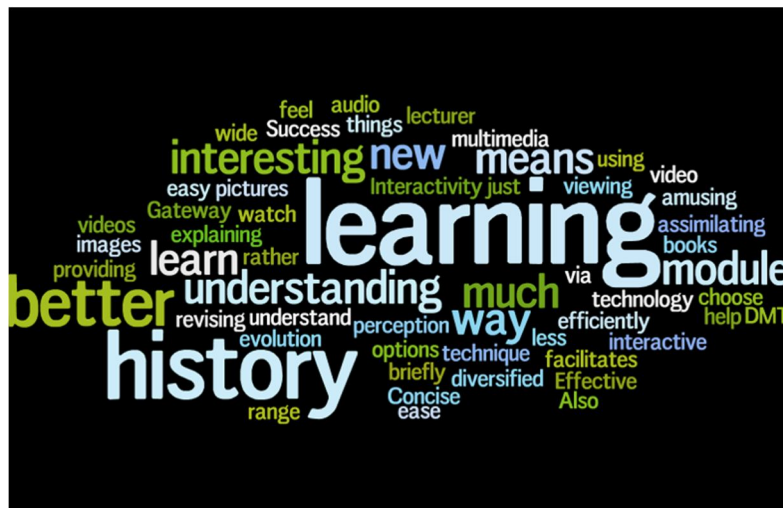
Figure 18. Word Cloud generated from combined tweets on a given prompt during the focus group session

By including strategies such as the tweet activity, my aim was to engage the participants in deeper thinking and facilitate discussion. The tweet activity was considered as an ice-breaker strategy to engage the participants into deeper thinking. As for the word cloud, it allowed me to visualise the data and to distinguish the salient points the participants raised about the

117

meaning they attached to learning Mauritian History with and through DMTs. Through these strategies, I was able to get some preliminary findings quickly which served as a helpful starting point for further detailed analysis addressed in Chapters 5 and 6.

4.11 Piloting of the interviews and the focus group

Kvale (2007) stresses the importance of the piloting phase in a study as it helps the researcher to identify limitations or weaknesses in the interview design and provides the opportunity for refinement prior to the final implementation. As such I chose to conduct the piloting of the two interview schedules as well as the focus group. The piloting phase which took place during the period June to August 2015 (interview LS1) and on 16 July 2015 (interview LS2) focused mainly on testing the interview questions with people belonging to the same category of the population identified for the study. It also tested two modalities for conducting the interviews (i) online via Skype and (ii) face to face. The piloting of the focus group was conducted on 15 April 2016. Since I had planned to introduce some hands-on reflective tasks such as the tweet and the written reflections during the focus group, I felt that it was important to pilot-test the focus group to see whether the strategies I intend to use for the final focus group discussion were appropriate and would elicit the required responses.

The pilot studies described above have allowed me to reflect on various methodological and logistical issues related to the interviewing process. I have been able to identify various loopholes which I have as far as possible considered when conducting the actual interview. I realised that the quality of the data collected depends on several factors namely the way questions are formulated, when to probe, the personality of the participant/interviewee that is his/her oral communication skills. Moreover, online interviewing was not considered since I encountered some connection issues and therefore decided that this method could be kept as a backup alternative in case of participant's unavailability to physically attend the face-to face interview. The piloting of the focus group discussion allowed me to review how to moderate the session and also the structure. For instance in the pilot, the word cloud was presented to the students but not much discussion occurred. Therefore for the final interview, this was not considered and the word cloud was mainly used as a visualisation tool.

4.12 Phenomenographic data analysis

The data analysis of this study followed the phenomenographic process as proposed by Marton and Booth (1997). Phenomenographic data analysis is inductive in the sense that it does not base its analysis on "predetermined classifications" (Bowden & Walsh, 2000, p. 20) as in traditional content analysis. Instead the main aim of phenomenographic data analysis is to discover categories of description which generally emerge from the participant' accounts of their experiences with respect to different aspects of a phenomenon. The iterative and comparative nature of phenomenographic data analysis makes the process a tedious and time-consuming one. The reading and re-reading, sorting and re-sorting of data allow the researcher/analyst to "be immersed in the data to better order and identify categories of description" (Penn-Edwards, 2010, p. 253). The set of categories of description that emerge from the data analysis is then discussed in light of their dimensions of variation and structures of awareness. The findings of the data analysis are reported generally but not always in a graphical representation called an outcome space which represent the discovered categories often in a hierarchical manner. The explanation of the different ways a phenomenon is experienced by a group of individuals and the relationships between the categories of description is done based on the outcome space.

The phenomenographic approach to data analysis adopts a descriptive framework based on meanings and structure of conceptions as expressed by the participants. It is an approach which consists of a process of discovery and construction. In phenomenography, the unit of analysis is a conception. Research following the phenomenographic approach relates the term conception to the ways people experience specific aspects of their reality. It is from the different conceptions of the phenomenon expressed by participants that categories of descriptions are generated. According to Marton and Pong (2005), a conception consists of "two intertwined aspects: the referential which denotes the global meaning of the object conceptualised; and the structural aspect, which shows the specific combination of features that have been discerned and focussed on" by the participant (p. 335). Within this framework, the act of experiencing as explained by Marton and Booth (1997) consists of referential and structural aspects.

4.12.1 Variations in the process of analysing data

The whole process from the reading of the transcripts to the interpretation of the final outcome space involves analytical steps that seem to vary across studies. While reading about data analysis in phenomenographic studies, I noted variations in the approaches used (Forster, 2013; Yates et al., 2012a) in terms of the stages of data analysis as well as in the amount of data used from the transcripts (Watson, 2016) for the purpose of analysis. Forster (2013) classified these variations into two broad approaches to phenomenographic analysis namely the Marton's method (Marton, 1986; Marton & Booth 1997) and the Åkerlind method (Åkerlind, 2005).

While some researchers (Åkerlind, 2005; Bowden, 2000) treat the transcript as a whole or large portions of the whole transcript (Bowden, 2005; Goh, 2013; Prosser, 2000), others consider extracts of short quotations/utterances which have some specific meanings (Marton & Booth, 1997).

In the Marton's method, the process starts by extracting quotations or utterances from the transcripts which are combined and assigned to what Åkerlind (2012) terms as a "decontextualised 'pool of meaning'" (p. 121). The extracted segment(s) are categorised as per their similarities and differences. The Åkerlind data analysis method is more transcript-centred whereby the whole transcript is considered as unit of analysis. Where the whole transcript or certain parts of the transcript is considered, the context of the transcript is maintained. Individual transcripts and the emergent categories are treated as a set and not as individual transcripts each with assigned categories of description.

As mentioned earlier in this section, there are also variations in the number of stages involved in doing a phenomenographic data analysis. Yates et al. (2012a) reports that stages vary from four to seven as summarised in Table 5.

Table 5

A summary of stages in phenomenographic data analysis as elaborated in Yates et al.
(2012a)

Stages/phases of data analysis	Researchers
Four stages	Marton, Carlsson and Halász (1992)
Five stages	Sandberg (1994)
Six stages	Säljö (1997); Dahlgren and Fallsberg (1991)
Seven stages	Imafuku, Saiki, kawakami and Suzuki (2015); Barnard et al. (1999) ; Ornek (2008)

The stages are not sequential in most cases as the search for categories is an iterative process requiring several readings and re-readings of the transcripts, looking for variations in the meanings.

Even if the data analysis process varies largely amongst researchers, Åkerlind (2012) suggests that there exists some common principles within the practice of conducting a phenomenographic data analysis. Yates et al. (2012a, p. 104) explain that when carrying out this type of data analysis, the researcher should:

- put aside any pre-determined views and avoid rushing to conclusions about categories of description;
- lay emphasis on collective experience instead of assigning each individual transcript to a specific category of description;
- search for "meaning or variation in meanings across interview transcripts, and the structural relationships between these meanings"

The process of data analysis as presented by S. Booth (1997) combines both the Marton's and the Åkerlind methods:

It consists of studying the interview transcripts both individually and alongside one another, studying sets of abstracts both in and out of its original contexts, seeking distinct similarities and differences. The researcher immerses himself or herself in the material, trying to see the total meaning in what the research subjects said and did, resolving apparent contradictions, knitting together as

whole a picture of the meaning of the phenomenon, as possible, not only for the individual subjects but also for the group. (p. 138)

In the current study, a combination of the Marton's and the Åkerlind's method similar to M. Smith's (2010) and Watson's (2016) study was preferred. I based my decision on the assumption that the participants' involvement with different DMTs as users and creators in two different situations respectively may vary and as a result they may likely have more than one way of experiencing the use of DMTs and therefore the meanings they assign to their experiences with different DMTs may also fluctuate during the course of an interview, as argued by proponents of the Marton's approach. Since there may be statements during the interview that may not be directly relevant to the key questions, it is advanced in Svennson's and Theman's research report published in 1983 entitled *The relation between categories of description and an interview protocol in a case of phenomenographic research* (Åkerlind, 2012, p. 121) that being selective about those utterances that illustrate meanings related to the phenomemon in question may assist in rendering the data more manageable.

4.12.2 Data analysis process

4.12.2.1 Transcribing phase

Data analysis in phenomenography is based on verbatim transcripts of oral interaction with the participants. Sin (2010) defines transcription as "the interface between oral and written data" (p. 314). Phenomenographic analysis does not focus on "linguistic elements as a methodological approach such as discourse analysis, it is not necessary to transcribe every tonal inflection or pause in speech" (Collier-Reed & Ingerman, 2013, p. 251). It is crucial that the transcript accurately captures the spoken words of the participants. Through the process of transcribing, data is transformed. Sin (2010) suggests that verbatim transcriptions are appropriate for phenomenographic analysis since the aim is to derive the conceptual meanings from the accounts of the interviewees. Since the aim of this study is to understand the conceptual meanings that participants have about their usage of DMTs as part of their learning within the context of the HIST1002Y module, the use of verbatim transcripts therefore seemed appropriate. However, some concerns regarding the use of verbatim transcription have been raised by some researchers. Kvale (1996) notes that the process of transcribing interviews

from oral language to written text runs the risk of changing meanings which are dependent on context and which is lost during transcription. Another concern brought forward by Barnacle (2005) is that there are some aspects of experience that may not be expressed through transcription and are ignored. Acknowledging the limitations of the transcription process and to avoid missing important aspects of the interview context, I made short reflection notes (Sin, 2010) following the interviews focusing on misinterpretation of the transcripts, and also kept a blog. Unfortunately I managed to keep the blog only for the first round of interviews due to time constraints. For the focus group transcription, small summaries prepared by the assistant moderators kept me from losing touch with the interview context.

Transcripts to be used for the purpose of analysis are sometimes produced by a professional transcriber or by the researcher himself/herself. In this present study, I decided to transcribe the interview and focus group discussion as it allowed me to become familiar with the data. I chose to use the software F4 transkript (https://www.audiotranskription.de/english/f4) to transcribe the audio recorded data as it assisted the whole process of converting speech into written form. The software proved to be helpful as it allowed me to have control over the audio recorded file of the interview such as playing, pausing, slowing the pace which ease the transcribing process. Another feature of the software is that since both the audio recorded file and the typing area are located in a single interface, it avoided switching between an audio programme and a text programme. Once the text is written in the F4 software, it is possible to export the same as a word processed document. I therefore exported each transcribed interview to Microsoft Word and added details such as transcript label, date and venue of the interview and line numbers.

The transcription process was a long and tedious process however, it allowed me to immerse myself in the data. The transcription symbols I have used were partly adapted from those used in conversational analysis. For instance, while listening to the audio recordings, I noted every details such as pauses, emphasis and hesitations to retain the context of the interviews. However, since I am not doing a linguistic analysis in this study, I decided not to include some of the symbols such as pauses, overlapping speech and emphasis when using the verbatim quotes of the participants to support the data analysis and findings in Chapters 5 and 6.

Once the transcribing was completed, I sent the participants their respective transcripts for reviewing purposes. They were invited to verify the accuracy of the transcript's content, to check for any inaccuracies and provide clarifications. The transcripts were sent by email to the participants asking them to send back their feedback, comments and clarifications if any. The participants had to sign the copy of the transcript confirming whether the transcript was an accurate reflection of the interview they had with me or whether they wished to add any alterations or amendments. Allowing the participants to review their individual transcripts was helpful as it not only allowed participants to clarify certain parts of the transcripts but also gave them the opportunity to add to what they said, thus making their response more comprehensive. An extract of one transcript which was done following the interview related to (LS1) is provided in the Appendix F-1.

4.12.2.2 Becoming familiar with the data

I reviewed the recordings alongside the transcripts to ensure accuracy of the participants' spoken words. Detailed and repeated reading (several times) of the transcripts ensued which helped my becoming familiar with the material and make any corrections if need be.

I proceeded with an open coding of the transcripts which was done through a process of line by line reading of each individual interview transcripts. Though not common in phenomenographic studies, the line by line reading helped me in getting familiar with the data and also in identifying specific sentences and utterances which could be interpreted in relation to the phenomenon and to my research questions. This was done in F4 Analyse software since I was able to highlight the potential utterances and assign codes and memos to specific sections of the transcripts to clarify the idea/message being conveyed in the passage of text identified in the transcript (See Appendix F-2). The same strategy was used for coding the focus group discussion transcript. I also found this process of line by line reading useful at this initial stage in the analysis since I was able to generate a document which regrouped the list of codes, the identified statements and the memo which in turn helped me in moving to the next step in the analysis that is viewing the data from a collective perspective rather than from an individual perspective as recommended by the phenomenographic approach.

4.12.2.3 Moving from individual to collective view of the data

The next stage was to compile and condense the highlighted statements produced in the initial coding stage. This was done by grouping the significant utterances about specific aspects of the participants' experiences with DMTs based on their similarities and differences (See Appendix F-3). All the transcripts were given a label for ease of identification during this process. I compiled the grouping in a tabular format, focusing on the emerging themes to be able to move to the process of generating the meaning statements. Similar utterances having the same focus were regrouped along with the label of the transcripts from which they were extracted. This allowed me to keep the context of the selected quotes in mind while interpreting the meanings. The importance of referring back continually to transcripts to keep quotes in context has been highlighted by Bowden (2000). The latter argues that by considering extracts from the transcripts for analysis "runs the risk of complete decontextualisation from the original transcript" (Collier-Reed & Ingerman, 2013, p. 252).

Further examination of the compiled meaningful quotes and extracts of utterances along with repeated reading of the transcripts led to the emergence of a set of meaning statements (See Appendix F-4) which formed what Marton (1994, p. 4428) refers to as the "pool of meaning". Collier-Reed and Ingerman (2013) described the pool of meaning as being "essentially a collection of fragments from all the interviews that refer to an experience of the phenomenon in question and forms the starting point for further analysis." (p. 6). Taking out meaningful quotes that directly relate to the phenomenon from the individual transcripts and bringing them together causes a shift in the researcher's attention from individual meanings to collective meanings as expressed by the group of participants.

For example, one of the meaning statements that emerged from the data related to the DMTs as experienced in LS1 was "DMT such as the multimedia CDs is seen as added value for learning" was supported by a participant's comments such as :

> *". . . well, to read from what we have gained in class, what was explained, it was all okay, we have gathered our notes, we've read them all. But then with the CD along, we can read the notes that we have got in our copybooks and then euh have a look at the CD and combine both materials and I think we would be ready for us to take euh any exams or a test." (IntLS1:Farida_ 268)*

Similarly, other meaning statements demonstrating a possible relationship between the participant and the phenomenon were produced and placed in the pool of meaning. At that stage, there was no specific structure in the way the meaning statements were ordered (Herbert, 2014). Utterances considered to be meaningful from the written reflections and the focus group were also examined to highlight how the phenomenon appears to the participants.

The meaning statements derived from the interpretation of meaningful quotes from the written reflections and the focus group were merged with the meaning statements of the interview transcripts. Together the meaning statements were narrowed down to constitute the final categories of description. The process of arriving at the categories of description is a tedious and time consuming one and demands several iterations and a constant reference to the transcripts for accuracy.

4.12.2.4 Constituting the categories of description

The set of meaning statements which were generated in the previous phase was further analysed to form initial categories of description. Meaning statements were regrouped based on similarities and differences. For instance, the meaning statement given above, "DMT such as the multimedia CDs is seen as added value for learning" and another statement "DMTs are seen as learning support for assignment and revisions" were regrouped to form an initial category which I labelled as 'DMTs are seen as valuable learning support", which was later on refined and labelled as Category E 'DMTs are seen as effective and useful learning support'. The emerging statements for both learning situation were grouped in this manner to produce initial categories of description (See Appendix F-5). To help me with the process of grouping the statements, I allowed myself to be guided by questions as posed by Herbert, Vale, Bragg, Loong and Widjaja (2015) such as "*Can these meaning statements be grouped?*" and "*Are there examples of things that participants say that illustrate this?*" (p. 32). The initial categories were further condensed, refined and assigned to a suitable name. Through an interpretive and iterative process of re-visiting and re-examining the transcripts along with the meaning statements, re-arranging the grouping, I reached two sets of categories, one for each learning situation. The analysis of learning situation 1 (LS1) resulted in five categories of description (Category A-E) and analysis of learning situation 2 (LS2) resulted in six categories of description (Category 1-6).

126

The categories of description which are discussed in Chapters 5 and 6 are the qualitatively different ways the DMTs were experienced in LS1 and LS2. Each of the categories has a specific aspect which is being focused upon by the participants and can be described "in terms of a structure of awareness" (Cope, 2004. p. 13). In phenomenographic analysis, the researcher seeks to find out ways of experiencing a phenomemon and some researchers have used the structure of awareness as analytical framework. The structure of awareness (Marton & Booth, 1997) originates from the notion of consciousness which the American philosopher and phenomenologist, Aron Gurwitsch addresses in his book *Field of Consciousness* published in 1964. Arvidson (2015) notes that conciousness as understood by Gurtwitsch is composed of three areas: the theme (the focus of attention), the thematic field (elements that are co-present and relevant to the context) and the margin (elements that are co-present in the field that are not relevant to the theme). Similarly in discussing about the structure of awareness, Cope (2004) explains that when experiencing a phenomenon in the world at a certain point in time and in a specific context, it is expected that the individual will become aware of various aspects of the phenomenon simultaneously. This is referred to as the thematic field. There are also other aspects which are not directly related to the phenomenon which sit in the margin of the awareness. The theme of awareness is those aspects from the thematic field that are brought in one's focal awareness (Cope, 2004). The structure of awareness therefore clarifies the different elements that makes an experience and also the meanings that are assigned to the elements. Though the three levels of awareness were not distinctly highlighted upon when reporting the findings in Chapters 5 and 6, they were taken into consideration while addressing the referential and structural aspects of the participants' experiences of DMTs in both learning situations.

The phenomenographic analysis does not restrict itself to finding a set of categories of description and reporting these as outcomes of a study. A second level analysis is conducted to establish the structural relationship between these categories. This process leads to the construction of outcome space which is intended to portray an overall picture of the phenomenon under study. Further clarification on the outcome space element is provided at the beginning of Chapter 5.

4.13 Trustworthiness

Lincoln and Guba (1985) argue that the knowledge produced within an interpretive framework cannot be judged against standards of validity, reliability and objectivity as used in quantitative studies. Instead they argue that it is more appropriate to use the concept of trustworthiness when judging the quality of a qualitative investigation. They propose four criteria to judge the trustworthiness of a study namely (i) credibility which corresponds to internal validity as in quantitative research, (ii) transferability to refer to external validity (iii) dependability which corresponds to reliability and (iv) comfirmability to refer to the wider impact of the research. This is supported by Collier-Reed et al. (2009) who consider trustworthiness to be a pertinent way to establish the rigour of interpretive research. Even though the argument brought forward by Lincoln and Guba (1985) may seem dated, it still remains pertinent for judging qualitative research (Morse, Barrett, Mayan, Olson & Spiers, 2002).

In phenomenographic research, credibility is taken into consideration throughout the study and it is not established only by those who questions the study findings. It concerns the way the research study is designed from its inception, and focus of the research up to the conclusion. Collier-Reed, Ingerman and Berglund (2009) refer to three types of credibility namely content-related, methodological and communicative credibility. Content-related credibility is addressed when the researcher is able to demonstrate a good grasp of the topics related to the phenomenon of the study. With a professional background as a senior lecturer in Visual Communication and Educational Technologies for quite a long time, I can say that I have "a comprehensive grasp, or understanding, of topics related to the phenomenon under investigation" (Collier-Reed et al., 2009, p. 7). However, I acknowledge that as a researcher, I should not restrict my understanding of the topic under investigation and have an open understanding. Since I am trying to understand the different ways learning with DMTs is experienced by a group of people from their perspective, I tried as far as possible not to allow my assumptions about the topic of research to influence my interpretation of the data. Smith (2010) explains that though the act of bracketing is important to avoid researcher's bias to the findings, it is equally not possible for the researcher to completely set aside his/her preconceived ideas and assumptions:

It is understood that it is not possible for a researcher to disengage themselves from their own lifeworld as that is what makes it possible for them to interpret what is said by the participants; however they do need to bracket any preconceived ideas and assumptions and concentrate on the experiences of the participants. (Smith, 2010, p. 118)

As far as the credibility of the methods is concerned, this has been addressed by specifying clearly in this chapter how the sample was identified, the context in which the interview was held, the content and structure of the interviews and the focus group discussion. As specified by Säljö (1996), it is important that the researcher ensures a "shared experience of the phenomenon" to establish "a joint definition of what is being talked about' in the interview situation" (p. 23-24). The strategies I used to address credibility of the method used for this study include the following:

- Prior to the interviews and the focus group discussion, I informed the participants about the objectives of the research and clarified how the data will be used. This was achieved through an introductory session with them and also in written format in an information sheet handed over to them.

- At the start of the interview, I gave the participants an information sheet which explained the terms related to DMTs which were going to be used during the interview to ensure that there would be no confusion or misunderstanding of the interview questions. We had a brief discussion about the content of the information sheet to ensure that the topic and associated terminologies were clear to them, prior to the interview session.

Communicative credibility is understood as the ability of researchers to "argue persuasively for the particular interpretation that they have proposed" (Åkerlind, 2005, p.330). This type of credibility can be achieved through internal and external strategies. In the case of this study, as an external communicative credibility strategy, the Ph.D cohort seminar was an avenue to share and discuss the different phases of the study, including the findings and interpretations to get feedback from peers and supervisors. I also did an oral presentation based on preliminary and emerging findings from the focus group discussion during the UTLO

conference organised by the University of KwaZulu-Natal in September 2017. This was a good opportunity to discuss and also gain insights from other researchers. I also presented and discussed the findings with other colleague researchers and the HIST1002Y module instructor. Their comments and feedback were found to be helpful in consolidating my work.

Internal communicative credibility is directed to the participants of the study. This was addressed during the interviews and the focus group discussion. Being the sole researcher, I was personally involved in interviewing the participants. It was important to have an ongoing dialogue with the participants (Sandberg, 2000). At the start of the interview, I made sure that the participants were fully aware that they were not being examined/evaluated and that the interview was going to be like a two-way conversation with no right or wrong answers. I clarified the objectives of the interview and the focus group discussion to avoid any misinterpretation of the conversation taking place between the participants and myself. In phenomenographic analysis, there is a search for conceptual meanings of the interviewee's expressions and therefore it is important to clarify and confirm the interviewees' conceptual meanings of their expressions during the process of interviewing (Sin, 2010). The intentional-expressive approach as proposed by Anderberg (2000) is a strategy which can support this since it consists in asking questions and using follow-up questions to "encourage interviewees to reflect on the conceptual meanings of the terms or phrases in the expressions that they have used" (Sin, 2010, p. 313). A similar approach is used by Smith (2010) who explained how she repeated the participants' statements to allow them "to express their reflected thoughts" as well as to confirm what she had understood (p. 133). Similarly, at some instances during the interview, I felt it was important to reiterate some statements that the participant mentioned and confirm with them whether my understanding of what they meant was correct or not. Furthermore, given the unstructured nature of the phenomenographic interview, and similar to Smith (2010) I used probing to "stimulate participants to elaborate and clarify their descriptions..." (p. 133).

Dependability, which is preferred over the more positivist term reliability in qualitative studies (Collier-Reed et al., 2009) is about ensuring that data interpretation is consistent and that the results are replicable. However from the phenomenographic perspective, the issue of reliability is viewed differently as the assumptions underlying phenomenography research is

that there is one world which is experienced in different ways by individuals. Therefore, it is not expected that given the same data, another researcher will end up with the same categories of description and outcome space. As noted by Säljö (1988), the outcome space in a phenomenographic study results from a discovery process which consists of several iterations of transcript reading and an analysis validated with the data. It is not necessary that the same outcome space is produced if applied to another study context, within a similar context or by another researcher. Phenomenographic studies are at times conducted by either one or more than one researcher. As a form reliability check, (Åkerlind, 2005) proposes *coder reliability* and *dialogic reliability*. Collier-Reed et al. (2009) refer to the same types of checks but instead termed them differently. They replaced the construct of reliability by dependability and therefore used the terms *coder dependability check* and *dialogic dependability check* (p. 10). Coder reliability check is "where two researchers independently code all or a sample of interview transcripts and compare categorizations" and to achieve dialogic reliability check, she lays emphasis on dialogue between researchers. She describes this type of check as a process "where agreement between researchers is reached through discussion and mutual critique of the data and of each researcher's interpretive hypotheses" (p. 331). There are diverse views regarding the coder reliability or dependability check in phenomenographic studies. Some researchers have questioned this strategy (Marton, 1986; Sandberg, 1997; Säljö, 1988). It is argued by Sandberg (1997) that co-judging as a coder dependability check may not be appropriate since the co-judge may identify more than one conception in a participants' statement and face the difficulty in knowing in which category these should be fitted. The coder may ignore the fact that the aspects of the statement may have been considered to constitute the categories. Therefore according to Sandberg (1997), this 'integrated interpretation can be difficult for co-judges to see, since they do not have the same familiarity with the data as the original researcher' (p. 206). I have favoured the dialogic dependability check for its ability to enrich, judge the accuracy of the findings of a study to allow for new insights regarding the constitution of the categories of description, especially when the research is carried out by a single researcher (Bowden, 2000).

In the case of my study, since I was the sole researcher, two colleague researchers who were not familiar with phenomenography but who have experience in qualitative studies were

assigned samples of transcripts to read through so as to identify significant utterances and possible themes. We met to discuss and compare what we had found. Following that meeting, I produced a preliminary list of meaning statements and possible categories and which were further discussed, through an iterative process. The aim was to create a refined list of categories of description. Where there was disagreement, we went back into the transcripts as proposed by Bowden (2000), until we agreed on an appropriate set of categories of description for both learning situations of the study. So in this study, to some extent the use of coder dependability was further validated through dialogic dependability.

Transferability is another criteria which relates to the external validity and the generalisability of the research findings which are terms associated with quantitative research. Generalisability is according to Sin (2010) "the extent in which findings can be used or applied in other contexts" (p. 309) while both generalisability and external validity are constructs concerned with the application of the research findings beyond the study setting. From an application perspective, the findings from this pedagogical intervention study may potentially be effective in other contexts where the use of DMTs to support teaching and learning are being envisaged.

Confirmability is closely linked to dependability whereby it concerns acknowledging the strategies used to ensure that the findings are not founded on the researcher biases. In the present study, confirmability was established by being as clear as possible about the research process, detailing the phases explicitly. Illustrative excerpts taken from the transcripts act as a link between the data and the interpretations of the findings, which help the reader understand the context.

4.14 Ethical considerations

Research ethics are standards that govern the conduct of a research enquiry (Rallis & Rossman, 2012). It is crucial for researchers to consider ethical issues at all stages in a study regardless of the type of research. When considering ethical issues in a study, the interests and rights of the participants are at the forefront. The researcher has a moral responsibility towards those participating in a study and adhering to ethical guidelines contributes to the trustworthiness and the credibility of a study. Ethical challenges faced by the researchers working within the qualitative paradigm are more complex than within quantitative studies

(Banister, 2007). Qualitative researchers are often confronted by ethical dilemmas which may arise during the course of a study. For instance during an interview, a participant may become distressed as a result of talking about his/her experiences of a sad event in his/her life. In such a situation, from an ethical perspective, the qualitative researcher has to strike the right balance between the research needs, goals and the participant's wellbeing.

This current study involved personal, flexible and perhaps intrusive approaches to collecting data. It involved ethical relationships between myself and my participants. Several measures were taken to ensure research ethics were adhered to. Prior to starting the field work, ethical clearance was sought from the Humanities and Social Sciences Research Ethics Committee of the University of KwaZulu-Natal and was granted on 18 November 2014 bearing the reference number *HSS/1508/014D* (See page iv). Since the participants of the study were from the Faculty of Social Sciences and Humanities of the University of Mauritius, permission was sought from the Vice-Chancellor, the Dean of Faculty and the module instructor, which was granted. (See Appendix G).

Furthermore, a study involving contact and interaction with human participants requires that participants' prior consent is sought before the data collection phase. As "an ethical and legal requirement for research involving human participants" (Nijhawan et al., 2013, p. 134), informed consent from participants was sought and obtained on three different occasions during this study (i) at the time of identifying potential participants when they were asked to complete a student background questionnaire (ii) before the semi-structured interviews and (iii) before the focus group discussion. In the first meeting I had with the whole cohort of students enrolled on the module Mauritian History, I briefed them about the purpose of my research and sought their informed consent to complete a student background profile questionnaire (See Appendix A), which was as mentioned earlier used to sample potential participants for my study. Once I had selected my potential participants, I again sought their informed consent prior to conducting the semi-structured interviews. The participants read and signed a written agreement which provided them with information such as the purpose of the study, the procedures of data collection, the potential risks and benefits of participating and what their rights as voluntary participants consisted of. So for instance the participants were well-informed about their rights to withdraw at any time without any negative

consequences. They could also choose how they wanted the information they were sharing to be collected. The informed consent also provided information about how participants' anonymity and confidentiality were addressed (See Appendix B). The same procedure of obtaining informed consent was undertaken with participants who were selected to form part of the focus group discussion.

Research ethics also implied ensuring anonymity and confidentiality of participants and stakeholders involved in this study. The concepts of anonymity and confidentiality are said to be related but are distinct in their meanings (Kaiser, 2009; King & Horrocks, 2010; Wiles, Crow, Heath & Charles, 2008). Whilst confidentiality by definition is related to the issue of keeping all information shared by the participants as secret except for the primary researcher/s, anonymity is concerned with keeping the identities of the participants secret or unknown to others. Saunders, Kitzinger and Kitzinger (2015) argue that in qualitative research it is difficult to guarantee complete anonymity and confidentiality. Claiming that information shared will be confidential means that the researcher decides not to report the results/outcome of a study. Similarly, the same authors claim that "true anonymity is by definition never achievable" (p. 617) in a context where a researcher knows and meets the participants during interviews. However, in my study, even though the data was not collected in an anonymous way, I ensured the protection of my research participants' identities by using pseudonyms. Prior to the discussions with the participants, I ensured that I informed them about how confidentiality was being maintained through the anonymisation of data. This was also a way for me to build trust between myself and my participants. Furthermore, any other third parties identities mentioned during the interviews or names of the research location were as far as possible not revealed in the thesis. For instance when referring to the module instructor, or the assistant moderators for the focus group, or when participants mentioned names of people in their interview, I opted to use pseudonyms instead of their real names.

No one other than myself and my supervisors had access to the data. However, I gave my participants access to their respective transcripts and summaries to allow them to comment on the accuracy of my data and interpretations. I kept the data securely in my possession throughout the study. As per ethical guidelines, I intend to keep the data collected during the study secured for five years after which same will be destroyed if no longer required.

4.15 Organising the data

What follows is the data analysis and findings of the study which I have decided to present as two chapters, each organised in two sections respectively as explained below and illustrated diagrammatically in Figure 19.
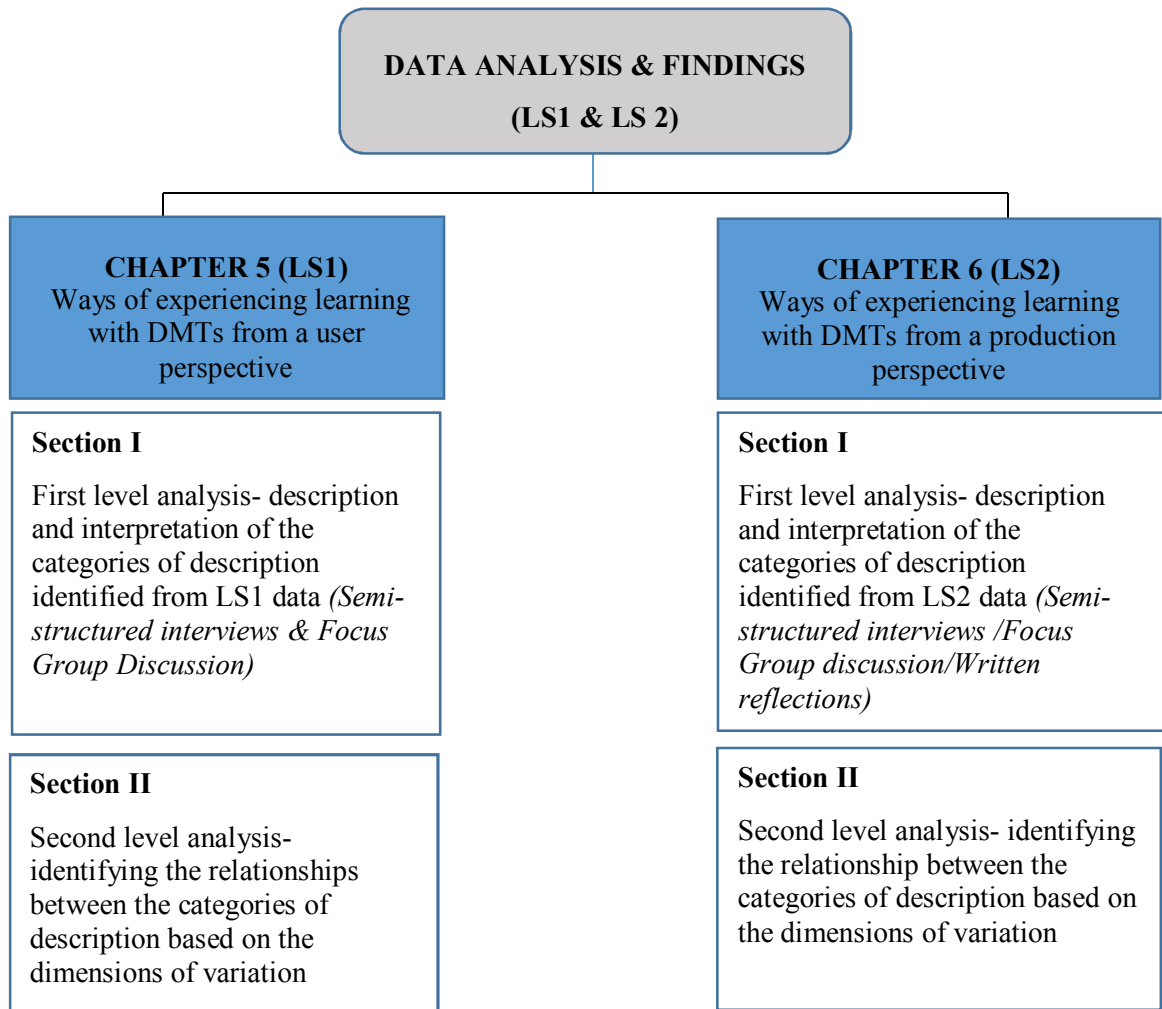
Figure 19: Structure of the data analysis and findings chapters

Chapter 5: Ways of experiencing learning with DMTs from a user perspective. Section I: This section provides the description and interpretation of the categories of description that emerged from the data related to learning situation (LS1-participants as users/consumers of DMTs).

Section II: It also presents another level of analysis which involves identifying the relationship between the categories of description based on the dimensions of variations.

Chapter 6: Ways of experiencing learning with DMTs from a production perspective. Section I: This section focusses on the description and interpretation of the categories of description that emerged from the data related to the learning situation (LS2- participants as producers of a specific DMT).

Section II: The second level of analysis is then addressed to present the structural relationships between the categories of description based on the dimensions of variation

Each respective chapter concludes with a summary of the qualitative differences in the ways each of the learning situations was experienced by the participants and how these are logically structured in an outcome space.

4.16 Summary of chapter

This chapter described the rationale behind the research design of the study and the rationale behind choosing phenomenography as methodology to respond to the research questions set for this study. Phenomenography which I introduced from a theoretical perspective in Chapter 3, has been presented from a methodological standpoint in this chapter. It also described the data collection tools and explained the analysis process and measures undertaken to ensure trustworthiness of the study. It concluded with the ethical considerations that were given to the study.

CHAPTER 5: ANALYSIS AND FINDINGS OF LEARNING SITUATION 1 (LS1)

5.1 Orientation to the chapter

The previous chapter focused on the research design of the study and laid out the data collection methods and the data analysis process. Issues about trustworthiness and ethics were also addressed. This chapter presents the findings of the phenomenographic analysis of the data collected from the participants regarding their experiences of learning with digital multimodal texts under two different learning situations in the context of the HIST1002Y module. The first learning situation (LS1) involved the participants as consumers of digital multimodal texts incorporated in the module as learning resources and the second learning situation (LS2) involved the participants as producers of one specific type of DMT, namely a documentary style video as part of the assessment of the module HIST1002Y.

5.2 Referential and structural aspects

The description and interpretation of the categories have been presented taking into account the referential and structural aspects of participants' experiences of the two different learning situations. According to Marton and Booth's (1997) 'experience of learning model', there are two aspects that constitute the act of experiencing something namely the referential and structural aspects which consider that " structure and meaning are intertwined as one and are only separated analytically"(p. 87). Trigwell (2000) goes in the same sense and states that 'the structural and referential are also two internally related components of an experience' (p. 74).

The referential aspect also referred to as the 'what-aspect' is the overall meaning that is "the global or overall meaning attributed to a phenomenon based on the aspects discerned and focused on by the subject" (Zygmont, 2014, p. 127). The structural aspect also referred as the 'how-aspect' lays emphasis on the act of experiencing and the intention behind the act. Both the 'what' and the 'how' are the basic analytical parts of an experience. Larsson and Holmström (2007) explain that to study the 'what' and 'how' is about asking the following question: "When the informants talk about this phenomenon: what do they talk about and how do they talk about it?" (p. 57)

In the context of this study, the 'what' and the 'how' framework has been used where the 'what' aspects of the experience focused on the overall meaning attached to learning experiences related to each of the learning situations and the 'how' aspects which looked at the participants' act of learning and their learning intent. In other words, how they talked about their engagement and interaction with different digital multimodal texts in the respective learning situations and the different aspects of the digital multimodal texts which were in focus while describing their experience of learning. Variation in the experiences was represented through logically related and hierarchical categories of description.

5.3 Categories of description and conceptions

The outcomes of a phenomenographic research are generally presented as a set of the categories of description and an outcome space. It is important before moving on with the presentation of the findings of the study to clarify the distinction and relationship between two key terms that are used when presenting the results of phenomenographic studies namely *conceptions* and *categories of description*.

Conceptions are addressed using a variety of terms (Marton & Booth, 1997; Marton & Pong, 2005). According to Marton (1994), phenomenographic research aims to produce a finite set of categories that are logically ordered and interrelated. He considers that irrespective of the phenomenon or situation encountered, "we can identify a limited number of qualitatively different and logically interrelated ways in which the phenomenon or the situation is experienced or understood." (p. 4427). It is on the basis of perceived similarities and also of perceived differences in meanings embedded in the participants' utterances that categories of description are formed (Marton, 1986). In phenomenographic studies, the categories of description emerge from the pooled meaning statements that are derived from the data sets and describe the different ways the phenomenon can be understood.

A 'conception' is a term that is commonly used in phenomenographic research and is closely linked to categories of description. Marton and Pong (2005) equate the term to 'different ways of understandings', to 'conceptions' (p. 335) and explain that the reason that other synonyms such as "*'ways of experiencing', 'ways of seeing', 'ways of apprehending' and 'ways of understanding'* (p. 336) have been used is because an individual has the ability to discern and

focus on different aspects of the world and derive meanings from them. The categories of description which are identified as a result of the data analysis describe the conceptions that the participant may have of a phenomenon. Phenomenography acknowledges that an individual may have multiple conceptions about a specific phenomenon and that these conceptions are not stable as they may change and develop over time and depending on the contexts in which the phenomenon is being encountered (Marton & Booth, 1997; Paakkari, Tynjälä, Torppa, Villberg, & Kannas, 2015).

To explain the relationship between conceptions and categories of description, Johansson, Marton and Svensson (1985) highlight that:

> Conceptions, which make up our unit of analysis, refer to whole qualities of human-world relations. They also refer to the qualitatively different ways in which some phenomenon or some aspect of reality is understood. When trying to characterise these conceptions, we use some categories of description. The categories are, however, not identical with conceptions – rather they are used to denote them. (p. 249)

Furthermore the focus on the individual and collective level of ways of experiencing is used to distinguish between conceptions and categories of description (Sandberg, 1997). The same argument is advanced by Marton and Booth (1997). For the latter, conceptions arise from the individual's awareness of experiencing something in a certain way while categories of description represent conception at a collective level. The categories of description, therefore, do not represent one individual's conception but instead present the whole range of conceptions that the group of participants may have of the phenomenon under investigation.

5.4 Outcome space

While the first level of analysis leads to the development of categories of description, a second level of analysis attempts to bring out the structural relationships between the categories of description leading to the production of what is referred to as an outcome space. Dringenberg,Mendoza-Garcia, Tafur, Fila and Hsu (2015) acknowledge the purpose of the outcome space as a valuable tool for educators as it helps in "promoting a more comprehensive design of learning activities, ensuring alignment between content, assessment and pedagogy, and other educational activities" (p. 8). According to Åkerlind (2012), the outcome space

displays hierarchically the set of categories of description which "provides a way of looking at collective human experience of phenomena holistically despite the fact that such phenomena may be perceived differently by different people and under different circumstances" (p. 116)

The phenomenographic analysis of the data collected in respect of the two above mentioned learning situations led to two groups of categories of description. Each group was respectively further analysed to reveal the internal relationships between the categories. This second stage of the analysis in phenomenographic studies produces an outcome space which consists of "a finite set of categories of description which with their relationships, explain the different ways individuals experience phenomena in the world" (Smith, 2010, p. 141). Since this study seeks to gain an insight into participants' experiences of learning with DMTs under two learning situations, two separate outcome spaces were generated, each one presenting the collective ways each situation was experienced by the participants. My intention in this study was not to make a comparison between the two groups of categories but to gain a complete picture which eventually may help to better understand how learners experience their learning contexts when they are called upon to be simply consumers /users of ready-made DMTs and when they become themselves producers or creators of DMTs, which for the purpose of the study was limited to the production of a History-related documentary video.

5.5 Presenting ways of experiencing as categories of description

As is common in phenomenographic studies, quotations or excerpts from the participants' transcripts are used to illustrate the categories of description as well as to exemplify meanings. These categories are labelled to reflect the core meaning of each category. The use of verbatim quotations is a standard practice amongst researchers who work within the qualitative tradition. Several arguments have been put forward to justify this practice. Corden and Sainsbury (2006) studied qualitative researchers' approaches to the use of verbatim quotations in their published works and explained that such quotations were often used " as a matter of enquiry; as evidence; as explanation; as illustration; to deepen understanding; to give participants a voice, and to enhance readability" (p. 11). In this study the verbatim quotations were mainly used to illustrate and to elucidate the meanings of the reported conceptions within the categories (Sin, 2010).

In this study the illustrative quotes and extracts were taken from different data sets which included two interview transcripts each addressing the respective learning situations (LS1 & LS2), the participants' reflective accounts which occurred before, during and after the video assignment of learning situation 2 as well as a focus group discussion. Specific strategies were used to help identify the quotes/extracts from the data sets. For instance the label *Alvin: IntLS1_229* indicates the participant pseudonym (Alvin), the interview label (IntLS1) where LS1 stands for learning situation 1 and LS2 for learning situation 2, and the line number (229) where the quote appeared in the interview transcript. Written reflection accounts are indicated by the code WR_B (Written Reflections before the video assignment), WR_D (Written Reflections during the video assignment) and finally WR_A (Written Reflections after the video assignment). Extracts of quotes taken from the focus group discussion transcript are indicated by the letter FG. During the focus group discussion, I made use of identifiers for each participant to facilitate note taking by the moderators. But for consistency in presenting the quotes, I made use of participants' pseudonyms and therefore labelling a quote extract as *Heshani: FGD_403* where Heshani is the name, FG stands for focus group discussion and 403 is the line number on the transcript.

Additionally in some extracts where the question asked by the interviewer is included and to allow the participants' voice to stand out better, I opted to display the text in grey colour. In some instances, the quotations have been condensed so as to focus mainly on parts that are illustrative of the category. Similar to Zygmont (2014), I used an ellipsis (. . .) to indicate that I have purposely used only part of a participant's response. I considered this strategy to be relevant to provide only that part of the quote which is pertinent as evidence to support the category being described. It would also avoid the reader from becoming distracted and hence pay attention to significant words of the participants in relation to his/her description.

Moreover, since the study consists of two sets/groups of categories of description and for the purpose of clarity, I opted to use letters (A-E) for identifying the categories emerging from LS1 which is discussed in this chapter and numbers (1-6) for those emerging from LS2 which are discussed in the next chapter.

The data analysis in relation to the ways of experiencing the two specific learning situations in the study led to two separate outcome spaces. Each section starts with the presentation of

the outcome space which is then followed by a detailed description of the different categories of description. The qualitatively different ways of experiencing DMTs as a consumer (LS1) and as a producer (LS2) within the context of a Mauritian History module are presented in terms of the referential and structural aspects of each category. The outcome spaces are further explained based on the structural relationships between the categories of description.

5.6 Section I: Ways of experiencing learning with DMTs from a consumption perspective

As already highlighted in the methodology chapter, the HIST1002Y module included a range of DMTs which were made accessible to the whole class during the first semester of the academic year. These DMTs consisted of both linear and non-linear types of texts. They ranged from PowerPoints presentations (DMT1) used by the instructor as instructional aids during the face to face lectures which students could download from the e-learning platform to documentary films (DMT2) which were screened in class, to hypermedia and interactive multimedia enhanced resources accessible on CD and via the platform (DMT3). Basic information about the different DMTs concerned in this study is given in the Chapters 1 and 4.

This section addresses participants' perspectives as consumers of the above-mentioned DMTs. The data set relevant to this section consisted of the semi-structured interview conducted following participants' exposure to the DMTs at the end of the first semester and the focus group discussion carried out towards the end of the second semester. In the following paragraphs, the different conceptions grouped under categories of description provide a picture of what it meant for participants to learn about some facets of Mauritian History using different types of digital multimodal texts. As the module had various types of DMTs, the semi-structured interview questions were purposefully formulated to allow the participants to speak about their likes, dislikes and preferences regarding the DMTs they were exposed to and how they related to these as part of their learning experience of the Mauritian History module. The analysis of the interviews and the focus group discussion was carried out holistically with an objective to bring in the forefront the critical aspects of the learning events that participants evoke in their discussions which at times were linked to the digital multimodal approach used in presenting the curricular content, to the attributes of specific

DMTs, to the perceived opportunities and challenges associated to learning with and from DMTs.

When asked about their preferences regarding the DMTs, there were a few participants who voiced one specific preferred type of DMT whilst some had more than one preference. Participants were not only invited to share their experiences of using their preferred type of DMTs but were also asked about other types they came across during the module since I felt that this would allow me to get a richer picture of their overall multimedia and multimodal learning experiences. Therefore, I decided to additionally seek their opinions and reactions towards other DMTs not specifically highlighted by them. There were times where participants on their own compared one DMT to another while describing their experiences. So through probing, I gained more insights about participants' experiences of using different DMTs.

Five categories of description emerged from the analysis of the participants' accounts of their experience of learning situation 1(LS1) where they were consumers of DMTs included as learning resources within the context of the HIST1002Y module. The five categories of description are summarised in Table 6:

Table 6

Summary of categories of description for learning situation 1 (LS1)

Category of Description (CoD)	Learning with DMTs from a consumption perspective seen as/is about
A	Authentic sources of information
B	A novelty in the learning approach
C	An opportunity to break learning monotony
D	An emotionally engaging experience
E	Effective and useful learning support

5.6.1 Category A: Authentic sources of information

History teaching and learning rely on both primary and secondary sources of evidence to develop students' historical thinking. Within the context of History education, primary sources refer to original sources of information such as oral interviews, documents, written records, archives while secondary sources are works of synthesis and interpretations based on primary evidences and which are created by other authors. Textbooks are one example but with the advent of technologies, it is even possible for the History teacher to draw on a variety of digitally produced resources such as websites, interactive multimedia CDs, videos, History games and quizzes to allow students to make sense of the past.

Focus on documentary films (DMT2)

In this category, the participants focused on describing the potential of the different DMTs as valid sources of information. The critical aspects reflected upon were linked to the relevance, reliability and credibility of the information or the message that was conveyed through the DMTs. The documentary films (DMT2) which were introduced in Chapter 1 and detailed in Chapter 4 were considered as valuable and trustworthy sources of information. Both the films were highly regarded by participants as rich sources of information.

The potential of documentary films as being authentic and reliable sources of information for History learning was acknowledged mainly during the interviews. In describing their experience of viewing the documentary films participants raised aspects related to the reliability and credibility of the information being conveyed through such DMTs. The multimodal nature of the documentary film reinforced the notion of credibility and reliability as such films are rendered more vivid and less abstract for they rely upon interviews with experts or witnesses, people who have stories to tell about the past, still and moving images, audio (speech and music), gestures, and written texts. Alvin for instance considered that through the documentary films, he was able to gain a true picture of historical events while listening to the oral interviews present in the films. His preference for the documentary films viewed in the classroom is highlighted in the following quote:

"If I had to choose a preferred one I think the-the movies were were better things the movies that we've watched they-they totally showed about the interviews which they made to the people and we have the people own words who were-who had been interviewed."(Alvin: IntLS1_229)

In Alvin's view, the information conveyed through oral interviews contributed to the credibility of the source. The information was not merely represented through words as in the lecture notes or the textbooks. Participants focus was on what was seen (visual) and heard (oral). Alvin and others who expressed an interest for the documentary films seemed to attach particular importance to the 'oral History' which they considered was reliable information sources since these came from people who possessed knowledge of the past.

Watching the documentary films enabled participants such as Urmila and Tesha to witness indirectly through the narratives of others how things occurred in the past, making the events more real in their eyes and mind. Urmila was able to imagine herself as forming part of the narratives. The illusion of truth communicated by the documentary film emphasises the conception of credibility of the source. This is reflected in the following quote:-

"it's the fact that may-they interviewed the people in the movie and they were giving their opinion about whatever they were thinking of the history and as well as their experience so you-you can put yourself in ther-in their situation and you can understand the way the way slavery came in in our island and how the how impacted it was for them. . . ." (Urmila: IntLS1_275)

Similarly Romika during her interview session described how she was impressed by the stories and the way these were portrayed in the documentary film on Indian immigrants. She described that she felt connected to her roots as it made her think and learn about the hardships her ancestors must have gone through:

"[Interviewer] So when you are watching the film how do you actually relate to it?_I think about my ancestors, how they went through all of this and how they were mistreated, where they slept, how they ate, what was their health conditions, their physical conditions." (Romika: IntLS1_298)

Furthermore, the documentary films were eye-openers for many of the participants. In her interview, Shamim spoke about how her preconceived ideas or stereotypes regarding slaves and immigrants who came to Mauritius changed after watching the documentary films. In fact during her interview, Shamim reported one lecture session where the instructor was talking

145

about people having stereotypes and realised that she also had stereotypes about who slaves and Indian immigrants were. Therefore in addition to the instructor's explanation, she discovered through the documentary a more truthful picture of slavery and Indian immigrants. Her perspectives changed as she could witness how things were for real:

> *"I think for the Mauritian history module it's very it's very good to view films because er as I told about the stereotypes earlier er through films we are actually getting a real view of the see-of the whole situation. . . " (Shamim: IntLS1_ 350)*

> *"So when you are watching a film it's very-it's like real life experience okay you're actually seeing the pe-the person and you're actually seeing his or her expression, the way the people are talking the way their-the the tone changes everything and I think when we are watching the film for Mauritian history its very -it's good it's good for us to watch a film for us to better understand the module." (Shamim: IntLS1_375)*

Seen as relevant sources of information, documentary films were a medium through which participants believed they were enriching their historical knowledge. For instance, Disha found that the documentary films were richer source of information as compared to the PowerPoints. Watching the documentary films enabled her to discover things of which she was not aware. She highlighted the richness of the information she was able to gather from watching such films.

> *"I didn't know where I was from before like in the Mauritian history they gave us, like an insight of where we are from how our ance-ancestors were living there how-why they came here [Interviewer]mhmm the way of life they led when they were here which was very bad." (Disha: IntLS1_276)*

To a lesser extent, the PowerPoint presentations were also seen as sources of information upon which participants felt they could rely. For each topic addressed in the module, PowerPoint presentations were used as teaching and learning aids. The module instructor was the author of these presentations. For some of the topics, the presentation slides consisted mainly of textual content supported by visuals. Photos, illustrations and maps, were either taken from sources such as books, from archives or from the internet. Below is a screenshot (Figure 20) from one of the PowerPoint presentation addressing the topic on slavery which Tesha referred to during her interview.

146
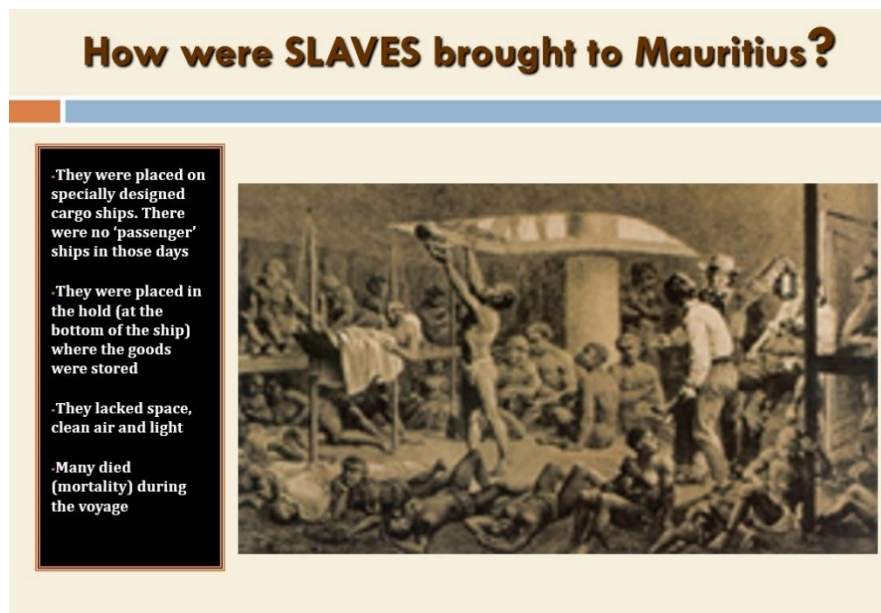
Figure 20. Sample screenshot from PowerPoint presentation referred to by participant Tesha

Tesha admitted that the reality of the past is reinforced by the use of the visual information in the PowerPoint presentation hence her preference for such DMTs. When these presentations had images to support the textual information, it made the events more real to her eyes.

> *"It's full of images where we can understand how the slaves were treated and er the-the types of punishment they were given. . . " (Tesha: IntLS1_251)*

The PowerPoint presentations which were used by the instructor during the face to face lectures allowed Tesha and some other participants to visualise how things were in the past. In the statement below, we can see clearly how the pictures used in the presentation of the topic on slavery made an impact on Tesha who became emotional after watching the pictures. Despite the illustrative characteristic of the pictures, they were thought to reinforce the reality of the living conditions and hardships of the slaves:

> *". . . it"s a bit sad how the slaves were being treated at times, er there were lack of food sometimes they-the slaves were very thin [Interviewer]mhmm they were, they were not given food and so on you can see it in the images." (Tesha: IntLS1_264)*

Regarding the interactive multimedia resources (DMT 3), participants were aware that they were getting other additional information from, for instance the interactive multimedia quiz

game on the British in Mauritius as this resource was based on the lecture notes given by the instructor. What made it distinct was that these notes were presented differently from a word processed document. It was not just about playing a game, but about playing a game to acquire information related to the British period in Mauritius. Heshani talked about acquiring additional information which was not provided during the lectures but which she felt was relevant to increase her knowledge about history:

> *"yes it was helpful I got to-I got the information that were not included in the PowerPoint etc I got them from playing the British treasure game I went through it, I completed, I even noted down what I had not done in the class like it was useful for me." (Heshani: IntLS1_271)*

In summary, this category foregrounded the participants' perspectives on how DMTs such as historical documentary films allow them as audience to "access the past through the photographic power of the filmic medium" (Bell, 2011, p. 11). Additionally other DMTs such as the PowerPoint presentations and the interactive multimedia resources were viewed as information sources that were relevant for increasing one's historical knowledge. In this category of description, the focus was on the acquisition of knowledge from credible therefore reliable sources of information. There was no attempt by students to verify or question the veracity of the contents of the documentary films and other sources. This may be linked to participants' assumption or beliefs regarding who possesses the knowledge. The documentary films as containing authentic information from the participants' angle may be explained by the fact that since these films and the other DMTs were provided by the instructor and were also professionally produced, they were naturally thought to be conveyors of truth and were taken at face value. According to the participants, the DMTs highlighted in this category were thought to contain factual information on which participants felt they could rely upon for increasing their knowledge.

5.6.2 Category B: A novelty in the learning approach

Category B brings into focus the novelty aspect of using DMTs as learning medium within the history teaching and learning context. It was about recognising the way of learning with DMTs in the Mauritian History module as something different from the type of learning they were used to. The use of DMTs was viewed from a learning approach perspective. Participants

were quite surprised to hear that History as a subject could be associated to digital technologies upon hearing about the use of digital texts and digital tools Jay admitted the following:

> *"First er let me er tell you one thing when I entered that-the first class where we were-when we started talking about the use of digital thing in history I was literally shocked I mean for me I was probably old school type and we talk about history we talk about books." (Jay: IntLS1_293)*

Many were surprised to discover the contents of the interactive multimedia resources and the overall approach used to structure the contents. Often during the interviews, comments like those outlined below showed that participants were not expecting such digital resources as part of their Mauritian History module, especially the interactive multimedia resources. Participants like Caroline and Geeta were pleasantly surprised to note the multimedia contents of the CD as evidenced by their comments. They showed excitement while talking about their encounter with this digital resource:

> *"err first impression I had when I received the CD, I told to myself 'yeah it's perhaps I don't know an essay like and essay type' I told myself 'I am not going to look at that' and then when I-I put it and then I saw that it was a bit interesting er there are background sounds, it's brief, it's better to understand." (Caroline: IntLS1_198)* [err première impression que j'ai eu quand j'ai reçu ce CD là, je me suis dit 'ouaih c'est peut-être j'sais pas un 'essay' comme un 'essay type' je me suis dit 'ayo, je vais pas regarder ça moi' et puis quand j'ai- je l'ai mis et puis j'ai vu que c'était un peu intéressant er il y a des sons à l'arrière, c'est 'brief' c'est mieux à comprendre] [11]

A similar reaction to that of Caroline was expressed by Geeta who during the interview enthusiastically described her surprise upon seeing the contents of the CD.

> *"I was like really 'is this for a tertiary tertiary student?' I was like 'oh! very very it's fun' ((excited tone)) I'd sit on my chair and watched it, I was very happy about that ((laugh))." (Geeta: IntLS1_296)*

Having learning resources in the form of DMTs other than text-based was considered to be a novelty as it involved a different way of learning. More than the documentary films and the PowerPoint presentations, it was the interactive multimedia resources that were considered as

---

[11] Whenever interviews were conducted in French or Creole language, I first provide the translated text in English followed by the original version of the text (French or Creole) in a different typographic style (in Arial italicised) in square brackets

being a novelty in the way the subject was taught and learnt. While films and PowerPoints were seen by a few participants as being to some extent conventional means of learning, the opportunity to learn by interacting with the multimedia enhanced content such as the interactive multimedia enhanced CD and the multimedia quiz game was found to be innovative. Participants who fit in this category shared their views about the game based approach used in the interactive multimedia quiz game. As highlighted by Bina, using such interactive multimedia resources is a different way of learning as opposed to the conventional approach of using text-based documents, and PowerPoints.

> *". . . it's different because we always used to text based documents or even PowerPoints but this one was different and I never really come across such a way of learning things. . . " (Bina: IntLS1_183)*

Khajifah further related the approach of learning from interactive multimedia resources to the way she used to learn when she was at secondary school which relied mostly on paper-based notes. For Khajifah, the interactive multimedia CD was something different when compared to what she was familiar with.

> *". . . I find it very very interesting I never go through that in my-in secondary so this time it's a new experience for me a new way of learning actually yeah." (Khajifah: IntLS1_333)*

The focus group discussion further emphasised this aspect of novelty and innovativeness in the way of learning History. As mentioned in the Chapter 4 Section 4.10.4, participants wrote tweets in response to a given prompt in the focus group discussion and were then invited to share their views about learning History with DMTs. The focus group discussion responses received from Heshani and Urmila are illustrative of this category.

> *"Er we think that it is a new way of learning and writing at tertiary level unlike in primary and secondary level where we used more books, pen, writing, etc and paper." (Heshani: FGD_396)*

> *"Er find it er innovative (?) ((loud noise)) creative way of learning, it's it's much more easy to assimilate everything."(Urmila: FGD_412)*

The category novelty in pedagogical approach can be explained by the fact that most of the participants had experienced a conventional approach to learning at secondary school, except for a few who did have limited exposure to digital learning. Past usage of DMTs as evident

from the interview transcripts revealed that some participants made use of digital multimodal texts for entertainment or infotainment purposes. Some self-directed learning with DMTs was noted where participants admitted referring to DMTs such as YouTube videos and websites for academic research purposes. Seeing learning with DMTs as a novelty may also be linked to the pre-conceived idea about History as a subject and the way it is generally taught and learnt, that is mainly from text-based documents and books.

5.6.3 Category C: An opportunity to break learning monotony

Within this category, the DMTs such as the films and the interactive multimedia texts were considered to make the learning of History less boring, hence more lively and engaging, sparking the interest and curiosity of the participants. Participants' exposure to different types of DMTs during the course of the module allowed them to access the curricular content in different formats whereby varied communication modes were used to convey the content. During the interviews, some participants often mentioned that learning History can be boring at times especially when one has to read long notes or listen to long lectures. As such the fact of having varied types of DMTs within the context of a module like Mauritian History was seen as pertinent and relevant in adding interest to the subject. Lovena shared her opinion regarding what a student could gain from the inclusion of a variety of DMTs in a module like Mauritian History:

> *"er it would be like more interesting to learn the subject like whenever someone say I 'you're doing history it's like boring classes' but actually with these kinds of resources it's more fun and one wants to get in the next class to know what's new not like 'this lecture is going to be boring so don't go in the class' ((giggle))."(Lovena: IntLS1_353)*

Another participant, Caroline clearly recognised the existence of varied types of learning resources in the History module as something that is encouraging and motivating. In response to a question about her thoughts on the inclusion of different types of DMTs in the module HIST1002Y, she admitted that if the History module was supported by text-based resources only, she would not be motivated to attend the lectures. In her opinion, it is a good thing to incorporate a mixture of different types of DMTs in such a module:

"((laugh)) if there were only texts, I would not attend often but when there is- when it's a mixture, it's better." (Caroline:Int LS1_311) [((rires)) s'il y avait que des textes, je viendrais pas souvent mais quand il y a - quand c'est mélangé, c'est mieux.]

Moreover, the excerpt from Romika's interview transcript below demonstrates how accessing different types of learning materials changed from the routine of reading only from books. In response to a question about her most preferred type of learning material, she mentioned the following:

" I think all of them it depends when-when you don't want to read then you go online you watch the PowerPoint that is more, it differs from being just into the context of er holding a book I like to-to read I prefer holding a book but, it changes, how would I say [Interviewer]Is it uh it changes the way of learning?I think no but I don't know, as if it's not boring, it's not boring as if to be in the same thing all the time, uh at times we watch films with Mr Vijay[12] for instance we have watched films and then PowerPoints and then books, so it changes a bit." (Romika: IntLS1_202)

From the above, Romika's preference of DMTs for learning is dependent on one's disposition at a given point in time. There is an awareness in her statement of the potential of different types of multimodal texts to contribute to a more interesting and lively learning context.

Furthermore, the multimedia approach to learning was also appreciated for breaking away from the monotony of linear reading from textbooks or notes. Multimedia resources such as the interactive multimedia enhanced resource (the CD on the French in Mauritius) allowed a more flexible reading path. Mustafa, expressed his fascination for the multimedia enhanced CD and mentioned that this type of DMT does not restrict students to sitting and reading texts. The presence of audio in the multimedia enhanced texts makes it possible to listen to the content while doing other things:

"About the sound how you created it it's not when you are just tired you just want to hear it you just don't want to, you may be doing something else but you might er er put the sound the high here and you can listen to it you just doing another work it's just not as if sitting and reading."(Mustafa: IntLS1_253)

---

[12] Pseudonym used for the one of the part-time instructor who was also involved in the delivery of the module HIST1002Y.

The statements from Mustafa, Romika, Caroline and Lovena above raise the question about this new generation of students who expect a more flexible and dynamic learning environment. They do not want to be confined to be doing the same things. The notion of multitasking resonates in Mustafa's statement which relates to the ability of some people to juggle multiple tasks.

5.6.4 Category D: An emotionally engaging experience

The affective dimension of learning was foregrounded in this category as participants shared their emotional engagement with the different DMTs they used. The participants shared their reactions and feelings while learning with specific DMTs. Their reactions and feelings were related to the types of DMTs used, the semiotics resources at play in these DMTs, the approach used by the DMTs to represent the History content and the aesthetic features of the DMTs. For instance, there were feelings of happiness, enjoyment, amusement and excitement when learning with the multimedia quiz game or the multimedia enhanced CD. Participants also described feelings of pain, sadness, grief, distress and concern when watching the documentary films that were screened during the class. The participants' meaning-making of the DMTs was further influenced by their perception, their preference for a particular form of texts and also their expectations from the DMTs as a learning product.

Emotionally engaging modes of communication

With respect to documentary films as a form of DMT, the participants described how certain scenes in the films they watched elicited specific emotions. As a form of visual expression and a mode of representation, documentary films make use of two key communicative elements- visual images and sound. Quite a few participants recognised the power of the visuals, both still and moving in bringing out some deep emotions. For instance Disha, Shamim, and Poonam described how they felt upset watching the films. Shamim stated that while some students were making fun of the people being portrayed in the films (e.g the people enacting slaves and Indian immigrants), she was emotionally quite disturbed. She felt a deep sadness watching the scenes depicting the slaves and immigrants and the types of works they were assigned to:

". . .when we are viewing the film when I watched the -both of the films I felt very-some students were laughing about the way the people were and the way the things they were doing but I felt very very very sad inside." (Shamim: IntLS1_355)

From the above quote, it is clear that Shamim was moved emotionally by what she was seeing as for her, the scenes depicted were persuasive and depicted the reality of the past.

Similarly Poonam described that it was very painful to see and feel the difficult conditions the slaves had to face, the way they were treated, the actual refuge for the runaway slaves (also called maroons) and the mountain cliffs they climbed to hideaway from the soldiers. This is highlighted in her statement:

". . . in primary in History and Geography I used to learn how slaves stayed where they-where they lived how they were treated but only in notes in books etc reading notes but when I came at the university and watch the film you see the pain the actual, the vision where they use to stay they used to climb cliffs and hide in caves it's very painful [Interviewer] mhmm visually it's more painful and it has a more deep reaction than reading just notes." (Poonam: IntLS1_168)

Moreover, Tesha described how she was emotionally involved while watching one scene from the 'Indian Immigration' documentary film due to the background music used. Attention was given not only to the moving images depicted, but also to the role of the soundtrack music in adding to one's feeling and emotion:

"The music was, like striking they would touch your heart when they [Interviewer] hmm are showing children running barefoot."(Tesha: IntLS1_316)

Other than the communicative potential of the visuals, the graphic style and the approach used to present the interactive multimedia content became the focus of the discussions during the interviews. Expression of contentment and excitement could be felt in the way the participants described their engagement with the interactive multimedia enhanced resources namely the CD and the quiz game. For instance in relating their experiences of using the interactive quiz game, participants admitted having been pleasantly surprised to see the cartoon style used to display the graphics.

Figure 21. Sample screenshot from the interactive multimedia quiz game on the British period in Mauritius 'The British Treasure' showing the cartoon style approach

They mentioned that as learners at higher education level, they were not expecting to see a multimedia game using cartoon style (See Figure 21) as this type of representation is perceived as being normally targeted towards small children.

Nevertherless, they showed positive feelings towards the use of this specific DMT as it brought a fun touch to the historical content, which they usually viewed as boring. Various elements of the interactive multimedia resources (DMT3) such as the graphic style, the animated content, the cartoon style approach, the game based approach, the interactive components and the audio elements contributed to this perception of fun and enjoyment that participants highlighted. For instance, in response to a question about his reaction when he first took cognizance of the contents of the multimedia CD, Alvin's attention was directed towards the look and feel as well as the narrative style used to convey the content which he considered was directed to a younger age group. The excerpts below exemplify Alvin's immediate reaction on viewing interactive multimedia enhanced resources:

"... at first I laughed a bit but then I thought it was- [Interviewer] what made you laugh? er the colours and also the-the voice it was like er it was like talking to a little child and I felt I, was a little child [Interviewer]((laugh)) but it was really nice I think." (Alvin: IntLS1_347)

Alvin was referring to the multimedia quiz game on the British which was designed using colourful cartoon style illustrations and had a voice over adapted to the scenario used to address the topic. Here, I would like to point out that the design choices related to the resource were purposefully made with the objective to arouse interest and also since I wanted to investigate how such designs were perceived by the participants.

In summary, Category D focused on the DMTs as emotion-laden stimuli and foregrounded the way the structural components of specific DMTs contributed to the affective dimension of learning. Meanings were assigned to these components, more specifically those present in DMTs such as the documentary films and the interactive multimedia resources. These DMTs were perceived as more emotionally stimulating, grabbed their attention and had more significance in the eyes of the participants. Category D was about being connected to the DMTs at a deeper emotional level.

5.6.5 Category E: Effective and useful learning support

The focus in this category was on the perceived effectiveness and usefulness of varied DMTs participants engaged with during the HIST1002Y module. The purpose of specific DMTs as medium or tools to support learning was brought in the foreground. The different DMTs assessed by the participants were found to be effective and valuable pedagogical tools to learn about Mauritian History. This notion of effectiveness and usefulness was described in relation to the form and substance of the DMTs, to the presentation modes of the DMTs and to the graphic style of the DMTs. Participants who fit in this category regarded their experience of using different types of digital media as an opportunity to consolidate, reinforce and facilitate their learning. The conceptions related to this category are discussed in this section.

Medium used for assignment and revision purpose

In discussing the pedagogical effectiveness of DMTs, participants like Alvin and Urmila spoke about their exposure to documentary films and indicated how these allowed them to consolidate their research work for a written assignment related to their family name which

they had to complete for the module. Alvin described how the contents of the film led him to learn more about how and why his family came to be settled in Mauritius. He found out that his ancestors were labourers on Mauritian sugar cane plantations:

> *"yes since we had an assignment related to our what's in a name our surname I had to look, I had to look about my ancestors and I came to know that my ancestors were indentured labourers that came to-to Mauritius."(Alvin: IntLS1_250)*

Similarly, Urmila recalled scenes of the film on Indian Immigrants which she found particularly pertinent to support her written assignment. She described a scene in the film where a man (whom I have named as Chandan) was relating his experience about his trip to Bihar, India in search of his ancestors. It is through Chandan's narrative that Urmila discovered where and how the Indian immigrants lived in India before coming to Mauritius:

> *". . . it's also about the fact that we needn't to do a work about name [Interviewer]mhmm and it was -it-it was very resourceful for us for the assignment" [Interviewer]((Cough)) yah I think hmmm ((researcher opening the video for recall)) this part? yah [Chandan[13]] I think his name was he went to Bihar to-to look about his- to to know know about his ancestors and he-he actually found out that he was at he-it was at his place [Interviewer]mhmm and I-he was-she he was sharing ( ) ((researcher coughing)) the space there how people greeted him how he felt like he was in his own nation but this actually brought us to the fact that we-we can understand how the Indian immigrants were and we can interpret it in our own way."(Urmila: IntLS1_289)*

The information acquired from the historical documentary film was found to be an important and meaningful source of information offering Urmila the opportunity to enrich her written assignment.

Furthermore, having the opportunity to watch documentary films during the module enabled participants to learn about historical research and the enquiry process. Geeta's interview extract emphasised the importance of the documentary film as an effective guide for the essay assignment on her '*Family name*'. By watching the film, Geeta was able to understand better how to proceed with the assignment, that is what types of research in which she would need

---

[13] Chandan is a pseudonym I used for the person to whom reference is being made in the documentary film.

to engage. She realised that she could not rely solely on oral interviews but had to look for other information from archives. For Geeta, the documentary film acted as a good learning guide.

> *"[Interviewer] So can you tell me a bit about how these types of movie er help you in your assignment? In fact it was easier to understand from where should I look -start to look for information to put in my assignment because it was quite vast, your family name is quite vast title [Interviewer] mhmm it's not easy I can just go interview persons it's not -it's not like I think not enough and this movie helped me a lot to go through look for much further-further information I went to MGI[14] and ( ) everything archives [Interviewer] mhmm then I got my informations it was quite easier to find the right path."*
> *(Geeta: IntLS1_218)*

Another effective pedagogical use derived from the use of DMT was is relation to the multimedia enhanced resources. Vidya mentioned the usefulness of the multimedia enhanced CD in supporting revision. Going through the CD is viewed as a more fruitful way of doing revision since she believed that such approach would make it easier to recall what was taught in class:

> *"uhm, it's kind of a revision from what we have done earlier but er forgotten it reminds us- it reminds us what -of what we've done before uhm and er it er most probably will-it most probably will enable us to remember these things er better because it earlier it was in a-we were taught the content in a may be boring way now it's in a more interactive lively manner." (Vidya: IntLS1_190)*

Another participant, Heshani associated going through the quiz challenge game as an encouraging way to do revision work. Her statement below, brings out the idea that serious learning may take place through the act of playing a game:

> *"And the games it is more more encouraging like for us to go and play instead of wasting time doing something else we can go through it and it is also a revision."(Heshani: IntLS1_341)*

As a learning strategy, drill and practice through the quizzes included in the multimedia enhanced resources appeared to be a good way to encourage participants to read their notes,

---

[14] MGI- Mahatma Gandhi Institution, a local institution where the archives of Indian immigrants to Mauritius are available.

something they often are reluctant to do. Poonam for instance, expressed her excitement about winning and recognised that she could do that only if she reads her notes again and again:

> *"it-it's first of all it's fun it en-it encourages us to read our notes some-some*
> *students are I-I-I'm very lazy to be frank to turn pages in my copybook and to*
> *read notes but this one you want to-you want to read you'll do every-any-*
> *anything to win and if ever you've got a wrong answer in this game you'll*
> *have to get back to your-to your notes." (Poonam: IntLS1_231)*

Pedagogical effectiveness associated with the modes of communication used in the DMTs

All the DMTs made accessible to the participants during the first semester of the module consisted of visuals ranging from static to a mix of static and dynamic visuals. By dynamic, I mean animations as in the interactive multimedia and moving images as in the films. During the interviews and the focus group discussion, participants shared their reflections on the contribution of specific DMTs to their learning in terms of the modes of communication used to present the content. In discussing their preference for specific DMTs, participants highlighted the role and importance played by the visuals describing how these contributed to their learning. Visuals present in different DMTs in general were considered to be helpful in supporting comprehension, retention and recall. The following quotations taken from both the interview and focus group discussion transcripts illustrate this perspective:

> *"It's full of images where we can understand how the slaves were treated*
> *and er the-the types of punishment they were given [Interviewer] mhmm and*
> *the situation at that time in Mauritius." (Tesha: IntLS1_251)*

> *"I think PowerPoint learning is a very good way since to me PowerPoint is*
> *a (?) using pictures and videos and also all kinds of materials so it can be*
> *very useful for students to learn their PowerPoints since, it won't be just*
> *written, there will be using like videos and also images so, it's more fruitful*
> *this type of work." (Heshani: FGD_432)*

For instance the PowerPoint presentations which were used to support the lectures were pertinent for some of the participants who felt that such types of DMTs facilitate understanding since they make use of many images along with the textual information. Reading and understanding textual information about the topics became more meaningful when it was accompanied by visuals.

Romika described how visuals in PowerPoints presentations allowed her to think deeper about the message being conveyed. During the interview, she indicated one specific PowerPoint presentation which she considered to be visually effective and helpful in understanding a topic. She explained how she became analytical about the image after listening to the module instructor's explanation about the picture:

> *"[Interviewer] uhh ((clears throat)) so you like this picture so err you said that earlier that you like the PowerPoints because it had the pictures and how do you think these pictures err help you in understanding the text?* **well it helps us to relate to the idea of slavery we note like for ex--for example there is the wooden cross I didn't know there is a cross on that I didn't see when Mrs Kavita[Pseudonym for the module instructor] said then we** *[Interviewer] you can speak in French if you want ((laugh))* **at this moment we realised that what was there [((laugh)) a ce moment la on a realisé que ce qu'il y avait]** *and there is an irony I think in this picture, because, showing a big cross so it's like jesus christ and slavery so the contrast between the one who save and the one who is torturing people the ones who are torturing people."(Romika: IntLS1_354)*

This excerpt from Romika's transcript demonstrates how the visual content accessed through the PowerPoint presentation was considered as added value to learning as compared to relying only on textual information. She further pointed out that watching a film related to a text she had read, enabled her to remember better when writing her exams as she could easily recall the images she viewed in the film and make the connection:

> *"it's more, interactive I would say and, I think those pictures stay in our minds and, stay in our minds and I mean I did that when I was watching films about a text before exams so when I wrote I always use to think about the image so I could write about them the image made me remember what I learnt [Interviewer] mhmm while reading."(Romika: IntLS1_418)*

Learning from animated content present in the interactive multimedia enhanced resources was also considered as pedagogically effective by some of the participants. Animated content along with interactive features were found to be useful in helping participants recall as compared to recalling what was read from books. Urmila was very enthusiastic when she spoke about her experience of her interaction with the quiz game. Her response below relates to her thoughts about the effectiveness of this type of DMT in supporting understanding of the topic being addressed. To explain her stance, she compared the act of engaging with the quiz game as the act of watching a cartoon:

*" It's like watching -watching a cartoon on tv you -you are going to
remember the cartoons it's the same way you're going to remember whatever
is in it."(Urmila: IntLS1_444)*

From the above discussions and quotations, the benefits of still and moving visuals for different participants are clearly expressed.

The sound element used in the DMTs such as films or the interactive multimedia were thought to be effective in supporting and enhancing understanding of the content represented. Shamim referred to the tonal expressions and background music used in films that in her opinion set the mood making it possible for someone to better understand the situation or context:

*". . . so when we are looking at a film it's more about the expression the-the
tone the music and I feel that background music is very important for
everything even when you are learning even when you are watching anything
for studying purpose mainly I think background music is very important
because it helps you to understand the situation better, reading something
you are just reading something you don't know what is happening here where
is the-where is the tone changing but when you're watching a film or even
here again the tone the-the music changes." (Shamim: IntLS1_392)*

The combination of modes such as the visual and the audio was also highlighted by some participants. For instance, in reference to the DMT3 such as the interactive multimedia quiz game, Heshani felt that having the information in multimodal ways encouraged her to think deeper about the information she was acquiring from interacting with the digital resource, thus further enhancing her learning.

*"There is music and the images are interactive they move, like they question
you as well [Interviewer] So does this make a difference to your learning?
yes yes it makes me think more." (Heshani: IntLS1_303)*

Ease of learning with DMTs

Amongst the DMTs, some were found to be a helpful medium given their focused and concise content presentation style. There were participants who referred to the ease of learning when content is presented in PowerPoint formats as these consisted of slides outlining key ideas about the topics:

"And in class the lecturer will give notes things happened like that it's very-it's very long but here it's as if a kind of summary it's very- it's in the main points but in a very summarised kind of doing it and as such you have used pictures notes to make it very interesting." (Mustafa: IntLS1_264)

Despite the point wise or summarised content presentation style, the PowerPoint presentations were found to be very informative and had an advantage over long pages of word processed notes which often students seemed reluctant to read. According to participants, PowerPoint presentations bring out the main points to the students and therefore guide them to the key aspects on which to lay emphasis:

"PowerPoint is very like it's very like when you're seeing a long page of notes a text er wordprocessing you might feel I'm not going to, how am I going to read all these things but the PowerPoint it's actually, you are taking some the main points from there you are shifting it to the PowerPoint so I think it's better it's more ease-it's easier to learn through the PowerPoint . . ." (Shamim: IntLS1_236)

"The PowerPoints are very informative and they are not so detailed but they are brief enough for us to read and to and write our own notes."(Heshani: FGD_420)

"PowerPoints are much more assimilating rather than teachers just reading out paragraphs." (Farida: FGD_453)

"First of all it's not bulky, we don't have a lot to take down in our copybooks and what is more important that when the teacher explains, she gives evidence at the same time just as images, references so it's easy for us to understand." (Poonam: FGD_446)

The ease of learning from PowerPoint presentations appears to be in focus in the descriptions shared by participants like Shamim, Heshani and Poonam.

The content in some DMTs further activated thinking and guided further learning. For instance, Heshani described how she used the content presented in the PowerPoint presentation as starting point to guide her in finding additional information from books in order to write more elaborate and in-depth notes. The utterances from Heshani's interview and response during the focus group discussion below demonstrate how PowerPoint presentations were a starting point for further learning:

"I don't copy everything that I get from the PowerPoint but they are a medium where I can-they make me think and then I read from else from books and I combine the notes together and it's a great way for me to learn"
(Heshani: IntLS1_228)

Together with the PowerPoint presentations, the interactive multimedia resources such as the multimedia-enhanced CD *"18th –early 19th Century Mauritius'* and the interactive multimedia quiz game *'The British in Mauritius',* were also found to be effective as learning resources. The way these digital multimodal texts were designed and structured was often in the participants' focus in their accounts about their learning experiences with such a multimedia enhanced medium. For instance, the quiz game presented the content using a game-based approach. Participants who described their interaction with this quiz game or with the multimedia enhanced CD mentioned the simplicity of the language used in addressing the topic and the clarity of the structure and layout which contributed to the effectiveness of learning through such resources. This is illustrated in the excerpts from Bina, Urmila and Mustafa below:

"er the quiz ((laugh)) the British quiz it was easy it was straight forward and it is-it is a way to remember things like when we have to answer (Bina: IntLS1_177)

"the CD because the CD covers everything and it is very as if ..like the lecturer in class will give long long notes but the CD is as if a summary point wise what happened it is very brief an English very comprehensible English very-it's very comprehensible we can learn"(Mustafa: IntLS1_225)

The multimedia enhanced CD was further found to be an effective medium to support revision. Mustafa who had a particular preference for this DMT believed that this type of DMT is a medium he can refer to for revision purposes as the content is:

". . . I really appreciate it because if I don't know if we are late to revise or things like that you can just put the cd and you acquire the required knowledge not to -to use the copybook having notes scattered here there but here the main points are here and during the exams you are scoring the marks that you are required."(Mustafa: IntLS1_280)

Mustafa's justification for his appreciation for the multimedia enhanced CD can be explained by the fact that the content was presented in an organised manner and also as chunks of information, thus making it easier for assimilation. From their descriptions, it seemed clear

that for some participants it was much easier for some of the participants to grasp the topics of the module through the multimedia enhanced resources as compared to reading History books or lecture notes. The descriptions within this category seem to indicate that some DMTs felt appropriate for learning under certain conditions and for specific purposes.

5.7 Section II: Structural relationships between the categories of description (LS1)

In the previous section, the categories of description emerging from the analysis of data of LS1, were presented, described and interpreted. In this section, the outcome space is discussed based on similarities and differences between the categories of description with an aim to reveal the relationship between them.

5.7.1 Overview of outcome space –LS1

In relation to LS1 where participants accessed a set of DMTs assigned to them as learning materials, five categories of description emerged following the analysis of the interview transcripts and the focus group discussion transcript. These were labelled as Category A to E.
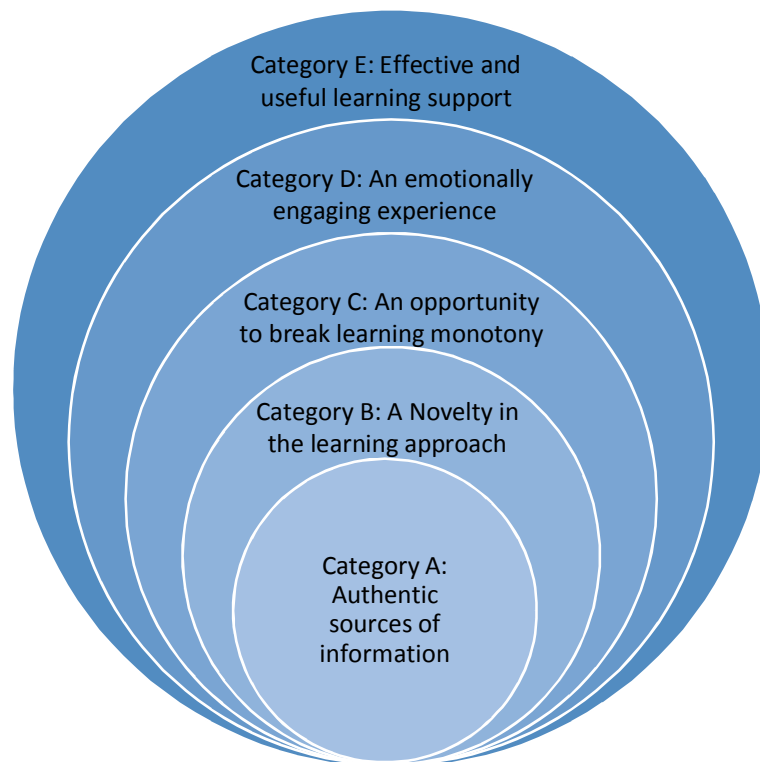
Figure 22. Outcome space reflecting participants' experiences of DMTs in LS1

164

The analysis of the logical relations between the categories of description resulted in an outcome space (Figure 22) which represents the different ways participants experienced the act of consuming/using DMTs as learning resources in the Mauritian History module.

The five categories of description (A-E) were structured to form an inclusive hierarchical outcome space which was analysed based on dimensions of variation. The outcome space reflecting the participants' experiences of LS1 organise the categories of description using a "set of concentric circles" (L. Smith, 2015, p. 219) to show the expanding awareness of the conceptions of learning with DMTs within the context of a History module, moving from the least complex or narrower conception of the use of DMTs to broader conceptions.

5.7.2 The dimensions of variations

The dimensions of variations are themes that are in focal awareness and run across categories of description but which are experienced differently in each category (Gibbings, 2008). The search for the relationship between the categories of description emerging in relation to participants' experiences of LS1 resulted in the following themes which are explained in this section using a similar presentation approach to L.Smith (2015).

1. Purpose and perceived relevance
2. Modality preferences and affordances
3. User involvement

5.7.2.1 Purpose and perceived relevance

As already mentioned at the beginning of this chapter, various types of DMTs were included during the first semester of the module to consolidate some topics considered by the module HIST1002Y instructor to be somewhat abstract to students. Through the DMTs, the participants were able to explore various forms of texts that go beyond printed texts. The experiences of learning with DMTs were expressed in terms of the purposes and relevance, which were perceived differently across the different levels of the outcome space. Table 7 summarises how the dimension 'Purpose and perceived relevance' associated to the use of DMTs as learning resources was construed in each of the five categories of description.

Table 7

The 'Purpose and perceived relevance' dimension of variation running across categories A-E

Dimension of variation	Categories of description				
	A	**B**	**C**	**D**	**E**
Purpose and perceived relevance (*associated with the use of DMTs*)	DMTs and their content are relevant sources of information to gain historical knowledge	Learning from DMTs brings novelty to the ways of learning	Variety in the forms of the DMTs contribute positively to the learning context	DMTs and their content contribute to the affective dimension of learning	DMTs and their content sources of information used to support learning in multiple ways

Category A, labelled as '*Authentic sources of information'* may be seen as less complex as opposed to other categories of description since it was more about gaining and increasing knowledge about History through a range of sources. Discovering and witnessing the past through expert voices and visual evidence were the main aspects being in the participants' focal awareness in this category. The contents of the DMTs as sources of information were taken at face value and were preferred for providing accurate, persuasive, revealing and enriching information as far as historical knowledge was concerned. However, participants failed to critically evaluate the content of the DMTs and did not raise questions about the credibility of the sources.

The second level and the third level of the outcome space and the relevance of gaining knowledge through an information source is further expanded. Category B, '*Novelty in the learning approach'* and Category C, *'An opportunity to break learning monotony'* may be seen as related. The documentary films, the PowerPoint presentations, the interactive multimedia quiz game and multimedia enhanced CD were the different sources from which historical information was acquired during the learning of some specific topics in the History module. Both categories are linked by the fact that they consider these DMTs as digital sources of information that are new and varied. In Category B, participants thought that the DMTs allowed them to learn differently and from their perspective, it brought a change in the conventional way History is taught, learnt and generally perceived by students. Participants fitting in Category C were not only aware that the DMTs were being used as relevant sources of information but appear to attach significance to the variety in the formats this information

was being presented to them. So this opportunity to acquire relevant information from varied types of DMTs was perceived by the participants as making the learning of History in general less boring and monotonous. This was compared to the conventional and limited approach of acquiring historical information from reading mainly books and notes.

Serving a more psychological purpose, the consumption of DMTs within Category D labelled '*An emotionally engaging experience*', was related to the participants' emotional connections with the use of DMTs for learning purposes. Experiencing DMTs as a novelty in the way of learning (Category B) and as contributing to a more engaging learning environment (Category C) was still present in the Category D but was pushed to the background and it was the emotional significance attached to the act of learning with these new types of DMTs that was brought into focal awareness. The relevance of learning with digitally enhanced resources was seen from its affective dimensions. Participants became emotionally involved while learning with the different types of DMTs such as the documentary films considered to be emotionally-charged resources. The latter had an impact on the feelings of the participants and allowed the participants to demonstrate an empathetic attitude towards what they were learning. On one hand, the substance of the historical content conveyed and the way the events were portrayed in the documentary films touched the hearts of the participants and inspired empathy. On the other hand, the multimedia resources aroused participants' interest, curiosity, brought excitement and enjoyment. Engaging in the quiz game to learn was something that made students enjoy what they were doing. Finally Category E, being seen as more complex and multifaceted in nature, considered the DMTs more than mere sources of information. The purposes and relevance of learning with the different DMTs were broader. Participants in this category did not simply view the DMTs as informative content or as means to acquiring knowledge but described how the variety of texts offered meaningful support for assignment, revision, and understanding. While films and PowerPoints portrayed authentic information which participants could tap into to complete their assignments, the purpose of the multimedia CD and the interactive multimedia quiz game were found to be effective and useful complements for the learning of History.

5.7.2.2 Modality preferences and affordances

Another dimension of variation that was identified across the categories of description was in relation to the participants' multimodal learning preferences and the affordances of the different types of DMTs. Table 8 highlights this dimension and how it was expressed across the five categories A-E.

Table 8
The dimension of variation 'Modality preferences and affordances' running across categories
A-E

Dimension of variation	Categories of description				
	A	**B**	**C**	**D**	**E**
Modality preferences and affordances	Seeing and listening is believing as opposed to only reading texts	The learning approach is perceived as a new thing as it involves new types of media and modes and influences how the learning environment is perceived		Modes used by the medium and and the way they influence one's emotions	Modes and their effectiveness in supporting learning in multiple ways

Participants in this study were found to prefer either one or more than one of the three categories of DMTs for particular reasons. As a medium, some DMTs were preferred for their ease of use, their presentation style and their approach to presenting the historical content. In Category A, the preference was mainly for a more dynamic medium such as the documentary films (DMT2) which made use of various modes to convey the message. The multimodal nature of films was the main focus in the descriptions provided in this category. The affordances of the modes used by documentary films were foregrounded in category A whereby the audio and video affordances were reflected upon as contributing to the credibility and reliability of the information being conveyed. In Category B, C, D and E, the reflection on the affordances of the modes as used by the different DMTs are progressively expanded. For instance within Category B and C, the modes used in the different texts were believed to add a new dimension to the learning of History. Participants were aware that they had the possibility to learn through various modes. For instance they could listen to audio content on the multimedia enhanced resources, learn by watching animations and other moving images and read the textual information supported by still images. Category D which was about the affective dimensions of learning was greatly influenced by the modes of expressions as used

168

in the different DMTs. For instance, from the analysis, it appeared that the modes of expressions in the documentary films which used moving and still images, audio narration and music to create meaning emotionally touched the heart of the viewers (participants). The interactive multimedia resources such as the CD and the interactive multimedia game which consisted of modes such as animations, sounds/narration and were presented using specific visual/graphic style were emotionally appealing as these were associated with the participants' past experiences and personal preferences. In Category E, the participants evaluated the different DMTs from their effectiveness and usefulness perspective and their descriptions echoed the semiotic modes in relation to their affordances to support learning in different and multiple ways.

5.7.2.3 User involvement (related to learning with DMTs)

Learning is seen as an individual process where one constructs one's understanding based on information acquired from various sources. However, the user has to fulfil the role of accessing, extracting, understanding and organising the information for further use. Another dimension of variation namely '*User involvement*' was present in different ways across the five categories of description as shown in Table 9.

Table 9
The dimension of variation 'User involvement' running across categories A-E

Dimension of variation	Categories of Description				
	A	B	C	D	E
User (participant) involvement (*related to learning with DMTs*)	Involvement limited to viewing and listening (Watching films) and limited to browsing PowerPoint slides for acquiring information. Rather a passive recipient of information.	User has some control over the process of learning which is viewed as being flexible, controllable in terms of the learning pathways.		Emotional investment in learning with the DMTs (Affective domain of learning)	More cognitive and active engagement with the DMTs

This dimension of variation describes the involvement of the students (participant) in relation to their use of DMTs for learning about History. At the least complex level in the outcome space, '*Authentic sources of information*' category (Category A), the participants' descriptions

revealed that DMTs such as the documentary films were viewed as sources of information that provided credible and reliable knowledge. Participants' role as consumers of information sources such as the documentary films was limited to viewing and listening to the information, taking in the information at face value. In referring to the experience of viewing documentary films in the history classroom, participants' evaluation was restricted to what was projected which they considered to be more persuasive as opposed to listening to lectures or reading text books or other text-based documents. As these documentary films were screened during classroom time, participants had no possibility to control the viewing pattern and therefore remained as passive recipient of information. With other DMTs such as the PowerPoint presentations when viewed during the lectures, the participants still remained passive receivers of information but when accessed after lectures, participants had more flexibility in terms of extracting the information. They were able to browse through the slides at their own pace and learn about the topics.

In Category B, '*A novelty in the way of learning*' and Category C, '*An opportunity to break learning monotony*', the participants to some extent realised that some DMTs such as the interactive multimedia resources required more involvement on their part and was not only about being a recipient of knowledge. In Category B, the novelty conception was linked to the shift in the way learning normally occurs. For instance it was by comparing the text-based learning or teacher-centred learning they were used to, that some participants' conception about novelty in the learning approach emerged. Tied with Category B, the learning approaches were further viewed from the perspective of the learning environment. Varying types of DMTs required the participants to become involved in various ways, thus feeling less confined to one single way of learning. The participants in Category C were aware of the multi-sensory approaches to learning which were made possible through the various types of DMTs accessible. Visual, auditory and kinaesthetic learning made the overall learning of the subject more engaging and motivating. Conceptions within Categories B and C were results of participants' reflections about the way they usually process learning and how new types of texts brought new perspectives to the learning approach and the overall History teaching and learning environment. Category D was about how the act of interacting with specific DMTs influenced learning in a more psychological way. As consumers of DMTs, the participants

demonstrated an emotional involvement with the DMTs which were considered as emotion-eliciting materials which shaped their thoughts about History learning. The emotional responsiveness towards specific DMTs such as the documentary films and interactive multimedia resources was evident in the way participants described their interaction with these DMTs.

5.8 Summary of chapter

The LS1 of the study focused on the user perspectives of three categories of DMTs and therefore the categories of description as discussed in Section I of this chapter were in relation to these specific DMTs. Participants' experiences of the three categories of DMTs (detailed in the methodology chapter) were presented as categories of descriptions which were analysed to reveal how they relate to each other. Three dimensions of variation were identified and have been explained in the above section. The categories of description were found to be logically related based on three dimensions of variation (i) the purposes fulfilled by the DMTs and their relevance as perceived by the participants, (ii) the modality preferences and their affordances and (iii) the participants' involvement level as consumers/users of the DMTs.

CHAPTER 6: ANALYSIS AND FINDINGS OF LEARNING SITUATION 2 (LS2)

6.1 Orientation to chapter

The previous chapter presented the analysis and findings in relation to LS1 as two sections. This chapter is organised in a similar manner where Section I presents the participants' description of their experiences related to LS2 where they were involved in the production of a specific type of DMT, namely a documentary style video. This task was assigned to them as part of the assessment of the module. The analysis of the data pertinent to LS2 revealed six different ways in which the video assignment was experienced. These are described and interpreted in the following section. Section II of this chapter further exposes the relationships between these categories of description based on the dimensions of variation.

6.2 Section I: Ways of experiencing learning with DMTs from a production perspective

As part of the HIST1002Y, all the students had the opportunity to engage in the video assignment and the 19 selected participants were interviewed to share their experiences after the completion and submission of the same. In addition to the interviews, they also completed written reflections at different stages in the work. Three written reflections were produced as detailed in Chapter 4 Section 4.10.3. The main idea behind introducing the multimodal assignment as part of the assessment module HIST1002Y was to provide the participants the opportunity to develop not only historical content knowledge but also other cross-curricular and transferable skills. Extracts and quotes from the interview data and the written reflections have been used to support the findings presented in this chapter.

Participants were given a choice of two topics for the video assignment. They could either choose to address the origin behind their family name and their family History or address the origins behind the name of the street/locality they live. Out of 19 participants, 13 chose to work on their street name while the remaining 6 chose to work on their family name. A summary of the short documentary style videos produced by the participants highlighting the duration, the approach adopted to present their chosen topics is presented in Table 10.

Table 10

Summary of videos created by the participants in the context of the video assignment.

Video Title & Duration	Brief description	Treatment (use of modes/effects/voice over, …)
Introduction to Mauritian History- Street name, Bonne Terre Vacoas by **Mustafa** [04min17s]	Video starts with Mustafa in front of his house presenting what his video is about. He leads us to an inhabitant of his locality who has lived on Bonne Terre street for 68 years. The latter is seen standing on the street relating how the street has evolved, the spots of interest for which the street is known and the importance of this street for Mauritians.	Emphasis on black and white still and moving images (video recordings). Only a coloured still image is used towards the end before the credits screen. Audio narration (self) in French Captions used for still images Interview is in Creole and presented with English subtitles Background music is used throughout (soft instrumental)
Mauritian History What's in a name: Family name by **Elodie** [03min42s]	Elodie presents the etymology of her family name and puts it in the context of the History of Mauritius. She gives a short historical background of Mauritius and its multicultural population, then presents some genealogy charts and makes a reflection on the importance of knowing about one's origins.	Emphasis on still pictures/photographs Audio narration (self) in English language Use of on-screen text No subtitles, no captions Background music is used throughout (movie soundtrack)
Presenting to you a short film-What's in a name: Family name by **Farida** [04min57s]	Farida is shown sitting in a garden and gives an overview of genealogy, then shows the documents she was able to retrieve from the archives related to her ancestors. She also speaks of the research process to find the information.	Composed of a mix of still and moving images Audio narration (self) in English language Varied transition effects used On-screen text (use of varied typographic style) Background music is used to support screens with on-screen texts and still images (Indian instrumental music)
What's in a street name: The street we live on by **Heshani** [02min24s]	Heshani presents through a series of still images the origin of the name of the street where she lives. The street is named after an Indian reformer who is known for promoting teachings of Hindu scriptures. Who was this person? His works and contribution to the promotion of Hindi language is shown through a series of still pictures. An old school she attended bears the name of the street and in the last part of the video, she makes a self-reflection on the importance of knowing one's History.	Emphasis on still images and on-screen text Audio narration (self) in English language only at the beginning and the end Limited use of moving images/video footage Sound effects and background music are used throughout (New age music and Indian instrumental music)

Street name- *Ligne Berthaud lane* by **Urmila** [05min22s]	Urmila uses a narrative approach to tell us about locality she lives in and how it is now and how it was. She interviews an old lady who relates how the locality was before.	Emphasis on still images/photographs with some moving images (video footage and animated graphic) Audio narration (self) in English language Interview is in Creole and presented with English subtitles Background music is used throughout except during the interview (soft instrumental)
Port-Louis harbour- throughout the years (Place D'armes) by **Shamim** [04min58s]	Shamim's video is about the Port-Louis harbour and its vicinity. She presents her interview with someone who has been working for 40 years in the harbour and who relates the way the harbour has developed and its contribution to the country.	Emphasis on still images and on-screen text/captions Limited use of moving images/video footage No audio narration. Interview is in Creole language with no subtitles Varied video and text transition effects used Background music is used throughout except during the interview (Contemporary R&B/pop/punk)
Street name-Caroline Vallée des Pretres by **Disha** [04min17s]	Disha focuses on spots in her locality. She interviews an old inhabitant who explains that the street is named after a sugar mill built during the French period and which is now in ruins.	Emphasis on moving images (video footage of location) and video recording of the interview. Audio narration (self) in English Language No captions No video transition effect Interview in Creole with no subtitles Background music is used throughout (soft instrumental)
Evolution of Desforges St to Sir SeewoosagurRamgoolam St. by **Khajifah** [04min25s]	Khajifah's video traces back the History of a street in the capital city of Mauritius, which was named after a French governor but which is now named after the first prime minister of the nation, Sir Seewoosagur Ramgoolam (SSR) The video ends with her reflection on the contribution of SSR in the development of the street.	Emphasis on still images with on-screen text Audio narration (self) in English language Varied video transition effects used Background music (Sad instrumental and the national anthem)
*In every road lies a mystery, let's unveil one…*by **Poonam** [03min27s]	Poonam's video is about the name of the street and the locality where she lives. She interviews an inhabitant living in the locality for more than 50 years who relates the story of the street which is linked to the mountain 'Corps de Garde'.She then gives her own reflection about how there are many stories about the street. Video ends with video footage on the street leading towards the mountain.	Emphasis on video recording on the interview and still images Interview is in Creole language with English subtitles Audio narration (self) in Creole language with English subtitles Varied transition effects used Background music throughout except during the interview (movie soundtrack)

Sir Seewoosagur Ramgoolam Street by **Vidya** [02min20s]	Vidya's video is about the History of Sir Seewoosagur Ramgoolam Street. She relates how the name was changed from Desforges Street to Sir Seewoosagur Ramgoolam in 1967.She then takes us to meet the owner of a pharmacy on that street, in existence for 30 years. We learn how the street was before – the infrastructure, its people, and its activities. Still pictures are used to show the contrast between old and new.	Composed of a mix of moving images (video recordings) and still images Audio narration (self) in English language Interview is in Creole language with English subtitles Varied transition effects used Background music (inspiring and uplifting music mix)
The street of memories by **Bina** [07min34s]	Bina tells us about her locality. She focused on how the place was before, how people used to live, the sugar mill Perspectives of two inhabitants about the locality are presented. The video ends with herself reflecting on her experience of video making and what she gained out of it.	Composed of a mix of moving images (video recordings) and still images Audio narration (self) in English language Two interviews in Creole language No subtitles, no captions Video transition effect used Background music throughout (mixture of soft instrumental)
My family name by **Jay** [03min22s]	Jay's video is mainly about his genealogy. He presents an interview with his grandad (2nd generation). He relates the hardship faced by his ancestors on the ship while coming from the South of India to Mauritius. He explains that he is from the 3rd generation.	Composed on a mix of video recordings (taken from another documentary & his own video recording on the interview) and still images. Audio narration (taken from another documentary)in English language Captions/on-screen texts are used for still images Interview is in creole with no subtitles Background music (Instrumental and African music)
History of my family name by **Nowmi** [03min38s]	Nowmi's video is mainly the interview conducted with his Grandfather. A few old family photos with on screen texts explains her family surname.	Emphasis in on video recording of the interview and some still images No audio narration Interview in Creole language but with no subtitles Captions/on-screen texts are used for still images No background music
*Into the depth of my street name…*by **Romika** [07min17s]	Romika's video tells us a bit about the street where she lives and also how she went through researching about it, by interviewing inhabitants, documenting herself from the archives. Since the street name is named after the French governor Mahe de Labourdonnais who has contributed a lot to the development of the capital city of Maurtius (Port-Louis), she gives us an overview of the place.	Composed on a mix of moving images (video recordings) and still images Audio narration (self) in French language with no subtitles Captions used for still images Background music throughout except during interview (mix of lively music and patriotic music)

175

What's in a name- Family name? by **Alivn** [03min34s]	Alvin explains how he went about finding the origin of his family name, and how it was difficult to research about this due to lack of information. An interview with a distant relative has enabled him to get a brief idea about his family background.	Emphasis is on moving images (video recordings) Audio narration (self) in English language with on-screen texts in English Interview in Creole language with subtitles in English language Varied video and text transition effects Background music throughout (a mix of soft and lively instrumental)
Street name: Avenue Surat by **Geeta** [03min45s]	Video is based on the history behind the street name Avenue Surat located in the town of Quatre-Bornes. The name is linked to an unfortunate event that occurred before the independence of the country where a Mauritian citizen was killed during the riots in 1965.	Emphasis on moving images (video recordings) and on-screen texts in English language No audio narration Some video effects have been used Background music throughout from beginning to end (movie soundtrack)
Family name by **Tesha** [05min28s]	Tesha tells us about her family name and from where her ancestors came, how they used to live. Her video includes a video recording of one of her relatives.	Composed of a mix of moving images (video recordings) and still photographs/pictures and animated graphics Audio narration (self) in English language with on-screen texts Video transition effects used Interview in Creole language with subtitles Background music throughout from beginning to end except during the interview
My street name- La grotte street by **Lovena** [03min23s]	Lovena walks us through her street and its surroundings and then presents the interview of an old inhabitant who relates the religious significance of the street.	Composed of a mix of moving images (video recordings) and still photographs/pictures. Audio narration (self) in English language with no subtitles Audio recording of the interview in Creole with no subtitles. Varied video transition effects Background music is used only when still images are displayed (soft instrumental)
My street name- Blakett street by **Caroline** [03min57s]	Caroline presents us her street located in the town of Curepipe. Video starts with a view of the town of Curepipe located in the centre of the island and we are then taken into the street and its surroundings.	Emphasis is on still images. Some video recordings of the street and its surroundings No audio narration. On-screen texts are used Lots of video and text transition effects/visual effects have been used Background music used throughout (contemporary)

176

Participants were given instructional guidelines for the video assignment and had to adhere to some specifications but were free to choose how to orient their video composition, that is what modes they would favour to convey meanings. As mentioned in the methodology chapter, their video was supposed to be between 3 to 5 minutes and adhere to some specifications. The process of video making involved producing a storyboard to guide them through the video editing process.

Below I present a summary of the categories of description that emerged from the data anlysis in relation to LS2 and which will be analysed in detail in this chapter. As already mentioned in the methodology chapter, the first level of phenomenographic analysis produces categories of description that are analysed and interpreted by the researcher. The data analysis involves a process of abstracting data from mainly interview transcripts and in some cases from some other forms of information received from participants (drawings, written accounts, video recordings). The data analysis for the phase of the study where the participants became producers of their own DMT, yielded six categories of description numbered 1-6 as summarised in Table 11.

Table 11
Summary of categories of description for learning situation 2 (LS2)

Category of Description (CoD)	Learning with DMTs from a production perspective is seen as
1	An assessment task
2	A novelty in the way of learning and assessment
3	A journey of ups and downs
4	An opportunity for widening one's horizons
5	An opportunity for personal growth and development
6	A process of multimodal orchestration

6.2.1 Category 1: An assessment task

The video assignment is conceived as a compulsory task leading to grades

Producing a documentary style video was a graded assignment included in the module and required the participants to become creators of their own DMT as compared to being consumers/users of the instructor's prescribed DMTs as was the case in learning situation 1. A student performance is usually evaluated through summative and formative assessment. In higher education, it is common to have a number of assignments that are graded which count towards the continuous assessment of the module. The History module was assessed both formatively and summatively. Students had to complete coursework as well as sit for a written exams of three hours duration at the end of the academic year. The video assignment was made compulsory and was graded as part of the formative assessment of the History module. This led to varying levels of interest and engagement noticed at different stages of the learning task.

Reading of the interview transcripts and the written reflective accounts produced Category 1, where producing a video was seen merely as a task leading to grades. Participants focus was on the compulsory nature of the assignment and the rewards associated with it. When the task was introduced, some of the participants admitted that they were not looking forward to doing the video assignment because of a lack of IT related skills, but they felt bound to complete the work to avoid their final grades being negatively affected. So it was about fulfilling a course requirement in view of achieving grades and to avoid failure.

Caroline, a participant from the History and Sociology programme of study admitted that initially when the assignment was given out, she was very frustrated as she did not know how to manipulate computer software. She felt disinterested and was not eager to do the assignment but since the assignment was a compulsory one, she felt it was an obligation to complete and submit the work.

> *"[Interviewer] Okay. But what motivated you to finally do it?* **Because it was** **compulsory to return the homework ((laugh)).*"* [Oke. Me kinn pous twa fer li finalman?* **Parski ti oblize rann devwar la ((rie))]** *(Caroline: IntLS2_94)*

The above quote highlights the main reason that actually brought Caroline to complete and submit the task. Being mandatory, the assignment was viewed as something important which had to be completed in order to fulfil the module requirement. The compulsory nature of assignment does not necessarily lead to the work being done. However in the case of Caroline, her decision to act upon the learning task could also be interpreted as wanting to avoid failure or being looked as an irresponsible student. Similarly Shamim described her initial apprehensions regarding the video assignment and also since she was not able to see the value attached to the task, she had made up her mind not to carry out the work. She decided that she would attach more importance to the exams. However, gradually she felt uneasy with her decision:

> *"I was worried in fact because er I was supposed-I was supposed to do it, it was an assignment. It was an assignment and I was going to be marked on this and if I don't do it I would lose my marks." (Shamim: IntLS2_64)*

Shamim's statement echoes the feeling of being compelled into doing something that is necessary to achieve a goal. Despite her fears, she finally carried out the assignment and as she progressed through the work, she emphasised the seriousness and pertinence of the video assignment. This is highlighted in her written reflective account:

> *"As a matter of fact, it is to be noted that this was my first ever time, using Windows Live Movie Maker for something as serious as this."(Shamim: WR_D)*

The value of the learning task as perceived by Shamim was progressively reviewed from having not much significance to something serious to be accomplished in order to fulfil the requirements of the module.

A task that is scoring

The video as an assessment task was viewed in terms of an easy way to score good marks. The fact that the video assignment was different from other familiar, conventional forms of assignment, appeared to provide more opportunities to demonstrate one's creative abilities and therefore was more scoring. Mustafa highlighted that the act of producing a video assignment was not limited to using non-digital tools such as copybooks and books and involved being creative while also scoring marks:

". . . No but was pleased because as if I had previously worked with this and that as if this was a homework that will count like for 20 marks for us but I was pleased okay like we will get 20 marks without needing to use a book copybook and learn but something by own creativity, originality, we were really pleased, okay." [Non me ti kontan parsi kouma mwa monn deza travay avek sa ek ki kouma dir sa li ti enn devwar ki pou konte kouma dir pou nou lor 20 pwin me mo ti kontan oke 20 marks kouma dir pou gagne kouma dir pa forceman bizin trap liv kaiye al aprann me enn zafer par prop kreativite, orizinalite, nou ti vreman kontan oke] (Mustafa: IntLS2_95)

Others like Poonam who after completing the multimodal assignment felt that it was easier than a writing task and regarded this type of assessment as more scoring:

". . . the first time I heard that yes there will be a video assignment, I was worried but when you look at it properly it is a lot easier than replying to the question on paper and according to me it can be a more scoring as well because it is easier." [premie kout ler monn tande wi pou ena enn assignment video, monn trakase me kan ou get byin li beaucoup pli fasil ki ou reponn enn kestion lor papie e dapre mwa li li kapav boukou plis scoring aussi parski li pli fasil] (Poonam: IntLS2_611)

Her perception of the video assignment as being more scoring as compared to conventional assessment was further expanded to include the teachers' involvement in marking the work. Since the video assignment offered a choice of topics, it was assumed that there would be variety in the contents of the video and therefore could be more interesting as a learning artifact. According to Poonam, the reading and marking of written work such as exam papers which normally is text-dominant could become boring for the teacher in contrast to viewing and marking videos. This is emphasised in her statement below:

"a-a lecturer according to me uhm a lecturer if they mark let's say 50 exam papers they might be bored ((laughs)) but once it is a video they will find new things because two topics were given uh all the students will not do the same thing, when they see that new thing that change is a new thing for them too and for me as well." [enn enn lecturer anfin dapre mwa hein enn lecturer si li pou koriz dison 50 papie li kapav li pou plin ((rie)) me du moman li enn video li pou trouv nouvo kitchoz parski inn gagn 2 topik euh tou zelev pa pou fer parey, kan li pou trouv sa nouvo la sa sanzman la li enn zafer de nouvo pou li ousi et pou mwa ousi] (Poonam: IntLS2_363)

In summary this category revealed that carrying out a video assignment as a learning task/activity was something viewed by participants as working towards goals such as fulfilling

the requirements of a module, to score marks which would eventually determine their performance level of the module.

6.2.2 Category 2: A novelty in the way of learning and assessment

The category 'A *novelty in the way of learning and assessment'* was a result of the different views which participants voiced about having a video assignment to complete as part of their module. Conceptions within this category relate to the nature of the assignment and the type of learning artifact that it produced. The majority of the participants who registered for the degree programmes had been exposed to a conventional teaching and learning environment at high school as noted from the first interview I conducted with them where they spoke about their past learning experiences. The teaching and learning environment was teacher-centred where they mainly relied on text books and teachers' notes. There were some exceptions where for instance technology was used to supplement the traditional classroom teaching as in the case of Poonam, who mentioned that at her secondary school there was a language lab which was used to some extent by the teacher and the students:

> "*Upper the way we learnt there was like we do in every school on the blackboard whiteboard teacher giving notes etc but er after a few years there was a language lab there we even had some classes because the teachers there were very the old tradition they were adopted-adopting the old tradition but er we went to lang-language lab we viewed films and the teacher did some classes on the digital whiteboard.*"(Poonam: IntLS1_29)

Upon joining HE, some participants did find some differences in the teaching and learning approaches which were more student-centred, encouraged independent learning and included technology-enhanced learning as is the case for the Mauritian History module.

Video creation as an assignment which required the use of technology tools was seen by the participants as 'new', 'innovative', 'different, 'creative' since they compared it to their previous learning experiences. Upon hearing about the video assignment, some participants claimed to have been surprised or shocked to hear that such an assignment was being introduced in a module like Mauritian History. Having completed the assignment, learning as a process and a product was seen as a novelty. The conceptions that relate to this category are described below and are supported by extracts taken from the participants' interview transcripts, focus group transcripts and written reflections.

Moving beyond the usual type of academic task

The video assignment was seen as a new type of academic task which differed from the usual classic type of academic task the participants have been acquainted with since secondary level schooling such as writing essays or reports. At Higher Education (HE), especially in the institution where the study was carried out, the most dominant form of academic task used to assess students' learning is written assignments such as essays and reports. Students may be asked in certain cases to make an oral presentation to demonstrate their competencies and knowledge. Humanities courses, more specifically text-based disciplines regard essay writing as an important part of the curriculum and History students are often required to demonstrate their historical inquiry and analytical skills through research and writing tasks. For the participants, the video assignment came as a surprise and was unexpected as can be illustrated by the quotes below:

> *"I was surprised because I didn't expect that in this module we will have a video assignment."(Khajifah: IntLS2_60)*

> *"Surprised, er never thought I would do er any sort of er like I said before in the previous interview, I never thought that er probably er digital aspect you know, video editing or any sort of media and digital platform could be integrated with history and I was surprised in a sense. . . " (Jay: IntLS2_103)*

This notion of the History subject being associated with the digital technology field was seen as something unusual and unexpected. Participants never thought that they would need to manipulate digital tools and softwares as part of their learning. The following participant shared the same preconceived idea about History teaching and learning:

> *"Because this is a Mauritian History module and er it is not at all related to IT stuff, I was a bit shocked and surprised, but since it formed part of our module, I had-I know I had to do it."(Heshani: IntLS2_99)*

> *"No, I wasn't expecting. I thought everything would be like presentations with PowerPoint or else documents on paper. I wasn't expecting a video assignment." [non, mo pa ti pe atann. Mo ti pense tou pou ena kouma dir bann presantation lor Powerpoint ou swa bann dokiman lor papie. Mo pa ti pe atann enn video assignment.] (Tesha: IntLS2_79)*

Seeing the digital approach to learning History as a novelty was related to the prior learning context experienced by participants like Poonam and Vidya who admitted the following:

182

". . . it was something it's something new because those things like PowerPoint, Word and video and all that is new for me because in my school we didn't do all that, for exams, tests it was written uh on paper so it is something it is something very very new and it does not it does not make me bored, it isn't routine, it is not monotonous." **[…li enn zafer nouvo parski sa bann zafer kouma powerpoint, word e video tou sa la li nouvo pou mwa parski dan mwa mo lekol nou pa ti pe fer tou sa la, pou lexame, test, c'etait 'written' euh lor papier alor li enn afer li enn zafer byin byin nouvo e li pa li pa, fer mwa plin, li pa enn routinn, li pa monotonn…]** *(Poonam: IntLS2_351)*

". . . it was new because in other modules we do not euh do this type of assignment that is doing a video and presenting the assignment in the form of a video, we do it on paper, may be presentation but not through a video. It was different." **[C'était nouveau parce que euh dans les autres modules on fait pas euh ce genre de devoir c'est à dire faire une vidéo et montrer er présenter le devoir er dans une vidéo, on le fait par papier, présentation peut-être mais pas par vidéo. C'était différent.]** *(Vidya: IntLS2_95)*

Furthermore, the fact that the video assignment was considered to be an innovative approach to assessment methods, seemed to gain higher importance in the eyes of the participants. Vidya shared her opinion about having to do a video as an assignment:

"I have been doing many assignments during the first semester, mainly for the Mauritian History module. However, having to do a video assignment was quite surprising and innovative as it is on a higher level compared to the assignments I have been doing earlier. . ." *(Vidya: WR_B)*

Making knowledge visible through new forms of expression

This conception focused on the knowledge representation aspect of learning. Producing a video as a piece of learning artifact was regarded as a novel approach to demonstrate what was learnt. Compared to writing long essays which are mostly text-based, a video represented a change from classic ways of representing knowledge in a more visual, less restrictive and less monotonous way. This can be illustrated by the following quotes extracts:

"Uh I was happy because at least this took us out of the routine, from the written because before we had written assignments, of 700, 300 words, It was always written written and here we were doing something digital, we were using new things and above all that we were going to meet new people to better understand the context of the video." **[Uh j'étais contente parce que au moins ça nous tirait un peu de la routine, de l'écrit parce que avant on avait les assignment écrit, de 700, 300 mots, c'était toujours écrit écrit et la on faisait quelque chose de digital, on utilisait de nouvelles choses et surtout**

qu'on allait faire de nouvelles rencontres pour comprendre un peu le contexte de la vidéo.] (Romika: IntLS2_89)

". . . Having a video assignment for this module is quite interesting as it changes from the 'classic' assignments. . ." (Elisa: WR_B)

"I was excited about having a video assignment to do. It was so different from others. I can put my own ideas, do it the way I want without manipulating facts. . ."(Geeta: WR_B)

From the above quotes, the focus is on the format of the learning artifacts which go beyond words and are less conventional. The fact that composing a digital video allowed for the use of varied semiotic modes (e.g still and moving images, audio) made some of the participants feel less restricted in the choices for communicating their ideas and thus sparked their interest towards the assignment.

Having completed the video assignment, Tesha felt that a multimodal approach to presenting an assignment is much easier and brings out more opportunities for representation of knowledge as compared to writing a text. She emphasises the potential of visuals to convey more meaning than the written words:

". . . it's in fact easier than an essay er in there you can present your homework when you are including photos and all, even if in the photos if there are a lots of things you can extract from this photo, like you can in a photo you can explain lots of things that in a paragraph that you will write in an essay and it is easier to present the homework." [. . . li ofet li pli fasil ki enn essay er ladan ou kapav presant ou devwar kan ou pe met foto tou sa la, mem dan foto si ena enn ta zafer ou kapav tire dan sa foto la, kouma dir ou kapav, dan enn foto ou kapav explik enn tas zafer ki dan enn paragraf seki ou pe ekrir dan enn essay ek li pli fasil pou presant enn devwar.] (Tesha: IntLS2_387)

6.2.3 Category 3: A journey of ups and downs

Viewed from a process perspective, the act of creating the video was seen as a journey mixed with exciting and frustrating moments which created a range of feelings and reactions.

"The creation of the video is filled with lots of ups and downs, and also excitement." (Farida: WR_D)

During the whole process of video making from research to the end product, the participants experienced a series of feelings and emotions which were shaped by situations they

encountered- collecting information through interviewing, filming, audio recording, taking pictures and manipulating specific softwares. The whole process of video making is normally broken down into pre-production, production and post-production phases. The pre-production phase is where all the planning and the script writing is done. The production phase comprises of activities such as conducting interviews to gather information, audio/video recording or shooting and taking pictures. The post-production phase involves using editing softwares to put the various semiotic resources together to form the story to be conveyed through the medium of a video.

From the oral and written accounts of the participants, it was clear that there were moments which were remembered on one hand for being unusual, funny, different, exciting and enjoyable. On the other hand, some difficult moments encountered led to anxiety, frustration, uneasiness and a feeling of discouragement.

Moments viewed as being positive during the learning process

The activities related to the production phase were found to be particularly enjoyable and enriching as it was new. As reported by some of the participants, activities such as filming and conducting interviews were appreciated:

> *"There were moments which were quite funny while shooting. It was also a quite enriching experience as I got the opportunity to talk to and interview some people at Sir Seewoosagur Ramgoolam Street (ex-Desforges Street) and learnt more about the particular area."(Vidya: WR_D)*

> *"hmm the parts where I most liked in this video was the time I was going to take photographs, I was going filming, this part was interesting for me because I am not used to go on the street to go filming and take photographs."* [hmm bann bout ki monn pli kontan dan video la se moman ki mo ti pe al tir photo mo ti pe al fimle, sa bout la ti interesan pou mwa parski mo pa habitie ale lo semin, mo nek ale fimle tir foto.] *(Caroline: IntLS2_164)*

> *"I really liked doing my interview. It was funny, even though we had to do it so many times!"(Bina: WR_D)*

The participants also encountered unexpected and unusual situations during the production phase which they recalled as enjoyable as part of their experience of creating the video. Geeta for instance recalled how when her friend and herself were doing the video

recording/shooting, people in the surroundings got curious about what they were doing. For Geeta and her friend, this situation was less of a distraction and more of an entertaining moment. They found enjoyment in the activity they were doing:

> *"There were moments that –I enjoyed a lot especially when we want to film, some people, were finding a bit weird, you can see his hand in the camera, may be we laughed at them, we got funny things, very funny things occurred, there are passers by, they thought that we are from the MBC[15] we told them no, there were people there are people whom we did not know, for some we took their photos and we took their photos, we processed it on the spot and we gave it to them ((laugh))."* **[Ti ena bann moman ki ex--inn byin enjoy sirtou kan nou al filme, bann dimounn pe trouv inpe bizar, trouv dan kamera so lame, ena dimounn kapav nounn riy zot, nounn gagn bann zafer byin komik, bann zafer byin komik inn pase, ena bann dimounn pase, zot ti panse si pa sorti MBC nounn dir bann la non, ena dimounn ena dimounn pa konn zot, ena nounn tir zot foto ek nou tir zot foto, nou devlop li to anplas nou donn zot ((rie)).]** *(Geeta: IntLS2_176)*

The final phase of video making was also lived as a pleasurable moment for some of the participants. The editing phase which involved the manipulation of software and working with audio and visual effects. Participants seemed to have enjoyed the practical oriented aspect of the video assignment which favoured a more hands-on approach to learning which allowed them to discover and experiment with new things. Having been taught how to manipulate video editing software at the beginning of the video assignment, the editing phase was a way to put in practice what they had learnt through demos and tutorials on video editing. The editing phase for some of the participants was about discovering, experimenting and being creative with technology:

> *"When we had to, when I had almost nearly everything and then putting everything together, choosing the photos, the music uh I really like the music that I have chosen."* **[Quand il fallait, quand j'avais déjà presque tout et que là il fallait assembler, choisir les photos, la musique euh j'ai bien aimé la musique que j'ai choisi.]** *(Elisa: IntLS2_114)*

> *"What I enjoyed was putting the video into place like putting everything together."(Heshani: IntLS2_146)*

The process of video editing involved sitting in front of a computer and manipulating software. Participants may have felt a bit more in their comfort zone as opposed to going out to film or

---

[15] MBC- Mauritius Broadcasting Channel- The national television and radio broadcasting channel

186

to interview people. The case of Nowmi was interesting to note as she admitted during her interview that she never was really interested in computers and had never heard of Movie Maker software before but did not find it stressful to work on the editing part. Instead as is evidenced in her written reflection, she enjoyed this phase. Exploring and discovering the different functionalities of the software seemed to have motivated the participants. The focus was on the use of the technology to express themselves:

> *"The moment that I am enjoying the most, is trimming and putting effects to it." (Nowmi: WR_D)*

From the above statements, it appears that participants found in the assignment something meaningful, exciting and were thus motivated and showed interest in what they were doing. There were phases during the video making activity that were more appreciated than others.

Moments of discomfort during the learning process

The task of video making was not only seen as contributing to good feelings, it also consisted of moments that led to frustration, stress and anxiety which resulted from various constraints they faced. For some of the participants, it was clear that the process of video making was lived as something that was not easy or smooth throughout. Participants spoke about various constraints and difficulties they encountered during the video making phase such as recording and filming constraints, technical/technological issues, software manipulation, video editing issues, difficulty in gathering data for the video, resource and time management. Lovena's metaphor is interesting to note:

> *"But the whole video editing was not a bed of roses. Assembling everything in the movie maker and making the whole video indeed encountered difficulties" (Lovena: WR_D)*

For instance, issues occurring during filming were found to be to some extent tedious, disruptive, frustrating and time-consuming. Excerpts of utterances supporting the issues that participants felt were constraining during the production and which in a way affected the final outcome include:

". . . another problem that I had it's euh actually the person whom I interviewed, I told him about the questions that I will ask him but while I was recording him he was responding to my questions, he was—he was adding other things, other euhh er other euh personal opinions which were out of subject and this was not very convenient, I uh I then had to—bring a lot of modifications to my plan of work uh uh I had to modify lots of parts in my work and this has somewhat ruin the flow, the continuity." [. . . l'autre problème que j'ai eu c'est euh au fait la personne dont j'ai interviewé je l'ai dit que je vais lui poser tel et tel questions mais pendant qu'il pendant que je le filmais il répondait à mes questions, il a--il ajoutait d'autres trucs, d'autres euh d'autres euhh er d'autres euh opinions personnelles qui n'e--qui étaient hors sujet et ça c'était pas trop approprié, j'ai euh j'ai dû à ce moment la faire--modifier beaucoup plan de travail euh euh j'ai dû modifier beaucoup de partis dans mon travail et ça a un peu gâcher comme-ci la séquence er continuelle.](Vidya: IntLS2_187)

". . . it was on the filming side that there were lots-we were getting some problems when we were filming, sometimes it was the wind, sometimes a car was coming, at times it was also the sun because when the sun was shining on the person, he was a bit, people looked a bit black and that." […kote filme ti ena enn pake-nou ti pe gagn inpe problem si si pa kan nou ti pe filme, si pa ena fwa divan, si pa euh loto pe vini, ek ena fwa ti soley si parski kan soley-la ti pe tap lor dimounn la li ti inpe dimounn ti pe paret inpe nwar tous sa.] (Mustafa: IntLS2_193)

". . . motorbikes were making a lot of noise, they kept on making noise, then I thought I will go on top of the house, on top of the house also there was noise,. . . "[Motosiklet pe fer tapaz, pe res fer tapaz mem, lerla monn dir mo al lao la kaz, lao lakaz si ena tapaz, . . .] (Tesha: IntLS2_229)

Other technical/technological issues such as laptop breakdown, became a source of stress for some participants such as Heshani who admitted having started the assignment late as her laptop was sent for repairs and due to that she went through a stressful time:

"I was more stressed by thinking about the video ((laughing)) because I knew I didn't have a laptop." (Heshani: IntLS2_ 134)

Participants also recollected and described how it was difficult for them at times to stick to what they had set out to do. When reflecting on their work during the interview and in their written reflective accounts, some participants expressed their frustration and disappointment for not being able to for instance collect evidence as they would have wished or were unable to do certain things. This was expressed in their written reflections:

188

"One of the most frustrating moments I had encountered was during the video shooting. I needed to interview a person who works or resides at SSR Street, while almost all people I had met agreed to answer few questions; they all soon disagreed as soon as I informed them that they were to be filmed."(Vidya: WR_A)

"I did have a lot of frustrating moments during the process of the video assignment. Especially with the interviews and audio recording. I had to do them several times and even after that it would not work. There were a lot of times I wanted to quit or do something else because I was simply unable to do those things."(Bina: WR_A)

Demanding in terms of time and resources

The assignment was also perceived as demanding in terms of time and resources. The quality of the outcomes according to some of the participants depended largely on the time and the resources that were at their disposal. Some participants were conscious about the quality of the video outcome they had produced and felt that they could have done better if they had more resources – in some cases these resources were content-related, in others technology-related. Participants like Geeta or Alvin felt they could have done better given the adequate resources.

Geeta for instance had to review what she had in mind regarding the end product due to constraints. This is evidenced by her statement below:

"We had only, actually the the video we were going to show it differently , I was going to present it myself, because I have previously done radio presentations, but finally we got problem because of a lack of resources, it would not be clear, we therefore did it differently. . . "[Nou ti ena zis, ofe video-la nou nou ti pou montre enn diferan fason, mo ti pou presant li mwa mem, parski monn deza fer presantation a la radio, me finalman ti gagn problem a koz mank lekipman, pa ti pou tand byin, nounn fer li diferan lerla …] (Geeta: IntLS2_202)

Participants provided a self-evaluation of the final outcome they produced. Those who highlighted weaknesses in their work associated this with a lack of proper technological equipment and stated that with better resources a better outcome can be produced.

". . . But I still find that I could do further improvement, I could, If I get better equipment, I can do better, with minimum resources I have managed to do something like this, but I get maximum, better."[Me mo ankor trouve ki mo ti kapav fer ankor improvement, mo kapav, si mo gagne better equipment, mo kapav fer better sc--avek minimum de sours monn kapav fer quelquechose comme ca, me si mo gagne maximum -better.] (Geeta: IntLS2_350)

" I'm not really very satisfied - it's like er I didn't get good footage, I didn't got to the interview like video, I had to put a picture, I had to do translation by myself since she didn't want to talk in English."(Alvin: IntLS2_348)

These two participants were able to speak of the quality of what they had produced as they had previous experience in such work. The end outcome of the assignment was the focus.

6.2.4 Category 4: An opportunity for widening one's horizons

Within this category, the participants conceived the experience of the multimodal composing task as a way to widen their historical content knowledge and also to develop a range of new skills. It not only focused on knowledge and skills acquisition but on knowledge production. Participants reported having been able to acquire technical knowledge and skills while at the same time they became more knowledgeable about aspects of their history and cultural heritage.

Discovering new range of skills

The participants of the study included those who were completely new to the field of video making, those who had limited exposure and those who had previously been involved in manipulating video editing software. For those who had never experienced the different stages in creating a video, the video assignment task seemed to be daunting at the beginning especially when it came to the manipulation of digital software but reflecting on their experiences, gains and opportunities were reported.

Irrespective of whether participants were previously exposed to video creation, the multimodal assignment was seen as an opportunity to discover and acquire knowledge about the tools and techniques of video making. For instance some views focused on tools, software used, their features and potential:

190

"First of all I have gained knowledge of how to use a video editing software." [*Premyerman monn gagn knowledge lor kouma servi enn software pou video editing.*] *(Caroline: IntLS2_392)*

"Academic, euh for example we learned to use, Movie Maker a bit better cause- because when I used it I was in Form 5 or so and here I was using it again perhaps we have learnt a bit more things about well things like, transitions, this is ok but let's say like Audacity, it's like a plus and we can link it with this and yeah that's it. . . "[*Akademik...euh par examp anfin nounn konn servi, Movie maker inpe pli byen kk--parski kan mo ti servi mo ti dan form 5 par la ek la mo pe reservi li peut-être nounn konn inpe plis bann zafer kot euh anfin bann zafer kouma transition la korek mem me dison kouma Audacity kouma bann zafer plus nou kapav relie sa avek sa ek euhh wai se sa. . .] (Mustafa: IntLS2_409)*

"I have learnt how to edit a video first and put them together. . . " (Heshani: IntLS2_343)

Despite the feeling of fear in using unfamiliar digital software to them at the beginning of the assignment, participants valued the fact that through the assignment, they were able to discover, explore and learn how to use audio and video editing software. In so doing they acquired IT related psychomotor skills which they felt were valuable and transferable skills for their academic and professional career:

"But nowadays where we are able to use it, it is a plus for ourselves, if tomorrow perhaps we are going into the world of work as well, don't know if we will use a computer, we have a presentation to make but it will help us." [*Me maintenant kot kouma dir nou pe kapav servi li, li enn plus pou nou mem , si demin peut-être nou pe al dan enn lemond travay oussi..pa kone si pa nou pe servi enn ordinater, nou ena enn presantasion pou fer me li pou ed nou] (Mustafa : IntLS2_439)*

Similarly it was interesting to note that participants who were initially apprehensive about the video assignment demonstrated a growing interest and self-confidence in carrying out similar tasks in other academic contexts. They became motivated to pursue this experience in other modules such as anthropology and sociology out of their free will. For instance Vidya reported that it is because she had the opportunity to develop specific skills in the video assignment that she opted for a video format for the anthropology module assignment. Her confidence and an interest for such type of learning artifact is evident in her utterance:

"Furthermore now that I know how to do a video, I can make use of this knowledge and apply it effectively to other modules. And as a matter of fact, I have done this euhh I had a presentation for my anthropology module and I did a video." [En plus maintenant que que je sais comment faire une vidéo, je peux me servir de cette connaissance la et le mettre euh à profit dans d'autres modules. Et d'ailleurs j'ai j'ai fait cela euuh j'ai eu euh une présentation pour mon module d'anthropologie et j'ai fait une vidéo.] *(Vidya: IntLS2_319)*

Seeing historical content knowledge from another perspective

Participants reflected on how the video assignment enhanced their historical content knowledge and at the same time changed the way they valued the past. Participants engaged in an enquiry process to gather audio/visual/textual sources of information for the video composing work, and which led them to better appreciate aspects related to the History of Mauritius. Some participants were very conscious about having learnt more about historical events and facts by engaging in such an assignment which required them to look for information from both primary and secondary sources. Through the video assignment, participants were not restricted to books, documents and archives as sources of information. They had to be physically present on the field to collect historical evidence such as video recordings of the places or people they were investigating, oral interviews and pictures. The video assignment was seen as an opportunity to acquire new or additional historical content knowledge.

Participants like Roodisha, Heshani, Geeta and Shamim acknowledged the fact that through the video assignment, they discovered new things and their perspectives about certain aspects of History which were previously not of much interest for them changed. For instance, Heshani who created her video based on the topic "Street name -What's in a name" admitted that this assignment made her question things in her surroundings that she never used to be concerned about:

"At a personal level it made me think hmm I don't know how to explain this...it was a reflective work so it er made me think about things that I did not give any importance like everyday I pass in front of that school, but I never er take it into consideration ((laugh))." (Heshani: IntLS2_347)

Through the process of creating a video, a change in mindset was noticed in the way participants came to value aspects related to the History of Mauritius. Geeta described how she got motivated to explore details related to the independence of Mauritius which was not of much interest to her prior to this assignment. Geeta did not restrict her enquiry to the topic of the video itself but tried to understand it through further exploration of past events. Utterances such as those shared by Geeta, showed her motivation to extend her research and how she saw it as being valuable and meaningful:

> *"As I told you I was not too interested in-knowing the independence of Mauritius, I know as a whole but since the time I came to know about this person's story, I became very sad, emotional. I went to look for every detail that there was on independence of Mauritius, each small parties that exist, I still have a document a dossier that I did for this video. So this is still helping me-I know this by heart in my mind, people will ask me details about that."*
> *[Parey kouma monn dir ou mo pa ti tro interese en-konn lindependans moris, wi mo konne an general me du moman kan monn konn sa dimounn la so zistwar, mo ti vinn byen trist, emotionnel. Monn al rod tou detay ki ena lor independans Moris, sak petit parti ki ti existe, mo ankor ena enn dokiman dosie ki mo ti fer akoz sa video-la. Alor sa ed mwa ziska ler-mo konn sa par coeur dans ma tete, ki manier dimounn pou demand mwa kit detay dessus]*
> *(Geeta: IntLS2_372)*

6.2.5 Category 5: An opportunity for personal growth and development

The video assignment was seen as an opportunity to grow as an individual as it allowed participants to acquire new academic and social skills and to construct knowledge through experiential learning. Engaging in the production of their own digital text empowered the participants to take ownership of their learning. Within this category participants were more aware of their personal growth as a result of facing and overcoming apprehensions and challenges, social interaction and support.

Showcasing one's talent and abilities

In this study, participants felt that the video assignment was an opportunity to demonstrate their skills and abilities to others. Some participants who had previous experiences at creating videos during their free time, for fun, for friends but had never experienced the same in the context of an assignment felt that they were being given the chance to show to others what they were capable of. Heshani who used to produce small video clips that she posted on her

YouTube Channel before doing the video assignment attached importance to the video editing skills and abilities she has acquired. The following quotation from her interview transcript showed what it meant for her to produce a video assignment:

> *"[Interviewer] so, er with regards to your-do you think it means something to have such an assignment? yes because it gives us a ta-a chance to show our talents how to edit a video, how to make a video and it is also, a productive work because it will er allow us to go and interview people and engage in recording, etc etc."(Heshani: IntLS2_352)*

Romika who was not at her first attempt at creating a video, also shared the same thought:-

> *"In other modules perhaps we do not do such work, videos but this has allowed me perhaps to, show my abilities."(Romika: IntLS2_369)*

Feeling valued by others – Self-esteem

The participants' experience of producing a video was also described in terms of the importance they attached to how others -their peers and friends, their parents and siblings- regarded their work. Whether it was during the production phase or after completion of the learning artifact, the emotional support and guidance from parents, siblings, and friends seemed to have had a major place in their learning experience and was valued. It is human nature to crave for appreciation. When our efforts are recognised and appreciated by others, we tend to feel that the work we have accomplished is worthwhile. I guess having encouraging comments made students feel good about their investment in the video assignment task. During the interviews, participants discussed how the comments they received on their work from other people such as their friends and parents contributed to the feeling of pride and contentment. Some participants like Shamim recalled how her mother showed deep interest in what she had produced and expressed her satisfaction:

> *"She said it was hard to believe, she-she couldn't believe that, well it's not a big thing, honestly it's not a big thing, I-I'm not a professional I've just managed to do something small by myself. It's my first time and she said she was very proud, I was very happy but when she was she-she said that she is proud because I could see it-see it in her eyes. She watched it like four or five times and she even told me to put it on a CD for her to watch on laptop or TV. So it's-it's a kind of different feeling when your mom is actually happy with you it-it's a small work and she is happy so I was happy my-too."*
> *(Shamim: IntLS2_342)*

194

Poonam described how people in her surroundings became impressed when they saw her interviewing and recording:

> *". . . Everyone at my place well at my granny's there are a lot of people in the house, they all sat down to watch me doing that like it is something different, they were they liked it, they were very surprised like how-how I was at school and the work I was doing at university they are very different like they were saying you have grown up now you are doing some great great things ((laughs))."* **[Zot tou kot mwa anfin kot mo nani ena beaucoup membre de la maison, zot tou inn asize inn get mwa fer sa anfin kouma dir li li enn zafer diferan, zot pe zonn trouv sa byin, zonn byin surpri kouma dir sa-kuma mo ti ete dan kolez ek bann travay ki mo fer liniversite li li byin diferan kuma dir zot pe dir wi tonn grandi aster to pe vinn fer bann gran zafer ((rie))]** *(Poonam: IntLS2_243)*

Mustafa related how after having completed his video, he copied it on a CD and then played it on his television since his parents wanted to see what he had produced as they were aware of his investment in the work. His parents' views were highly regarded:

> *". . . they really liked I made a video in the neighbourhood with someone who is well known and popular in the locality but they were but they were pleased their views were highly regarded."* **[. . . zot ti byen kontan in fer enn video dan landrwa avek enn personn ki byen rekonu populer dan landrwa me zot ti zot ti kontan zot views ti ti 'highly regarded'.]** *(Mustafa: IntLS2_291)*

The social aspect of learning is brought forward in this conception. The encouragement, suggestions and advices received from friends and siblings were found to be a form of positive reinforcement for some of the participants. There were instances where participants sought suggestions and advice from friends and siblings as a way to improve on what they were doing. While for some, the views of others boosted their morale when they were feeling demotivated or reassured them when they were in doubt, for others views received from others acted as triggers for new ideas and further development. It is interesting to note how people external to the learning community showed involvement in the participants work and contributed to the feeling of self-satisfaction of the participants.

The case of Nowmi and Geeta clearly showed how the views and suggestions from others encouraged them to be reflective about their work and to improve. For instance Nowmi got advice from her fiancé, the only person to whom she showed the video as he has been giving her suggestions during the editing phase:

195

"...actually he told me it's good but he also told me to think as he believes something is missing in it, then I was not able to figure out I had to watch it again, think over it again then I found out that there were some things missing ((laugh))." [. . . *Non ofet linn dir mwa li bon me zis linn dir mwa panse mo krawr mank kitchoz la dan, lerla mo pa pe kone mem fode monn bizin reget li ankor repanse lerla monn trouve manke de trwa kitchoz ((rie))] (Nowmi: IntLS2_256)*

Geeta also relied on the encouragement and professional guidance from her friend to move on when she was confused or was unable to decide on some things such as what colours or effects to be used. This social and emotional support was crucial for keeping her motivated and determined:

" ((laugh)) The effects were catastrophic, I did not know what to do, at times it was colours too—at times the colours were too bright, at times colours were too dark, I could not understand what do to. I was not understanding the effects, luckily my best friend has done cinematography, he helped me with the effects. More or less, he told me to choose, to do it by myself, he did not do it, rather he guided me how to do it, he told me to decide myself, to go and sleep one day at night, dream, do not think about anything, dream, see in the morning when you get up, then you re-you think about it, forget about it— because I was not forgetting it at all, everyday it was on my mind. He told me to forget it for a day (.) this time I really went, I went out, at home I slept, the next day I woke up, I told myself, something cropped into my mind the election at the (name of an institution) that came to my mind, it's the blue colour came to my mind and then I said "No, blue!" [*((rie)) lefe ti katastrofik ((rie)) katastrofik, pa ti pe kone ki pou fer, ti mama ti bann kouler tro --ena fwa bann kouler tro bright, ena fwa kouler tro dark, pas ti pe gagn konpran ki pou fer. Mo pa ti pe gagn konpran lefe, luckily mo mo best friend inn fer cinematografi, linn ed mwa avek bann lefe, plus ou moins linn dir mwa swazire, fer twa mem, li pann fer li, linn gid mwa plito pou fer li, linn dir mwa deside twa mem, ale al dormi enn zour a swar, reve pa bizin to pans narie, reve gete gramatin kan to leve to lerla to re- think about it , blie li-parski mo pa ti pe blie sa, tou le zour sa ti dan mo la tet. Li dir mwa blie li pou enn zour, sen kout la vreman monn ale, monn sorti tou, la maison monn dormi, so landime monn leve, monn dir mo pa kone kinn pas dan mwa sete elektion liniversite moris kinn pas dan mo la tet, se couleur bleu inn pas dan mo la tet ek lerla mo dir "Non, bleu!"] (Geeta: IntLS2_ 245)*

Along with this feeling of pride was also the value the participants attached to their work. Having created a video as an assignment, they were asked who they think should see or would be interested in seeing the video they have created. The question brought out the value students attached to their work not solely for themselves but for others. For some participants, what they had produced could benefit others whereas for some the work was not professional

196

enough to be seen by others. For instance participants like Alvin, Jay and Bina the video topic was considered quite personal and therefore was not seen as something that would interest a wide audience except may be the author himself/herself and specific people who directly or indirectly have a link to the content of the video such as their close relatives and friends.

According to Bina, the video on the street name that she created would not necessarily be understood by or be relevant to the general public. But it would be relevant to people who can connect to the street and can recollect their memories by watching the video:

> *"They really liked the video but I think its because they know their street,*
> *that's why they liked the video, they like the memories but if I'm going to show*
> *to other people, they would not -they would not understand why I, the way I*
> *put the video together, but for my family, they*
> *understand"(Bina:IntLS2_357)*

Romika sees her creation as having educational value, being a learning product which could be of interest for secondary as well as university students while Vidya and Geeta think that their video is an informative product having a wider audience, especially for those people with limited knowledge about their local History. Their statement clearly expresses that their work is a useful piece of historical artefact:

> *". . . er almost everybody and because you know there are many persons even*
> *those in Desforges Street, that is Sir Seewoosagur Ramgoolam, they do not*
> *really know the history." (Vidya: IntLS2_282)*

> *"Err I think people in my street, more or less those who know a bit about the*
> *incident and also they would like that other people in this street they also*
> *know about it. Associations—there is an association which often takes care of*
> *this street, may be they would be happy to watch it because it's it's history*
> *history of this street, that has marked this street so future generation needs to*
> *know about this."(Geeta: IntLS2_327)*

So from the above, it is clear that even though the video was produced in the context of an assignment, participants recognised its value for academic and non-academic contexts. For some, the video was potentially useful as a learning product and an informative product.

Feeling a sense of achievement

The end product of the video assignment was viewed as an achievement and accomplishment. The sense of accomplishment and self-satisfaction were mostly discussed by those

participants who succeeded in achieving the goals they set at the beginning. Even though the video assignment was viewed as a challenging task, some participants in retrospect thought that it allowed them to develop self-confidence and self-satisfaction. Overcoming inhibitions, difficulties and challenges were part of the learning experience of creating a video. They felt a sense of achievement and accomplishment after completing and submitting the video. The fact that they were able to do something on their own irrespective of whether it was good or not was of utmost importance and this improved their self-esteem. Some excerpts that support the value attached to self-esteem in learning include:

> *"Personally I am very happy I know it's not a big thing alright it's not a big thing, I have not - I haven't done anything professional like big er extraordinary interview or something, but I'm happy with this small piece of work that I have been able to do because it's something that I have done for-for the first time and I think it's a, I have-I have managed to do-to do a video of three no four minutes forty five seconds, it was it was something, it's something that er that i've really -that i've really appreciated because I've been able to do it by myself, well through tutorials and the help of my lecturers ((laughing)), well er, I personally I feel happy and I feel relieved that I'm-I've able-I've been able to:o to to do the-to create the video even though I was feeling frustrated at first and I was not keen but I'm happy that it's -it's it's become a success, it's become okay."(Shamim: IntLS2_378)*

> *". . . It's been a real struggle to some extent uhm, for personally I am satisfied with the work that I have done because er I have given efforts in it all the time since the- since the assignment has been given till the submission date . . . "(Farida: IntLS2_225)*

> *"I was very happy ((laugh)) I was very happy that for the first time I have been able to do something on my own."[Monn byen kontan ((rie)) monn byen kontan premie fwa monn resi fer enn zafer par mwa.] (Nowmi: IntLS2_285)*

> *"It is quite time consuming but seeing the end result makes it worth all the efforts invested in it and we are filled with a sense of satisfaction while watching the end product." (Vidya: WR_A)*

Along with this sense of achievement, is the idea of becoming more autonomous or independent when engaging in a video making task. The response from Poonam during the focus group discussion clearly illustrates that she was aware that being a creator represents opportunity for self-development:

"I'd like to say that at the college we used to depend on the teachers for notes, works, classworks but while being a creator of the digital multimodal text, we've become more independent. How? it's that we can take a book with the notes and create it in a way like using that notes, create it in a way that we help ourselves understand it better. So this way we become independent."(Poonam: FGD_786)

Alvin also spoke about the fact that a video making activity promotes more active and independent learning. According to him, a video assignment requires personal investment:

"Since we have to do interviews and we have to move to those places and film by ourselves, so it's fruitful since we have to move at that place and go by ourselves, or waiting for the lecturer to bring us there for a site visit." (Alvin: FGD_1062)

Some participants upon reflecting on their engagement in the video making task, were aware that such work allowed them to overcome certain inhibitions or accomplish things that they never thought they would be able to handle or do. For example, Bina, conscious of her shy nature found it particularly satisfying to have succeeded in facing the camera and expressing herself. Extracts from her written reflection account showed how it mattered to her to have been able to overcome the inhibition she had regarding recording herself:

"The thing that was really the most satisfying to me was to be able to express myself in front of the camera. It took me some times but I eventually did it." (Bina: WR_B)

Self-determination in accomplishing the goal set for the video assignment echoed in some of the participants' responses. Many of the participants were determined to have good footage, pictures and audio recording to meet their goals with regards to the assignment. Tesha for instance admitted that she had difficulties in finding a good place to capture the interview recording with her uncle as there was background noise which would impact on the quality. It is clear from her statement that she was concerned about the quality of the outcome:

". . . when I was filming my paternal uncle's interview, I was filming it on my own terrace, there was a rally, motorbikes were making a lot of noise, they kept on making noise, then I thought I will go on top of the house, on top of the house also there was noise, then I walked till the cane fields where it seemed like I could do it -in the background there is my house, then just in case there is a problem with the mobile phone, this time I took my sister's phone. . . " (Tesha: IntLS2_224)

6.2.6 Category 6: A process of multimodal orchestration

A multimodal composing task such as creating a video requires the creator/producer to make certain decisions such as what the video content will consist of, how the content will be structured and what modes of communication would be best suited to convey the message. For instance, the producer will need to decide on whether the video will be a display of still images supported by background music, or a mix of moving and still images enhanced by background music, or to have audio narration, or to have subtitles, texts, and so on. Participants made use of various modes when creating the video and I was interested to know the reasons why they chose specific modes in trying to convey the video assignment topic they chose. I therefore decided to include some probing questions such as:-

- *Can you tell me why you chose to add these effects?*
- *Can you tell me why you chose to add this particular music?*
- *Can you tell me what made you choose these images/videos you have used to create the videos?*

These questions were intended to give the participants the opportunity to reflect on the design choices they made with regard to the communication modes they used, how and why they used them to add meaning to their video message. The responses of participants regarding the reasons behind the choice of specific communication modes in their multimodal text creation varied. Utterances showed that some participants made their choice at times based on personal preferences, convenience or constraints. Other participants were aware of deeper meanings attached to the modes and they could explain in a more critical way why they made certain choices. The choices were either directed towards themselves or took into consideration the target audience.

In this conception of the participant's experiences, the focus is on "learning as a process of design and choice of representation" (Jewitt, 2008, p. 258). Advanced by the New London Group (1996), multimodal composing is a complex process which involves students to become "active designers-makers of social futures" (Cope & Kalantzis, 2000, p. 7). This process is also seen as a meaning making process where the choice of design elements contribute to various meanings emerging from the composition. Similarly, in the multimodal composition task, the videos that were produced were varied in terms of the way knowledge

200

was represented through an orchestration of different communicative modes. Some participants demonstrated modal preferences and relied on the communicative and associative aspects of specific modes to convey meanings in their videos.

Choices related to the use of different modes that were used in the multimodal composing

The relationship between music and visual was brought to the forefront in some of the participants voices. The background music in the videos participants created was often chosen for its associative and expressive qualities. Participants for instance spoke about how the music they had chosen contributed to the visual meaning of what was being conveyed in the videos. As noted by Ellis and Simons (2005), music has an influence on how we interpret images since music triggers feelings and emotions. So in this study, some participants had preconceived ideas about the type of music that suits documentaries, more specifically a History-related one which they normally associate with the past, to what is old. Soft, calm, soothing music was thought to be more adapted to such documentaries. These may be linked to the participants' prior experiences of watching documentaries and also based on conventions:

> *"I searched a slow ((laugh)) music because it suits it, I can't put loud music it should be like History a bit, yeah, so, [Interviewer] So you mean history is equivalent to slow? Yah ((laugh)) [Interviewer]((laugh))er A kind of because er when I watch history documentary it's always like this, slow motion er sad a bit, yeah like this, like you need to go in the past."(Khajifah: IntLS2_244)*

The associative notion of music has been highlighted by Juslin' (2013) argument about how a "performance of music may be perceived as expressive of a specific emotion simply because something in the music (a melody, timbre) has been repeatedly and arbitrarily paired with other meaningful stimuli or events in the past" (p. 9). In some cases, there seemed to have been a deeper reflection going on during the decision making process as to what music/soundtrack would best suit the message. The choices were made based on the relevance of the music against the topic of the video. Participants made connections between what was being conveyed in terms of visuals and the connotative meaning attached to the music soundtrack. For instance, Romika explained that how she used two different sound tracks to add meaning to her video. As highlighted in Table 10, Romika's video focused on her street name which is linked to the French colonisation period (1715-1810) and which is named in

201

honour of one of the French governors ruling at that time, Mahe de Labourdonnais. She used the music track *Don't worry be happy* for the section of the video where she presents how she carried out her research. Another section presents some historical facts about the French governor's contribution to the island's development through a sequence of old photographs on Port-Louis, the capital city that witnessed major developments under the governorship of Mahe de Labourdonnais.

Figure 23. Sample screenshot from Romika's documentary video where
she used the French national anthem

Romika chose to include the French national anthem *The Marseillaise* which is a revolutionary song as background music for this section, as according to her it related well to France and to the French revolution in 1790 which had repercussions on the administration of the island. Below is her statement when asked the reason behind her music choice:

> *". . . La Marseillaise, for-because "La Marseillaise", it is rather the revolution." [. . . La Marseillaise, pour -parceque La Marseillaise elle est plutôt la revolution.] (Romika: IntLS2_165)*

Clearly, she thought through in a systematic way where it was important for her to synchronise the music in relation to the visuals being depicted.

Regarding the visual modes, I found that decisions regarding when and where to use which modes, were shaped by situational and contextual factors. In some cases where moving images were not available, alternatives were found. In the case of Elisa and Heshani for instance, they compensated for the limited information they had in terms of interviews, video recording by including many static visuals:

> *"Like I told you I wanted to do an interview and put it in the middle but since I didn't have the interview I, put a lot of pictures."(Heshani: IntLS2_197)*

> *"I also wanted to film someone from my family but the problem is that the person with whom I got the the informations is in France and my grand-mother uh well my two grand-fathers are no more but my-my grand-mothers are still here but they don't know, uh she does not know anything about it"(Elisa: IntLS2_193)*

In this process of video creation, there are often uncertainties and alternative decisions that had to be taken by the participants. Participants had to demonstrate decision making throughout the process. There were higher cognitive demands as they had to think about several aspects at the same time. Participants' reflections after the completion of the assignment showed that they have learnt through the experience how they could further improve their work. There was a feeling from some of the participants that there were some limitations in their work in terms of video content and the visual quality and appeal.

In the videos typography was used for the title, credits, sub titles and captions. Participants' choices regarding the linguistic modes were shaped either by the audience, purpose or context. Elisa who has created a video on the topic" *Family name-what's in a name*" choice of typography was based on appearance, associative and evocative qualities. This demonstrate that there are existing perceived ideas about the feel and atmosphere a typeface can convey in the minds of the participants:

> *"Uh I found that it was like, old the old writings uh that's it, I found that it reminded of the past."(Elisa: IntLS2_208)*

For some participants, the visual impact and appeal of the video would have on the audience was an important aspect in multimodal composing. Colour, typographical elements, visual effects such as transitions were chosen based on their readability, their ability to engage the

audience and their effectiveness in adding clarity to the message. The utterances below suggest the reasons for some of their design choices:

> *". . . probably it was a choice because I did not use something like Times New Roman which is blunt, it's a movie it has to script its much more better."(Jay: IntLS2_271)*

> *"The caption I used it as if let's say because he spoke in kreol if tomorrow someone who doesn't understand creole perhaps might watch the video with only subtitles well it's not subtitles but there are captions in general and overall what the man is trying to say."(Mustafa: IntLS2_365)*

It is important to note that in this process participants engaged in a decision making process which was either based on personal preferences or having in mind the audience and the purpose of the video as a product.

6.3 Section II: Structural relationships between the categories of description (LS2)

The six categories of description emerging from the data analysis specific to the participants' experiences as a producer of their own DMT in the context of an assignment were detailed in the above section. Those categories have been further explored to show how they relate to each other in order to understand participants' expanding awareness of the critical aspects experienced during the LS2.

6.3.1 Overview of the outcome space – LS2
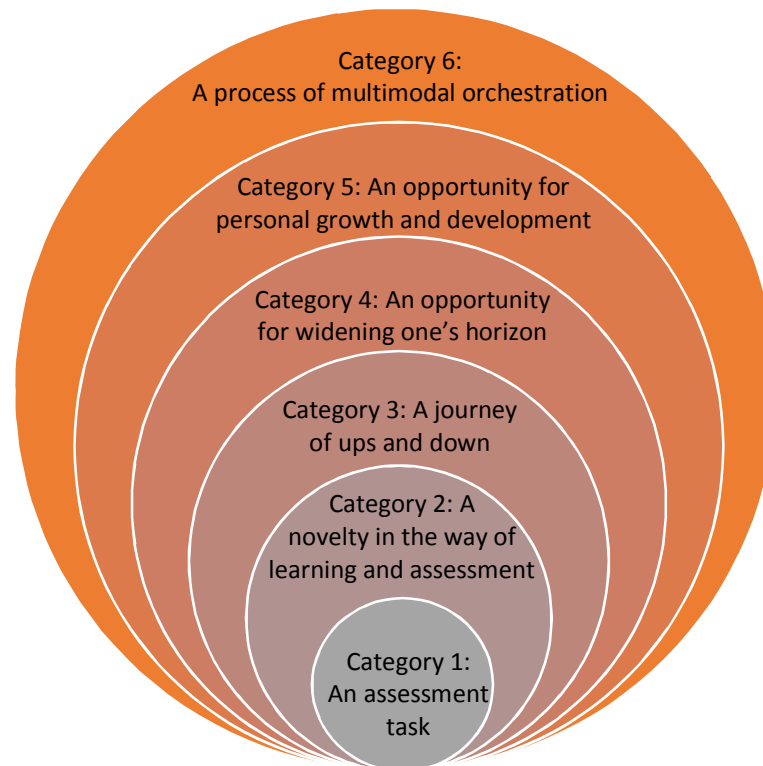
Figure 24. Outcome space reflecting participants' experiences of DMTs in LS2

The different ways in which the participants experienced the video assignment were represented in the outcome space (See Figure 24) which placed the categories of description as "a developmental progression, in the sense that the conceptions represented by some categories have more explanatory power than others" (Laurillard, 1993, p. 45). It showed a growing awareness in the critical aspects that made up their experiences of engaging in a multimodal assignment.

6.3.2 The dimensions of variation – LS2

The categories of description were differentiated from each other based on three themes that were perceived differently across the categories. These included:-

- Purposes
- Motivational sources
- Significance

6.3.2.1 Purposes

Every educational activity must have a certain goal which may not be perceived in the same way by the teacher and the student. In this study the teacher's intent behind introducing a video assignment in the History module was to allow the students to (i) to represent History through a variety of communication modes (ii) to develop imaginative visual construction of the past and (iii) to develop skills in video creation and editing. The purpose of carrying out the video assignment as part of the assessment of the module was viewed differently across the categories of description by the participants. The table below shows how the purpose of engaging in the video assignment was viewed across the six categories in different ways. In a way, it represents a synthesis of their views regarding the production of a video as an assignment.

Table 12

The 'Purposes' dimension of variation running across categories of description 1-6

Dimension of variation	Categories of description					
	1	2	3	4	5	6
Purposes	Fulfilling course requirements; scoring marks	Creating a new form of learning artifact	Learning to overcome challenges and to manage emotions/ feelings and attitudes	Widening historical content knowledge and developing multiple skills	Feeling appreciated /valued for their effort by others /Personal growth	Applying skills and demonstrate abilities to create the end product

The first category of description 1, '*An assessment task*' may be considered as less complex as it viewed the multimodal assignment mainly as forming part of the requirements of the module and which was supposed to be fulfilled for assessment purposes. As with any other forms of assessment, completing the video assignment was a means to an end. Participating in the assignment was mainly about fulfilling the requirement of the course, scoring marks, complying with the instructions or feeling compelled to do the work due to the compulsory nature of the assignment. Participants failed to ascribe a deeper meaning to the task and did not, for instance present reflections about the pedagogical value of the task. In the Category 2, '*A novelty in the way of learning and assessment*' participants were still referring to the assessment task but were also aware about learning differently while doing this type of

assignment. The aspect of novelty was in focus and was perceived against the background of other forms of learning and assessment with which they were familiar. In this category, participants' descriptions echoed the interest in the video assignment for its novelty. Having a product focus, Category 2 laid emphasis on creating a learning product/artifact that was new and original in terms of its type and format. While in the Category 2, the participants' focus was on the video assignment as a new type of product or learning outcome, in Category 3, '*Journey of ups and down*', the process, the end product and participants' motivation were in the thematic awareness. In order to fulfil the outcome of the assignment and work towards the goals set at the beginning of the task, participants had to leave their comfort zone and engage in a learning process full of ups and downs. During the process of creating the video, participants encountered situations that were at times viewed positively and at other times viewed negatively. They had to learn to overcome challenges, manage emotions, feelings and attitudes. For instance when faced with some difficulties, participants started to feel discouraged, frustrated which in turn played a determining role in the goals that were set at the beginning of the task. Compared to Category 1 and 2, the 4th and the 5th categories -'*An opportunity for widening one's horizon*' and '*An opportunity for personal growth and development*' respectively went beyond a surface level view of the assessment task. Focusing on the opportunities of creating a video, both these categories described the perceived personal benefits of engaging in the act of producing a video to (i) widen their historical content knowledge (ii) to develop multiple skills and (iii) to feel empowered and appreciated for their effort. The feeling of creating a learning artifact whereby their effort was valued by others meant a lot to them. The goals of the assignment therefore were more comprehensive as compared to the other categories. Finally Category 6 "*A process of multimodal orchestration*' focused on the participants' multimodal design choices and the tools and processes they need to engage with. The purpose in the last category was to apply skills and demonstrate abilities to create the product for themselves and for an audience. The assessment task went beyond being a mere task to be completed for gaining marks to being a multipurpose task. This dimension of variation clearly shows that the purpose for accomplishing the video assignment varied across the categories of description moving from a more simplistic conception to a more complex one.

6.3.2.2 Motivational sources

Motivation may arise through various sources which are considered to be internal or external to the individual. "Motivation is the impetus or reason for doing the behavior; it initiates the action" (Deckers, 2010, p. 7). Participants were motivated in different ways to complete the video task being assigned to them. Table 13 provides an overview of the factors that contributed in motivating participants from the beginning to the end phases of the video production which varied across the different categories of description.

Table 13
The 'Motivational sources' dimension of variation running across categories of description 1-6

Dimension of variation	Categories of description					
	1	2	3	4	5	6
Motivational sources	Grades/marks (extrinsic)	Doing something different and discovering (Personal drive)	Associated to positive moments encountered during the video making process (intrinsic and extrinsic)	Becoming knowledgeable (intrinsic) Encouragement by others/appreciation and feedback from others (extrinsic)		Multimodal design choices stirred by personal preferences and other external factors

In Category 1, the main motivational factor or source was the reward associated with the assignment. It was an extrinsic type of motivation which led the participants to complete and submit the work by a set deadline. Knowing that the assessment task would carry marks, the participants' attention was not directed to the process of learning but to the end product. In the second category, the sources of motivation were more intrinsic than extrinsic. The ability to see the assessment task as something creative, different and new meant that they were driven towards the act of producing the learning artifact. Pursuing the learning activity was motivated by the willingness to engage with something different, the willingness to explore new ways of representing knowledge and to produce a different type of learning artifact. In category 2, the motivational sources are intrinsic as they are within the individual. The reward aspect was not present in the focal awareness of the category but would be in the thematic awareness. Category 3 included both intrinsic and extrinsic sources of motivation. Having a process and product focus, Category 3 required the participants experience a journey of

exciting and frustrating moments which led to a range of feelings and reactions during the process of creating the learning artifact. Participants were mainly motivated by the positive situations they encountered. The personal interest and enjoyment contributed to 'intrinsic motivation by sustaining the willingness to continue and persist in the activity' (Reeve, 1989, p. 83). Categories 4 and 5 focused on what the participants thought they gained while engaging in the video making process. Participants were motivated to carry out a video making task because they thought they would be developing new skills and learn new things that will be helpful to them in the future. In Category 5, the motive to pursue the task was to to be able to achieve something despite a journey filled of ups and downs and also to be able to demonstrate one's abilities and competencies. Encouragement, appreciation and feedback from others were things that kept the participants going. When they felt they wanted to give up for instance, they were encouraged and supported by siblings and friends. Category 6 which was viewed as more complex as it involved much of the participants' past experiences, feelings, thoughts and decision-making process to reach the goal which was to produce a video. Personal preferences and external factors motivated participants' multimodal design choices. Being able to achieve a product that made use of various modes in an effective manner was the main concern for the participants in the descriptions provided in this category.

6.3.2.3 Significance

Relevance and significance are important aspects in one's learning experiences. When we want to know the relevance of our action in a given context and we question in what way it is significant to us or to others, we question its appropriateness. The '*Significance*' dimension is closely linked to the '*Purpose*' dimension discussed above and looks at the act of producing the video and the outcome it produced in terms of its significance. The six categories of description revealed that the video making task was valued in terms of its short term and/or its long term significance. Across the categories of description, the significance dimension identified was associated to either *the process, the product or both.*

Table 14

The ' Significance' dimension of variation running across categories of description 1-6

Dimension of variation	Categories of Description					
	1	2	3	4	5	6
Significance	Little personal value (Short-term relevance)	More personal value – relevance attached to the self and the learning context	Personal relevance-immediate and long term-Memorable events	Opportunities and gains – Developing lifelong skills and competencies		Awareness of the purpose and meaning of using different communicative modes and design choices to create an end product for self and for an audience

Category 1 was about fulfilling a requirement mainly to avoid failure by completing and submitting an assignment irrespective of its type or quality. The relevance dimension was not fully developed in this category as it was limited to being seen as a task to be completed because they had to and to avoid the negative consequences of not doing it. Producing a video as a learning activity was seen in terms of a short-term relevance in Category 1. Participants fitting in category 2, *'a novelty in learning and assessment'* attached more personal value and importance to this new type of learning and assessment. Producing a learning artifact in a video format was a different way to demonstrate learning and participants felt that they were being given the chance to be innovative. The video as a learning outcome was something unique as compared to the types of other learning outcomes they generally produced for other modules. A video assignment was perceived to be relevant to the history learning context as it was a change from the conventional ways of learning and assessment. In Category 3, participants described the task as a journey worth travelling despite being challenging. The situational contexts that were lived by the participants during the process of video creation made them view the task as something that had memorable moments whether these were positive or negative ones. The positive moments triggered good feelings and made the participants feel more interested in the task. The fun moments encountered while doing such an assignment were relevant in the sense that it brought a positive attitude towards the act of learning. Students were seen to be interested in pursuing the task despite the difficulties and frustrations they experienced. They were ready to invest time and effort to successfully complete the task which clearly showed that the learning task had personal relevance. The

participants' self-efficacy and self-regulation towards the task was dependent on the context and the activities they were engaged in during the whole process of video making.

The video making task had a meaningful personal lifelong relevance in Categories 4 and 5 which were broader as compared to the other categories as participants described the relevance of the task as gains and opportunities not only with respect to the learning context. They were aware that through the video making assignment, they were able to widen their knowledge and develop new competencies that could be used in the long run. The relevance could be viewed as higher as compared to the type of relevance that was identified in Category 3. It is linked to the individual's "internalized short-and long-term goals" (Eccles & Wigfield, 2002, p. 120) whereby the participants saw the worth of learning in terms of memorable events. The relevance of both the act of producing the video and the final output was highlighted in Category 5 showing how meaningful the task was for the development of the inner-self. Being able to showcase their abilities and feeling empowered to take ownership of learning, feeling a sense of achievement and feeling valued and appreciated by others were critical aspects that were focused upon. In the last category '*A process of multimodal orchestration*' which included the learning act, the relevance theme was not brought directly in focus. However, it was understood that the task was different from the conventional ones and required participants' active involvement at all three learning domains namely the cognitive, affective and psychomotor domains. Participants had to make design choices and manipulate tools and software to effectively create the end product. The assignment was viewed as a creative construction of meaning through the use of digital technologies. The video assignment in this sense was meaningful in the eyes of the participants as it made them feel like designers and also allowed them more flexibility and freedom to adopt a creative approach to represent historical knowledge and understanding. They were not only creating a product for themselves but were thinking about how others would view their creation when making certain design choices.

6.4 Summary of chapter

The different ways participants experienced the learning situation 2 have been analysed in the above two sections and brought forward quite positive attitudes towards the video assignment as a new form of learning within the context of the Mauritian History learning. The

opportunities outweighed the challenges faced by the participants. The categories of description and the outcome space produced as a result of the data analysis showed that there was a growing awareness of what it meant for participants to engage in a video assignment as a first year undergraduate in a module like Mauritian History. The purpose, motivational sources and significance were the three themes that appeared to be present in the different categories of description but were perceived in different ways.

CHAPTER 7: DISCUSSION AND CONCLUSION

7.1 Orientation to the chapter

This study involved participants enrolled on the module HIST1002Y for the academic year 2015/2016, a module whereby they had the opportunity to learn about Mauritian History through a web-enhanced approach which included both face to face lectures and DMTs as learning resources, some of which could be accessed via an e-learning platform and on CD, except for the films which were screened in the lecture theatre. Set as an intervention study, the main objective was to explore the first year undergraduate students experience of learning with and through these texts in view of understanding the pertinence, potential and limitations or challenges and implications associated with the incorporation of digital learning pedagogies in this specific academic discipline. A phenomenographic methodological approach was chosen for the current study as it allowed the participants' voices to be heard and provided insights into their varied outlooks on their experiences of being users/recipients and creators/authors of DMTs at higher education level.

Three research questions were formulated for this study: (i) *What are the undergraduate students' experiences of learning with digital multimodal texts?* (ii) *How do undergraduate students experience learning with digital multimodal texts?* and (iii) *'Why do undergraduate students talk about their experiences the way they do?* The first two research questions were addressed in Chapters 5 and 6. The third question which was meant to be broader and theoretical in nature at the outset is addressed in this chapter which provides insights into the 'why' in relation to the field and further presents the theoretical learnings that emerged from the study.

7.2 Summary of research findings

The two learning situations (LS1 and LS2) whereby participants used and created DMTs were analysed to reveal the different ways DMTs were experienced and for each of the learning situations, categories of description were established to uncover the variations in the experiences of the phenomenon being explored. Data was collected through two round of

interviews, one for each learning situation, participants' written reflections and a focus group discussion. Following the phenomenographic tradition, the findings were presented as two set of categories of description, one for each of the learning situations which were first analysed in terms of their referential and structural aspects. These categories of description were further investigated to highlight how they were logically related and were presented in two distinct outcome spaces, one for each learning situation.

From a user/consumer perspective (LS1), the findings revealed that the participants conceptualised, perceived and understood the use of DMTs in five qualitatively different ways which were organised from narrower to broader conceptions in an outcome space. The categories of description in relation to LS1 were identified (i) as authentic sources of information (ii) as a novelty in the learning approach (iii) as an opportunity to break learning monotony (iv) as an emotionally engaging experience and (v) as effective and useful learning support.

As for the LS2, the findings produced six categories of description which showed that the experience of being creators of their own DMT, which was in the case of the study a documentary style video, was conceived as (i) An assessment task (ii) A novelty in the way of learning and assessment (iii) A journey of ups and downs (iv) As an opportunity for widening one's horizon (v) An opportunity for personal growth and development (vi) As a process of multimodal orchestration. Tables 15 and 16 provide a detailed overview of the findings which describe how each categories are distinguished in terms of their focus.

Table 15

Summary of description and focus of the different ways of experiencing DMTs in LS1

Ways of experiencing the use of DMTs in LS1
Category	**Description**	**Focus**
A: Access to authentic sources of information	Learning with DMTs is seen as accessing credible and reliable sources of information. In this category, the use of DMTs as learning materials was about accessing information on History, culture and heritage through a range of DMTs (Films, PowerPoints, interactive multimedia). The potential of different DMTs was described in terms of their content relevance, reliability and credibility.	DMT content focus.
B: A novelty in the learning approach	Learning with DMTs is viewed from the perspective of the learning approach, seen as different from the conventional way of learning History and also in relation to past learning approaches used by the participants.	Digital approach to knowledge acquisition.
C: An opportunity to break learning monotony	Learning with DMTs is viewed from the perspective of the variety in the digital formats used to present the History curricular content.	Presentation and formats of DMTs.
D: An emotionally engaging experience	Learning with DMTs is viewed from an affective dimension. Descriptions in this category were linked to how the modes of communication used to express the content of the different DMTs, the graphic style/ the overall aesthetic features/attributes of the DMTs, the approach used by the medium to deliver the message (e.g game approach). All of these contributed to bringing out a range of feelings and emotions in the users.	Affective qualities of the medium and the message.
E: Effective and useful learning support	Learning with DMTs is viewed from its pedagogical dimension. Descriptions in this category laid emphasis on the effectiveness and usefulness of the different DMTs in supporting learning of the HIST1002Y module content.	DMTs as learning tools.

Table 16

Summary of description and focus of the different ways of experiencing a video assignment in LS2

Ways of experiencing a video assignment in LS2		
Category	**Description**	**Focus**
1. An assessment task	A video assignment is described as being an assessment task that is compulsory to complete for achieving grades. An assignment which has to be completed as part of the requirements of the course so as to avoid failure.	Grades/ a compulsory task leading to grades.
2. A novelty in the way of learning and assessment	A video assignment is seen as different from the usual type of assessment task given in a discipline like History. The nature of assessment task and the format/ways of presenting knowledge are seen as new within the context of History learning which requires working with new forms of expression.	Product focus- the novelty in the type of knowledge representation. Focus is on the learning artifact produced.
3. A journey of ups and downs	A video assignment is described in terms of process. The act of creating the video is seen as a journey mixed of exciting and frustrating moments which brought along a range of feelings and reactions.	The process of video creation is the focus and its influence on the emotion and attitudes of participants.
4. As an opportunity for widening one's horizon	The act of creating a video is seen as an opportunity to widen one's knowledge about one's history while at the same time developing a range of technical skills.	Focus is on the relevance of the act of creating a video for technological know-how and disciplinary content knowledge.
5. An opportunity for personal growth and development	The act of creating a video is seen as an opportunity to grow as an individual through active learning.	Focus is on personal achievement, awareness of feeling valued and developing self-esteem. Focus is on the self.
6. As a process of multimodal orchestration	The process of composing is complex and demands specific literacies to navigate through a variety of communication modes.	Focus is on the purpose and meaning of multimodal design choices to create an end product for self and for an audience. A process and a product focus.

216

7.3 Theoretical insights

The findings of this study foreground pertinent themes and issues which are related in one way or another as they all tend to provide insights into how the outcomes of this study might inform our current higher education practices and pedagogies. In this section, discussion will revolve around six main themes of changing literacy practices and the curriculum, knowledge sources and authority, students' agency, motivations and expectations, youth culture and technology acceptance or avoidance, and opportunities and challenges associated with the integration of DMTs at higher education level.

7.3.1 Changing literacy practices and the curriculum

In today's digital age, technology seems to have a very important place in the lives of many people, regardless of their age, gender and social status. We are surrounded by technologies that function as tools to improve various facets of our lives. Nowadays, it is impossible to imagine a world without mobile phones, computers and internet technologies. In Mauritius, a small island developing state, ICT access and use amongst its population has increased at a fast pace (ICT Statistics Mauritius, 2016). For instance, the percentage of young adults aged 12 and above owning a smartphone was 18.6 % in 2014 and went up to 39.1 % in 2016. The highest number of smartphone owners falls in the range of those aged between 20-29, with an increase in percentage from 38.4% in 2014 to 70.7% in 2016. The Continuous Multi Purpose Household Survey (CMPHS)[16] for years 2014 and 2016 indicate that 79.3% used their mobile phones for visiting social networking sites, 75.9% for internet browsing and 80.7% for instant messaging (Whatsapp, Viber, Skype, and Wechat). It is therefore not surprising to see more and more people engaging in offline and online activities via their mobile phones, computers and laptops.

Educational reforms around the world claim that to successfully address the needs of the new generation of learners, the curriculum and pedagogies need to be framed in such a way that they allow for the development of core competencies that students would require to operate effectively in a global context. Students should be given the opportunity to develop literacies

---

[16] Data based on the Continuous Multi Purpose Household Survey as cited in the ICT Statistics Mauritius 2016 retrieved from http://statsmauritius.govmu.org/English/Publications/Pages/ICT_Stats_Yr2016.aspx

that go beyond reading and writing but is our higher education curriculum catering for this? If yes, what types of literacies are being encouraged at HE? Are our undergraduates being properly prepared to face the new challenges of a world that is becoming more and more technology mediated? I believe it is important to reflect on these questions to better understand whether or not there is a mismatch between the emerging literacy practices of our undergraduates and the actual pedagogies being used at HE. Do we need to rethink about current pedagogies in view of addressing the needs of today's generation of students?

There is a common assumption that literacy corresponds to being able to read and write with an appropriate level of fluency. However, this is a limited notion especially with the rapid changes in technology which has given rise to an expanded view of what it means to be literate (Tan & Guo, 2009). The conception of literacy according to Stordy's (2015) conceptual paper on taxonomies of literacies emphasises "reading and writing as a meaning making activity with different texts requiring different backgrounds and skills if they are to be properly understood" (p. 3). New technologies along with the proliferation of DMTs have paved the way to new literacy practices (Cope & Kalantzis, 2015; Janks, 2010, 2012; Serafini, 2012). This is evidenced by young adults' engagement with technology such as messaging, social networking, clicking pictures, making selfies and video making which require that they demonstrate different types of literacies other than reading and writing texts. With their mobile phones and tablets, young people (and adults in some cases) are becoming cultural producers. Technologies have made it possible to showcase one's talents through the creation of digital media on social networking sites, accumulating likes and comments. It is becoming crucial that along with the traditional literacies, other literacies such as digital literacy, visual literacy and critical literacy are addressed in the curriculum.

Most of the participants of this study enrolled on their degree programme of studies after having completed a secondary level education which was mostly based on a conventional approach. During the first round of interviews with the participants, I learnt that except for a few cases, most of them were exposed to a teacher-centred education at secondary school whereby the use of technology was either limited or not used at all. In cases where digital learning materials were used, it was mainly initiated by the participants themselves. A handful of them were encouraged by their teachers to use digital learning technologies but mainly as

a source of information. Their past background experience of digital texts revealed that some of them were regular users of computers to fulfil mainly purposes such as information search, accessing online content (websites, YouTube videos) and connecting with others through social network sites. Some of them looked for additional materials to carry out their projects and homework which included a variety of formats, from text-based to visual and audio/visual materials but these were self-directed and not imposed on them by their teachers. For instance some participants admitted they used technology and digital resources such as YouTube videos to further enhance their understanding of a concept that was addressed in class. However, their past experiences as creators of digital texts were limited to video recordings for entertainment using their mobile phones to create presentations for fun and for others. A few of them related instances where they created a DMT whereby they used their mobile phones to capture memories in the form of small clips of social events such as family birthdays, holidays and so on. Some explored basic features of animation or video software out of curiosity or for fun/leisure. This confirms what several scholars have pointed out regarding how young people are engaging with technologies on their own and outside the classrooms thanks to the ubiquity of various smart devices and technologies (Kafai & Peppler, 2011; Ito et al., 2009; Yi, 2008; Mitchell, 2014). I should point out that the sample of participants included a few who had never used any technology-enhanced learning materials be it at school or outside school. From their responses on their schooling experience, it was clear that some of the students did not feel the need to support their learning with digitally enhanced materials and accepted the conventional way they were being taught at secondary school which was very much teacher-centred and relied on print-based learning materials. Local researchers have raised concerns about such approaches (Allybokus, 2015; S.Burrun, 2011; Ramkalawon & Bholoa, 2016) which unfortunately still persist in many educational institutions. Based on what the participants related about their past experiences of DMTs at school and out of school we can deduce that within their formal learning environment at secondary level, their literacy practices were restricted as compared to those they demonstrated outside school and in their daily activities.

In this current study, the exposure to varied DMTs which included PowerPoint presentations, films and interactive multimedia called for additional skills that extended beyond reading and

writing. In extracting information from the different DMTs, participants were expected to be able to demonstrate additional literacies such as visual and media literacy. These two types of literacies have been defined by Dudeney, Hockly and Pegrum (2013) as "the ability to effectively interpret and create texts in multiple media, notably using images, sounds and video (p. 11). Knowledge acquisition from DMTs is not only about demonstrating technological competence but it is also about being able to read differently. Reading from the screen calls upon new skills, new strategies and new ways of thinking. For instance, reading a text online from a website requires the reader to enact reading practices that are different from linear reading from a book. Switching from one screen to another by clicking on icons and hypertext links to navigate through a website and listening to audio content is surely different from holding a book, turning the pages and reading the alphabetical words and watching (in some cases) the associated still images. Readers need to demonstrate ability and strategies to navigate through the digital information presented in various modes. They need to process messages simultaneously being conveyed through words, image, sound and movement.

From the participants discourse, it is clear that they did not encounter major difficulties as users of the DMTs they were exposed to, as their interaction with digital media beyond the academic contexts often includes using their mobile phones for various purposes or going online to search for information which is presented to them in a variety of modes. In terms of navigating through the digital texts, no specific challenges were reported. The outcome space for LS1 concerned with the experiences of using DMTs as learning materials, provided an overall positive picture of user experience. From a consumer perspective, the DMTs were evaluated as learning products having strengths and weaknesses. In describing their experiences of learning with the three different categories of DMTs as encountered in this study, the participants' description focused on the added value of digital learning to their field of study. Various dimensions such as affect and emotions, motivation, and aesthetics related to the DMTs were raised and these were associated with various semiotic resources embedded within the respective DMTs.

Similar to the work of Pithouse-Morgan et al. (2015), this study showed that digital media was experienced at times with a focus on the medium, or a focus on the message and at other

times as medium supporting the message. This was dependent on the aspects which the participants decided to pay attention to. DMTs as instructional aids were found to be powerful visual support to the textual information, as they aid retention and comprehension. As argued by Grady, McIntosh, Rajah, Beig, & Craik (1999), pictures have the power to evoke multiple representations and associations and therefore involve an encoding process that is more demanding than when encoding words. Yet, in the process of learning with and through DMTs such as those included in the module HIST1002Y, the ways the participants related their experiences showed that critical reading of the DMTs was limited. Despite recognising that DMTs helped them in various ways, the discussion often remained at a descriptive level. For instance, most of the participants viewed the documentary films as a story being told and had a descriptive outlook on the representations. Similarly, the visuals in the PowerPoint presentations were not analysed but mainly considered to be effective to visualise the textual information and the lecture, aiding recall and retention. Exceptionally one participant brought some interesting and pertinent insights on an image used in one of the PowerPoint presentations showing that she had started to demonstrate some higher order thinking skills. However, it is important to point out that during the lecture, when the image was displayed in the presentation, the module instructor discussed this specific image using a deconstructionist approach (Jenkins & Munslow, 2004; Munslow, 2006) highlighting its historical pertinence and meaning which encouraged the participant to think beyond what was being shown to them. Pascarella (2008) argued that for the youngsters of today, navigating in new media environments is often not a difficult task but they may not be proficient in critical thinking processes. I would also argue that digital media (DMTs and other technologies) in the curriculum (History and other disciplines) only makes sense if their application and usage are guided by sound pedagogical practices and not simply to present content.

The video assignment was found to present more scope for engagement thus promoting the development of multiliteracies since it required the participants to be involved more actively and directly with different semiotic resources to produce their documentary video. Surprisingly, even though most of the participants seemed to be users of digital media in some form or the other in their daily life, composing with images, speech, music and texts for the purpose of an assignment was not found to be a simple task. Being familiar with an education

system which prioritise print-based pedagogies could explain why some participants had apprehensions when starting with the video creation task which appeared to be quite daunting for some of them. For the participants, creating small video clips with their smart phones for fun and entertainment purposes was not the same thing as creating a video as an assignment. Young people who have interest in technologies or who are somewhat at ease manipulating technological devices tend to become curious and find it easy to learn how to manipulate their smartphones to create and express themselves through various modes (images, videos, audio). However, it is important to understand how they go about making design choices to fulfil their objectives as cultural producers. Are they able to justify the design choices they make when they participate in digital media culture?

When composing with the semiotic modes, a handful of participants were able to justify the choices they made in a critical manner. While some participants could explain to some extent their compositional and design choices, others discuss these aspects in a somewhat arbitrary or surface manner. The video creation activity as a new form of knowledge representation calls upon different literacies and requires skills and competencies that all students may not possess when they start their higher education studies but which are likely to develop as a result of learning by doing and exploring.

Reflecting on the purpose and relevance of the different DMTs in the Mauritian History curriculum, we note that learning using DMTs was seen as something new and unique as this type of learning was being compared to individual past experiences of learning at a secondary school which as I already indicated relied mostly on print-based materials such as text books and teacher notes, with some exceptions. As seen in the outcome space for both learning situations, the novelty aspect of DMTs was highlighted, whether it was in terms of learning process or as product. Surprisingly, the presence of digital technologies which is normally not a new thing in the lives of young people was found to bring novelty to the History teaching and learning environment and to higher education in general. The novelty aspect of new forms of media was foregrounded in this study. Some DMTs like the multimedia enhanced learning resources ignited their interest and aroused their curiosity as they were newly encountered, especially within an academic context. Still, we need to be cautious about this novelty aspect, as participants were exposed to DMTs and got involved in creating their own DMT for a

specific period. Though participants saw DMTs as a novel approach to learning, we cannot determine that this is something that will remain or will fade away as they become familiar with this digital approach. This support the view of Clarks' (1983) novelty effect with new media which as defined by Koch, Luck, Schwarzer and Draheim (2018) is "an increased motivation to use something, or an increase in the perceived usability of something, on account of its newness. When novelty eventually fades, usage patterns and/or perceived usability changes." (p. 3). At the same, time, we should not forget that as highlighted by scholars like Mitchell (2014) or Yi (2008), some young people as part of their DIY practices outside educational contexts are often found to be intrinsically motivated to create media such as videos, podcasts and disseminate these on online spaces. Technologies will keep on evolving with new things to explore and such avenues represent opportunities for young people to become proactive, curious and creative.

Similar to reading and writing which are skills that are taught, visual and critical thinking skills should also be given an important place in the HE curriculum as these are part of the 21st century skills with which all graduates should be equipped. The study showed that even though these young adults encounter various types of visual stimuli in their everyday lives, they may still need to be given the opportunity to develop these skills in becoming critical and effective users and producers of knowledge. This has pedagogical implications which I shall discuss in a later section.

7.3.2 Opportunities and challenges associated with DMTs

Comments from participants suggest that they were aware that some DMTs had more potential and affordances than others depending on the purpose and context of use. Three categories of DMTs were considered for LS1 and varied views were advanced by the participants with regard to their preferences for specific texts. Their comments suggest that there was a preference for DMTs such as films and documentaries and interactive multimedia resources while other more common type of DMTs such as PowerPoint presentations were not so much in the limelight though a few participants did highlight the positive contribution of such texts to their learning. At the same time, the participants' description of their experience with DMTs, revealed that some DMTs could be seen as having some limitations. For instance, with regard to PowerPoint presentations, one student highlighted that they were not useful when

they are used concurrently with lecture talk as she preferred listening to the instructor and writing down her notes. However she acknowledged that being able to access the presentation after the lecture may be helpful for reference purpose. Some participants' preference for visually dominant PowerPoint presentations were noted. Another participant felt that PowerPoint presentations are redundant and bring nothing additional to the lectures. For some participants, traditional note taking was considered important even though they were given access to a range of DMTs.

Participants in general recognised that visuals (static and moving) played an important role in knowledge acquisition as well as for knowledge reproduction. In evaluating the DMTs such as the PowerPoint presentations, one of the reason participants gave to justify their liking for such text was the contribution of the images to support learning in terms of comprehension, retention and recall. Similarly the animated content in the interactive multimedia resources were also found to be helpful. Quite a few studies support this view about the power of graphics to improve student recall (Stokes, 2002; Szabo & Hastings, 2000). Others like Bateman (2014) view the role of visual information as a "powerful mental scaffold for extracting information from text" (p. 241). The History subject is one where reading is crucial but quite a few participants showed reluctance to read long pages of notes and books which could explain their preference for DMTs which consisted of different styles and mixes of visuals. They considered that picture enhanced stimuli such as the DMTs is more easily recognised or remembered as compared to a verbal stimuli. This supports the picture superiority effect (Paivio, 1971) which has been researched considerably and which has shown the positive effects of images on various aspects of learning (Fink, 2013; Hazamy, 2009; Hockley, 2008; Willingham, 2009). This also points to Allan Paivio's (1986) dual code theory which suggests the importance of verbal associations and visual imagery in cognitive operations.

PowerPoint presentations as one category of DMTs can be said to be of low complexity compared to the other two categories of DMTs as mainly two modes –text and images were used. On the upside, participants were generally in favour of such DMTs for their visual support, for presenting content information in a concise manner, for acting as a guide to lectures and revision, for breaking the monotony of lectures. However, there have been quite

some debate regarding the use of PowerPoint presentations in the teaching and learning context. Studies have shown contradictory views about such a type of DMT regarding its pertinence and relevance. The debate mainly focuses on performance levels, perceptions and attitudes (Erdemir, 2011; Kahraman, Çevik & Kodana, 2011; Lari, 2014; Szabo & Hastings, 2000). Some studies have foregrounded the teacher's use of PowerPoint presentations as a way to modernise the classroom.

In the current study, the findings regarding the use of PowerPoint presentations point to a rather positive outlook on the use of PowerPoint presentations in the History module, despite the mention of some limitations. In many respects, the findings support the view shared by Craig and Amernic (2006) who based on a review of scholarly journals note that students in general "like to be taught using PowerPoint (perhaps because of its novelty and the availability of printed handouts of PowerPoint slides) and think that PowerPoint presentations are entertaining, enhance clarity, and aid recall of subject matter" (p. 150). To some extent the findings regarding the use of PowerPoint presentations also support the view from Szabo and Hastings (2000) who found that students preferred such types of presentations for their attention grabbing feature over the lecture method. As found in this current study, a three hour lecture was thought to be lengthy and boring which explained the preference for the concise and to the point information of PowerPoint slides. This was not only compared to listening to long lectures but also to reading long pages of notes. Craig and Amernic (2006) highlight various critics from academics and CEOs regarding the use of PowerPoint presentations. For instance, Cyphert (2004) argued that the use of PowerPoint presentations has negative impact on "dialogue, interaction, and thoughtful consideration of ideas" (p.80). The bullet point aspect was criticised by Parker (2001) and Tufte (2003) noted that PowerPoint presentations favoured form over content. The critique about the teacher-centred aspect of PowerPoint presentations and the concise bullet approach to information, I think deserve further reflection. Are we encouraging students to be passive receivers of information? The fact that the content to be learnt is reduced to bullet points may lead students to focus only on what they believe is important. Some participants of the study did show that they considered the PowerPoint presentations as a guide to further research and that they were aware that they could not rely solely on the brief content. As educators we want our students to develop their creative and

critical thinking skills. Since PowerPoint presentations as instructional support have become common in Higher Education classrooms, a reconceptualisation of how to enhance the pedagogical effectiveness of such tool seems necessary.

Interactive multimedia texts in the context of this study were also used as pedagogical resources to address topics in the module. Participants described that learning with such texts added more flexibility to their learning path as compared to the PowerPoint presentations. Here we note the affordance of the medium being foregrounded. It gave them more control over what they wanted to focus their attention on. It changed from linear reading like reading from a book or even from the PowerPoint presentations which generally follow a linear structure. Through the multimedia game approach which involved experiencing a series of quizzes coupled with visually enhanced information, some participants realised that they were reading about History but in a different and more exciting manner. Multimedia allows information to be presented in a variety of ways, where plain texts can be brought alive through animation, audio effects and interactive features. The digital animation approach and graphic style used to represent History contents in the multimedia enhanced resources contributed largely to the affective dimension of learning. Participants became excited, curious and motivated for instance to complete the British quiz game which was presented using a digital storytelling approach with colourful childlike graphics with some limited animation. This created interest about the topic and motivated them to read through the whole text. As seen in the study by Pithouse-Morgan et al. (2015), digital animation within the DMTs like the interactive multimedia contributed in arousing curiosity, caused excitement and appealed to the senses while fulfilling the function of communicating a message in an instant manner. Given that the History notes are often very bulky, it is often noted that students skim through and find reading to be quite tedious. However, when the same notes are structured in chunks and use a more visual approach such as digital storytelling, timelines, games, animations and quizzes, participants in his study found that it was easier and more effective to read History through such type of medium and modes as compared to long pages of lecture notes. This supports Clark and Mayer's (2011) view about the importance of chunking down the information which is presented to the student. This is what is referred to as the

segmentation principle of multimedia learning which is used to avoid cognitive overloading during processing of information.

Also, DMTs such as the interactive multimedia fulfilled the role of entertainment and learning. Enjoyment in learning was one of the key reasons for the value attached to DMTs. This highlights the notion of edutainment which is a concept where education and entertainment are combined for the purpose of instruction. However, Jarvin (2015) makes the distinction between edutainment and serious games. He sees edutainment as a computer-based approach to instruction that rely on some of the motivational aspects of a game but focus on low cognitive levels as such instruction tends to focus on learning and memorising facts through drill and practice (Charsky, 2010) activities. Serious games engage higher order thinking skills of students. The interactive multimedia resources chosen for the study which used drill and practice approaches to engage the students were welcomed by the participants. Their responses and their expectations of learning suggest that such texts have their place in higher education contexts. This finding demonstrates that such an approach to learning may have potential to increase interest and motivation to learn, especially in a subject like History which is believed to be bulky in terms of reading content. With regards to documentary films as DMTs used in the History classroom, it is clear that the focus was on the message and the way this was being conveyed through the semiotic resources. The participants spoke empathetically about the films and seemed to attach importance to the information they were gaining through these films. Hearing from others and seeing actual pictorial evidence (still and moving) of past events made History less abstract. The documentaries acted as effective educational tools fulfilling various purposes. This is consistent with the findings of researchers who have explored films and documentaries in the History classrooms (Wagner, 2018; Stoddard & Marcus 2017; Van Nieuwenhuyse, 2016)

As instructional aids, the DMTs did not represent major usage issues for the participants. They added meaning and value to the learning context. However, challenges associated with learning with DMTs were more specifically related to the creation of the video as an assessment task. From being a simple user, the role of the participant changed to that of the designer. This shift in roles called upon new practices where new skills and competencies are required. In the eyes of the participants, the creation of a video represents more opportunities

to present the outcomes of a research work as opposed to presenting the same in an essay format but at the same time brings new challenges. In the current study, the participants went through a learning curve as it involved a transaction with semiotic resources which they encounter as users but not as creators. Engaging in the creation of a video as an assessment task brought about new challenges, constraints and difficulties which led to the development of a range of skills that may not have been possible in more conventional modes of assessment. For instance technical constraints led participants to find alternative solutions to achieve the goals set. Lack of expertise to handle certain specific software appeared to some of the participants as challenges but these were overcome by seeking help from different formal and informal sources.

7.3.3 Knowledge sources and authority

In LS1, varied types of DMTs were accessed and used by the participants. As demonstrated by Category A, the DMTs were considered to be authentic sources of information. The descriptions focusing on the authenticity, credibility and reliability of the DMTs were mainly related to the DMT2 category that is the documentary films. Emphasis was laid on the multimodal and multi-sensory nature of this type of DMT. What was viewed and heard was taken at face value and therefore considered as authentic sources of information. Participants' trust in the content of these documentary films was evident. For the participants, these documentary films screened in class were an opportunity for them to learn about important aspects of their History through multimodal resources such as still and moving images, interviews from historians, evidence from museums and archives. Documentary films therefore were valuable in enhancing their historical and cultural knowledge. Why did the participants assign such meanings to documentary films? This may perhaps be explained by looking into the participants' assumption about knowledge and authority especially with regards to the educational context. In the eyes of the participants, the module instructor is viewed as the content expert, as the primary source of knowledge. For instance, the documentary films screened during the History classroom were chosen by the History instructor and were deemed by participants to be relevant and pertinent. There seems to be an assumption that the exclusivity of knowledge is with the instructor which may be explained by the past background educational experiences of the participants. As young adults

embarking on a university degree, the majority of the participants of this study (except those who had one or two years gaps between the time they completed their A-levels and the time they enroll on their degree courses) were undergoing a transition phase, moving from a teacher-centred learning environment at secondary school to one where the focus was on autonomous and self-directed learning. Moreover, the participants were aware that the documentary films were produced professionally for commercial purpose and were not specifically intended for academic purpose. As such these were viewed as expert knowledge, based on rich and valid sources of evidence. Participants equated them to facts and objective truths. This perception may be linked to the general notion about the nature of documentary films, which is non-fictional and viewed as conveying the truth through a "series of visually and/or audibly expressed statements connected by narrative, and communicated from the author/authors to the viewer with the intention that it be received as fact" (Smith & Rock, 2014, p. 58). Clearly in this study, as audience of the documentaries, participants failed to view these as a "retrospective reconstruction" (Lowenthal, 1985, p. 215), a process which gives the impression that what is being conveyed as message is a 'transparent revelation of truth' (Aufderheide, 2007, p. 132).

However, it is understood that to gain historical understanding, one has to engage critically with the historical accounts and evidence of the past. The films in the module HIST1002Y were introduced to give students a moving visual image of History while at the same time allowing them to reflect on what they were viewing and listening. From the perspective of Nisbet and Aufderheide (2009), documentary films go beyond the mere presentation of what is unknown to an audience and is not just about documenting reality. It "engages and empowers" the audience (p. 456). As highlighted by the participants, as a medium of information, the documentary films did engage them emotionally. Participants were aware of the different feelings and emotions that the film as a medium afforded as compared to reading a text from a book or from the notes. In this sense, we can say that as a medium, the documentary films helped in addressing the affective dimension of learning, allowing the development of empathy which is seen as an important skill for historical understanding. Despite the emotional impact triggered by the multimodal elements of the film, the fact remains that there was limited critical engagement with the films. The screening of films

during the classroom was a teacher-centred pedagogy where the participant remains a passive viewer. This is in line with Wagner's (2018) assertion that the way films are used in the classroom determines how students engage with them. Similarly, Marcus et al. (2018) stress the importance of developing historical films analysis so as to equip students with the necessary critical skills to engage with other historical documents even when they leave the classroom.

Since such types of DMTs seem to be appreciated and welcome by the participants, more thought should perhaps be given to how we can best use films to support critical thinking skills of our students. These skills are becoming even more crucial as nowadays, with the advent of internet technologies, knowledge no longer resides with those who have the authority and power. The democratisation of text production as noted by Kress (2010) is blurring the lines between knowledge and information. Today, with the growing access to a wide range of information sources such as YouTube videos, blogs and other web 2.0 online spaces, it is becoming essential for young people to become critical and adopt a questioning attitude not only about the message but about the intention of the author behind the message as stressed by Janks (2010, 2012). Sources of knowledge are diverse and as such students thriving in a global economy should be encouraged to see beyond surface encoding and decoding of messages being conveyed. The participants of the study appear to have not yet developed the skills to critically engage with DMTs. This was confirmed by the module instructor with whom I informally discussed the matter following the implementation of the study who also suggested that it is important to consider how best we can develop the critical thinking skills of students while they interact with DMTs.

On another note, as creators of their own DMT in LS2, participants were the ones who were involved in constructing knowledge through active learning. To some extent they were in control of what and how they construct and represent knowledge. The video creation task was based on a constructivist approach to learning. It gave the participants the opportunity to develop explicit and tacit knowledge. Being involved in the various stages of the video creation task, the participants could not rely solely on books or on the instructor's knowledge. They had to seek information from various sources so as to succeed in producing the

assignment end outcome. Apart from the video editing workshop that was conducted at the start of the video assignment, sources of knowledge about their local History included interviews they conducted with people (family members, elders, experts and other people they felt could provide them with information) and documentary evidence from archives, books and also the internet. The participant was responsible for interpreting and making sense of the acquired information. So engaging with these diverse historical knowledge sources may seem more intricate and complex for the participant who undergoes a shift from a passive knowledge recipient to an active knowledge constructor. It was a more participatory approach to constructing knowledge that appeared to be more demanding in terms of personal investment.

With regard to the interactive multimedia resources, it has to be pointed out that the participants found that they were relevant and useful in terms of the approach and style used to present the content. Though this category of DMT adopted an illustrative and cartoon style to present the content as opposed to realistic pictures and moving images as in the documentary films, it did not stop the participants from trusting the information. Except for one participant who had some critical opinion about the style and the depth of content of this particular resource which he found was not too adapted for an undergraduate level student, most found that the way the information was presented and structured in the interactive multimedia resources was definitely a plus for acquiring historical knowledge. The interactive multimedia resources presented an opportunity to consolidate, reinforce and facilitate their learning. It is important to point out that the interactive multimedia resources were created based on the lecture notes prepared by the module instructor who is the subject content expert.

7.3.4 Agency, motivation and expectations

The findings of the study bring to the forefront the notion of student agency and motivation which to some extent may explain why participants described their experiences of DMTs in both learning situations the way they did. Student agency is understood here as the intentional action of a student towards a specific learning task. It has to do with the degree of initiative that student demonstrates during the learning process and a sense of ownership and self-regulating skills. One of the objectives of this intervention study was to bring a digital

approach to the teaching and learning of the module HIST1002Y to motivate students and help them develop a sense of belonging towards the subject as well as to empower them. As shown by the findings, there was a general appreciation regarding the use of DMTs whether for knowledge acquisition or for knowledge representation. Despite the limitations of some DMTs like PowerPoint presentations and the challenges highlighted by the participants with respect to the video assignment, the findings of the study present a positive outlook on the contribution of DMTs to teaching and learning at HE.

During the first semester of the module HIST1002Y, the participants were expected to access and learn from a range of DMTs which varied in terms of representation modes used. However, it has to be pointed out that other more conventional forms of learning resources were also given such as word processed lecture notes, PDF versions or articles and books. For instance with regard to the PowerPoint presentations, it is noted that though they were principally used by the instructor as a support medium during the face to face lectures, they were also available after the lectures for review and revision purposes via the e-learning platform. The participants had therefore the possibility to view and extract information from them at their own pace and their own time. However, from a student agency perspective, it is understood that it is the student who makes choices, and decides on the learning approaches or strategies to adopt. Student agency is not something that is concerned only with the students' inner dispositions. It emerges or is expressed as a result of an interaction between various socio-cultural, contextual and psychological factors. Mercer (2012) explains that agency "emerges from the interaction between resources and contexts and the learners' perceptions and use of them" (p. 43). Examining the findings from a student agency and motivation perspective, it is clear that the participants' agentic orientations were greatly influenced by what and how they experienced DMTs in the respective learning situations along with their affordances. When assigned to a specific learning task (reading notes, working on assignments and so on), the level of involvement on task and level of interest may not be the same for all students in the class. Various reasons and motives, whether intrinsic or extrinsic determine the extent to which students devote time to a certain task. Similarly, with regard to the use of DMTs, the user's engagement may depend on various factors such as

individual and modal preferences. As noted from the findings, some DMTs were given more emphasis than others.

Deciding which DMTs to focus attention on and which features or aspects to pay attention to was dependent on various factors that were related to the self, to the learning preferences as well as to the form and substance of the DMTs. It was interesting and also surprising to see that the participants of this study who supposedly are believed to belong to the Y generation and who are believed to be in constant touch with digital forms of media considered the DMTs in the module as novel. They became motivated users who expressed enthusiasm and curiosity when for instance interacting with the multimedia resources. This study indicates that there was an overall appreciation for DMTs amongst most of the participants which suggests that they are ready to embrace such types of digital texts as part of their learning since they connect more to their literacy practices outside the academic context. As creators of their own video in the second learning situation, participants experienced different phases which were lived in different ways. When the video assignment was announced, the reactions were varied. Some participants were eager or excited to do the assignment because it seemed interesting and something that was going to be helpful since it was linked to technology. It was an opportunity to learn a new thing, it was something challenging which most of them never expected to come across as students belonging to the Social Studies and Humanities field. Some were not so enthusiastic about the project as they had apprehensions regarding their ability to handle digital tools and technologies. The video assignment was included in the module HIST1002Y with the intention of developing students' sense of agency and ownership and to allow them to take responsibility for their learning. To be able to work through the phases of the assignment, the participants had to show some degree of autonomy, make compositional and design choices, and demonstrate skills that they did not have but which they learnt from the video editing workshop and from other means of support such as the internet or peers. Clearly the completion of a learning task depends on various intrinsic and extrinsic motivational sources as indicated by the findings.

7.3.5 Youth culture, technology acceptance or avoidance

The group of participants identified for this study belong to a generation referred to as the *Millennials* (Howe & Strauss, 2000) *or* the *Net Generation* (Tapscott, 1998, 2009) as

evidenced by their age group 18-22. This group of young adults are believed to be technology savvy, are always connected and are extremely good at multitasking and for whom technology seems to occupy an important part in their lives (Maürtin-Cairncross, 2014; Prensky, 2001). This study revealed that these characteristics were not generalised across the group of participants. The group of participants was composed of those who felt they were at ease using the computer and digital tools and those who considered their use of technology as average or limited. Technology usage varied amongst the participants. Some of them were already involved in using internet related technologies, referring to YouTube videos, searching for information from the internet and other social activities outside the learning contexts. Others were not so engaged with technology except for using their phones for communication purposes.

Upon experiencing the DMTs as consumers, almost all the participants saw in these types of text an added value to their learning. The modal affordances of the DMTs were highlighted as addressing the cognitive, affective and psychomotor domains of learning, Being given the opportunity to access the History curricular content through a less formal way, they felt that as young learners of this generation, their visual and auditory needs were being addressed which was not the case in other modules they were doing in their respective programmes of studies. They regarded the use of technology to support their learning as a necessity without rejecting the importance of reading or lectures. This supports the view that young adults of the Net generation are believed to relate well to the technologies and expect a learning environment supported by technology. In general, participants of this study paint a rather positive picture of their experience of using varied types of DMTs as learning resources. The digital multimodal types of learning resources were perceived by participants as different, appealing, less boring, exciting, stimulating and engaging. The interactive multimedia resources in particular generated enthusiasm amongst the participants for its uniqueness in terms of content structure and the design approach. For instance, resources such as the quiz game and the multimedia enhanced CD were learning tools that changed the perceived view that History can be taught and learnt only through books and lectures. These interactive multimedia approaches to learning aroused curiosity and interest. It is true that there were individual preferences with regard to specific types of DMTs, but this overall positive user

experience may be explained by the belief that these types of visually rich texts respond better to their needs as young adults belonging to the Net generation.

Another question that emerged from the findings is about the claim that this generation of learners are good at multitasking that is they have the ability to engage simultaneously in multiple tasks (Howe & Strauss, 2000, 2007; Oblinger & Oblinger, 2005). It is an assumption that cannot be generalised in my opinion. While one participant pointed out that he liked the fact that audio-visual resources allowed him to multitask, another student raised the difficulty in focusing on too many things at a time – listening to the lectures, watching what is displayed on the PowerPoint and writing her notes. The ability of the multitasker to focus his/her attention to multiple streams of information while for instance studying, doing homework or even sitting in class has been questioned by cognitive scientists and psychologists. Research on multitasking in the field of education (Mayer & Moreno, 2003; Junco & Cotten, 2011, 2012) has shown that high levels of multitasking may negatively affect academic success and performance of students.

Multi-tasking has been attributed to millennials who are described as people who constantly need to be connected and engaged simultaneously in multiple tasks (Howe & Strauss, 2000, 2007; Oblinger & Oblinger, 2005). One participant revealed that DMTs such as the multimedia CD afford more flexibility in learning and allows for multitasking. However, what is not known is to what extent, multitaskers are successful in whatever they do. Are multitaskers able to attend to all the things they do in a balanced manner? This was not within the scope of this study but perhaps needs additional research to better understand multitasking and its effect on learning.

7.3.6 Knowledge acquisition and knowledge construction

The two outcome spaces that emerged from the two learning situations of this study trace the experiences of participants' engagement with DMTs within an academic context and may be viewed as a continuum involving a move from knowledge acquisition to knowledge construction. Knowledge acquisition is a process where one extracts information from any types of sources such as experts, documents, and so on and structures and organises this information for further application. In this current study, referring to the first learning

situation, participants were given the opportunity to experience DMTs as end users. Their role as readers of texts can be viewed from the perspective of Serafini (2012) who proposes instead a reconceptualisation of the reader role to that of the *reader-viewer role,* which connects better to today's visually dominant world. Reading digital multimodal texts, according to Serafini (2012), involves the reader to be (i) a navigator, (ii) an interpreter (iii) an interrogator and (iv) a designer. In the first learning situation of the study, the participants' focus was more on building a knowledge base of the subject through their engagement with the different means of representation where the participants' role was that of the information receiver. The extent to which these roles are enacted depends on the individual, his/her intentions and purposes for reading the text. For instance in this study, engaging with an interactive multimedia CD meant that the user would normally navigate through the different parts of the CD, and extract information conveyed through various modes depending on his or her modal preferences. Declarative and procedural knowledge can be enhanced by learning with DMTs. As evidenced by the findings of the study, curricular content presented using different modes and in a different medium, in a broader sense have the potential to act as a good stimulus for learning. Mayer's (2001) model of multimedia learning supports the view of DMTs as delivery media that uses various presentation modes which involve the sensory modalities when processing information. In this current study, DMTs such as PowerPoint presentations and documentary films were thought by the participants to be effective and useful to some extent but at the same time we may question whether such types of DMTs may not be encouraging passivity and oversimplifying learning. DMTs involving the user in a more active manner may contribute more effectively to knowledge acquisition and construction. Didactic learning materials are no doubt crucial in helping students to contextualise knowledge but educators need to ensure that they involve students in more active learning. In this study, the interactive multimedia resources appear to have supported more active learning as opposed to the PowerPoint presentations and the films as they allowed more flexible learner-content interaction. It should however be pointed out that the level of active learning when interacting with the multimedia resources was not high as the latter did not consist of high level interactive features which required higher order thinking skills.

From being mere users of assigned DMTs, the participants of this study were also involved as knowledge creators. As first year undergraduates, the participants were given the opportunity to engage in a video creation task. DMT as a way of constructing knowledge led to more active involvement from the part of the participants as opposed to the act of accessing information via different modes and medium. The task was viewed not only as a learning activity to be completed as part of the module assessment but was also described in terms of its contribution to one's growth and development. The video creation process allowed the participants to "take primary responsibility for learning" (Herrington, Mitchell, Rowe & Titus, 2015, p. 192) and by so doing they had the opportunity to develop a wide range of skills, some of which were unintentional. Engaging in a process of co-creation of knowledge was made possible through this type of assignment which changed from an individual oriented task such as accessing information from DMTS. Working on the documentary-style video allowed participants to develop interpersonal skills as they overcame their inhibitions. They also appear to have developed more confidence as they progressed in the process of creating the video. They developed the ability to handle the difficult or problematic situations they encountered. Active learning methods integrated in the curriculum therefore may better engage the student and contribute to their holistic development.

7.4 Implications

In this study, I have sought to explore and understand from the perspective of the participants what it means to experience various types of DMTs in two different learning situations, namely as a user/consumer of ready-made DMTs identified as learning resources and also as creators of their own DMT. From the findings, it is clear that the integration of DMTs in learning contexts at the level of HE has implications for pedagogy and for the design of digital learning materials.

7.4.1 Implications for teaching and learning

This study involved participants who enrolled on a History module offered by the Department of History and Political Science of the Faculty of Social Sciences and Humanities of the University of Mauritius who had the opportunity to encounter a variety of DMTs during the course of the first semester of academic year 2015/2016. They were also assigned to a video

creation learning activity which was part of the continuous assessment of the module. Some of the topics of the module were transformed from text-dominant to more audio/visual dominant resources for the purpose of encouraging the participants to experience learning in multimodal ways. The findings of this study present important implications for teaching and learning of History at HE level as well as for Higher education pedagogies in general. The current study which adopted a pedagogical intervention approach revealed that first year undergraduates are in favour of teaching and learning approaches that are more dynamic, where the curricular content is acquired through various modes with more emphasis on audio visual resources rather than text-based resources, where learning as a process and a product does not feel like routine.

Regarding the teaching of History, the study showed that integration DMTs such as films, PowerPoint presentations and interactive multimedia could contribute to the way the subject is perceived. It is understood that there is no established method to teach History (Jordanova, 2006) but what is important is that the approach is a holistic one where students are given the opportunities to develop an interest for the subject while being historically informed and becoming active citizens (A.Booth, n.d, 2006). Approaching the teaching and learning of the subject in a creative manner while balancing old and new literacies could be the way forward to cater for the needs of this current generation of learners. Within the History discipline, it may be a laudable initiative to consider pedagogies that are based on participatory culture where students are not simply consumers but they become producers and contributors. Furthermore, youth DIY practices as discussed by many scholars (Buckingham 2007a, 2007b; Burkholder & MacEntee, 2016; Burkholder 2018, in press; De Lange, Olivier, & Wood, 2008; Kafai & Peppler, 2011, Strong-Wilson et al., 2014) have potential to help students to develop their critical thinking skills and to become reflexive.

Many HEIs are being called upon to embrace new technologies, innovative approaches and more student-centred pedagogical approaches to better prepare graduates to face the challenges of a knowledge-based society in the digital age. Yet, we note that in the local context, the integration of technology-enhanced pedagogies has been rather slow. While some faculties are ready to adopt new teaching and learning approaches facilitated by technology, others seem more reticent to do so for various reasons. Findings from this study show that

first year undergraduates expect a teaching and learning environment that offers diversity in the ways they acquire knowledge that changes from the conventional modes of instruction. The findings also revealed that there is a need for faculties to go beyond the transmissive mode of teaching and to adopt a more blended approach with various types of instructional approaches. Although the first year undergraduates in this study belonged to the supposedly called Net generation, they all had different levels of engagement with technology in their daily life. However, when it came to using technology as knowledge creators within an academic context, they found it challenging but on the whole enriching as a learning experience.

A key issue from the findings that needs close attention concerns the reading practices of the current generation of students. It is clear that there seems to be a reluctance from students to read long pages of notes, books or listening to long hours of live lectures. They are more interested in visually enriched learning materials that break away from the traditional instructional approaches. The findings suggest that the instructional materials provided to students may require uplifting in terms of the presentation and delivery modes to better respond to their needs and preferences. However, this implies considering the extent to which the educators themselves recognise the significance in making their instructional materials more engaging, their readiness to move to a digitally enhanced pedagogies, and other associated challenges. Various technologies and authoring softwares are now available to make more engaging instructional materials to supplement the conventional lectures. Through the implementation of this current study, it has been possible to evaluate the pertinence of DMTs within an academic context as delivery medium and learning support. It is therefore important that educators and curriculum developers take into consideration the changing literacy practices.

Students engaged in the creation of their own DMT as an assessment task in this study. This type of assessment which may be considered as unconventional in a subject discipline like History was being introduced for the first time for it was believed to develop cross curricular and transferable skills. The findings suggest that such types of assessment bring along new opportunities but also challenges for both students and educators. Writing an essay or a report may be considered as a more traditional way and less complex way to assess students'

learning. Creating a video requires a wider range of skills which combines old literacies and new literacies. M. Walsh (2010) notes that "the challenge for literacy educators is to consider to what extent digital technologies can be incorporated within classroom literacy programs without reducing the importance of the rich, imaginative and cultural knowledge that is derived from books" (p. 211-212). Even though reference is made to literacy educators, I would argue that it applies to most disciplines as we cannot deny the importance of the old literacies even in the 21st century contemporary society. Through a multimodal composing task such as the creation of a video, it was indeed possible to cater for both the old and new literacies. To organise their ideas for instance, participants prepared storyboards, wrote and recorded the audio narration to support the content of the video and chose the background music which best conveyed the mood they wanted to evoke in their creations. The assignment therefore allowed their thinking to be shaped by multiple modes of expression.

The video assignment was something which required time and effort from the students. Some indeed found the task demanding in terms of time and resources. The reflections shared by the participants on the video assignment showed that assessment based on a learning by doing approach where the student feels empowered promotes a greater sense of ownership of learning. As evidence by the study, the video as a finished learning product was found to be of interest not only for the students-creators but for others outside the academic community such as parents and friends. Such work encourages learning that extends beyond the classroom where students have the possibility to express themselves differently through their involvement in authentic tasks. Video making as a learning task appeared more meaningful as compared to writing an essay.

However if such assessment is to be implemented effectively, it is important to ensure that due consideration is given to various issues such as having the assistance of trained resource persons, availability of technical resources such as video and audio editing softwares and other recording devices and digital training programmes accessible to the academic staff. In the context of the video assignment in this study, in order to allow all the participants to work on the assignment, I purposely introduced software that was freely available and which through appropriate scaffolding could be used by even those with less technological ability. Participants in the study were provided training on how to use Movie Maker and Audacity

and also with guidelines regarding multimodal composing. The importance of the having a pre-assignment workshop was acknowledged by the participants. This suggests that it is crucial that careful strategies be adopted to scaffold students' learning, especially when new modes of assessment are incorporated in the curriculum. In this study, the video editing workshop proved to be essential as a scaffolding strategy as it helped in preparing the students to approach the task with less apprehension.

There is no doubt that video assignments as compared to written-based assignments require more time and investment. The participants in this study spent around one and a half months working on the video assignment which excluded the eight hours of the video editing workshop. The video assignment was expected to allow students to enhance their knowledge of History while at the same time developing their digital skills. When planning the module course map, this factor needs to be taken into consideration. Students should be made aware of the investment and effort required to produce quality work.

The findings of the study provoke a reflection about how assessment is being approached at HE level. Summative assessment at HE generally consists in evaluating the students' learning through exams (written or practical) that are planned at the end of a course. Educational researchers have argued that assessment should not be just about testing how much the student has grasped and to certify achievement but should be assessment in support of learning. However, it is noted that assessment reforms are slow in adopting innovative possibilities and affordances of technology and generally there is a reluctance to change (Mogey, 2011). While it may be difficult to bring major reforms to current summative assessment practices, it is possible to infuse new approaches to assessment during formative assessment. Evidence from this study showed that even though considered to be unconventional, the video assignment contributed in various ways to the academic and personal development of the student. It should however be pointed out that choosing to make students work on the creation of a DMT was based on specific learning objectives set by the instructor for the module. Educators should not think of technology as the silver bullet. Using technology should go hand in hand with a change in pedagogy.

7.4.2 Design implications

The findings of this study point out important considerations when it comes to the design and development of DMTs for learning. Designers or authors of DMTs need to be aware of the audience's (end user's) responses towards the texts they create. One of the objectives of the study was to gain insights into the undergraduates' preferences when it came to DMTs, which could eventually help in guiding the design and development of such texts.

Three categories of DMTs were addressed during the study. The least complex category concerned the PowerPoint presentations which were created by the instructor. The study did not investigate the multimodal choices made by the instructor who was also the user since these were used to support her face to face lectures. These presentations were also used by the students and their perspectives as users were sought. Designing PowerPoint presentations as compared to other digital texts such as the interactive multimedia resources created for the purpose of this study appear to be less demanding in terms of time, effort and resources.

However, the interactive multimedia resources which were locally produced required the expertise of a team of people which included the instructor, educational technologists, graphic designers and multimedia developers. Designing of such DMTs may be viewed as more complex as compared to designing PowerPoint presentations. The design and development of contextualised resources requires considerable investment in time and resources. Faculties are often not ready to embrace such types of learning materials due to these reasons and also probably because they lack the necessary skills to do so.

While designing DMTs for learning purposes, it is important to take into consideration how the content can be presented to attract, engage, influence and sustain the interest of the end users. One of the aspects that emerged from the findings with regards to the way the DMTs were designed was the style and format. According to the participants, visuals, whether static or moving, serve the purpose of making the past more accessible and more tangible. They also helped in making the subject livelier through the rendering style of the graphics. Here, I am mainly referring to the interactive multimedia resources which made use of a cartoon illustration style. Such a style is generally considered to be less formal and targeted towards a younger population than those concerned in the study. Surprisingly, comments from the

participants suggest that this informal approach to graphic representation of curricular content has its place even in Higher Education settings and is not restricted to a younger age audience. Participants paid attention to the graphics, colours and audio component of the DMTs, all of which contributed to affect and empathy. Clearly the presentation formats and the graphic style of these interactive multimedia resources did to some extent influence the way some students experienced and perceived the usefulness of the DMTs.

However, as noted above, designing contextualised multimedia resources requires specific expertise and may be time-consuming. Currently CILL has limited resource persons and one possible way to counter this is to encourage trainee students, fresh graduates or research assistants having the expertise in multimedia design to work alongside the instructor, in order to work on the creation of such interactive multimedia resources. At the same time, faculties may engage in seeking funding through projects to support the design and development of such digital multimodal texts which may then by embedded in the curriculum.

Since DMTs appear to have a salient place in the lives of young people, it is pertinent to consider staff professional development /capacity building workshops which could address areas such as designing graphics and multimedia for e-learning, Open Educational Resources (OER), so that they build up the skills and confidence to design learning resources in line with the preferences of their students. These workshops could be organised for faculties to empower them to design their own contextualised multimedia learning content.

7.5 Limitations

No study is without limitation. As such, it is important to highlight issues that might have had an influence on the findings that I have reported in this thesis. One limitation relates to the research design and the sample. The study adopted a pedagogical intervention design approach and therefore data collection was carried out at two particular points in time during the academic year when the module was taught. The first round of interviews took place after the participants had encountered the three categories of DMTs towards the end of the first semester while the second round of interviews was held later in the second semester. The findings were based on the experience they lived during that specific period and as such provided a snapshot. The study did not investigate the contribution of DMTs to learning in

the long run and therefore there is no certainty whether or not participants' ways of viewing DMTs will be the same as they progress in their studies at HE.

I also believe that the language of expression which was chosen by most of the participants could have been to some extent a factor that influenced the depth of the data. The first round of interviews was conducted in English except for one participant who opted to speak in French. The second round of interviews was more varied. There was a mix of Creole, French and English. The focus group was carried out in English. Even when English was being used, there were situations where some French or Creole was used. Being used to a bilingual education system, it was without surprise that the participants could easily shift between languages in a conversation. At the same time, the fact that they opted to have the interview in English made me reflect on the reasons that may have triggered their decision. Could their choice for English as a medium of expression be related to their attitude towards the Creole language which is generally undervalued and "not positively viewed by all users" (Rajah-Carrim, 2007, p. 52)? Or could it be that the participants who are first year undergraduates and who have just transited from secondary felt compelled to speak in either English or French to their lecturers as these languages are better perceived from a prestige or power perspective? After reflecting on the whole issue of languages, I do acknowledge that the use of English to some extent could have been a barrier for some of the participants in clearly expressing themselves.

Finally and perhaps more significantly, I acknowledge that I did not give due consideration to is the perspective of the instructor with respect to the pedagogical significance of infusing digital technologies in the module. Although I discussed informally with her following the implementation and the findings, it would have been useful to have her point of view on the pedagogical implications especially since it was her module and one that she teaches regularly. The potential for professional learnings would be rich.

7.6 Future research work

This study highlighted some new avenues that could be considered for future research. For instance one of the findings revealed that digital multimodal learning resources, which in the context of the study, are referred to as DMTs, are perceived by the participants as contributing

to more flexibility and diversity in the way knowledge is acquired and produced. This study focused on a group of participants, considered as young millennials with various abilities such as knowing how to learn using technology, are good at multitasking and demonstrate in general high levels of IT skills and competencies. However, some tensions and discomfort were noted when it came to engaging with DMTs within a teaching and learning context. One area which may be further explored is that of students as multitaskers and how they act within a multimodal learning environment and the effects on their learning performances. Some questions which may be asked: Can we really affirm that all students belonging to the Net Generation are multitaskers? What is the effect of multitasking on learning performances of students? Comparative studies could be carried out to verify different hypothesis on multitasking in related to the use of DMTs. Similarly, although this current study has brought forward some aspects of the personal development of the student, I still feel that it could be pertinent to explore more closely the connection between digital technology and the overall development of the student.

This study context was limited and bounded to one specific discipline. The findings were related specifically to the teaching and learning of Mauritian History. It may be interesting to see how students from other disciplines experience learning with DMTs thus giving a broader perspective on the multimodal teaching and learning practices across different faculties of the HEI. Perspectives of students and the teacher could be gathered to understand the type of multimodal activities and resources with which they engage. Such studies could provide a deeper understanding of the relationship between practices, multimodal literacies and pedagogies and the affordance of the modes. Alternative modes of assessment shaped by multimodal pedagogies could be investigated with different level of students and in different contexts.

Moreover, with regards to the multimodal task participants were involved in during the learning situation 2, it could be relevant to analyse the multimodal learning processes from another perspective other than phenomenography. One such area would be Activity Theory. Conceptualised by Engeström (1999) Activity Theory is a framework which has at its core the human activity involving the subject, the object and the activity. As Hasan and Kazlauskas (2014) explains, in Activity Theory "the relationship between *subject* (human doer) and *object*

245

(the thing being done) forms the core of an *activity*" (p. 9). The video assignment within the context of this study is viewed as an activity system involving people (subjects) working on different phases of a task in order to fulfil an anticipated outcome (object). In this process, they are brought to use tools such as computers, software and devices as well as interact with other people. A research analysed through the lens of Activity Theory, as put forward by Kaptelinin and Nardi (2006) would help in gaining a better understanding of how people think, learn and know. A research study with more focus on technologies as mediation between people and the world could be an extension to this current study. Another would be to explore more deliberately the media-making processes of the students through in depth case studies as Caron, Raby, Mitchell, Théwissen-LeBlanc and Prioletta (2017) have done in their analysis of the production of youth vlogs.

Finally, this study focused mainly on exploring the experiences of learning with DMTs from the perspectives of the students but it also raised some questions and issues related to teaching in general. Given the key role of instructors/educators in making pedagogical decisions about what to include and why, there is clearly a need for further research about instructors and their own pedagogical knowledge in relation to professional development. Mitchell, Campbell, Pizzuto and Benoit's (2019) study of how English teachers use films about English teachers is an example of how DMTs can extend professional learning.

7.7 Concluding remarks

The overarching aim of this research was to understand the different ways first year undergraduate students experienced DMTs as part of their learning journey within the context of the module 'Mauritian History-HIST1002Y'. The participants of this study were given the opportunity to experience DMTs under during two learning situations. They first encountered DMTs as users and then engaged in a multimodal task as creators. DMTs addressing topics in the module included PowerPoint presentations designed by the module instructor, documentary films produced locally by professionals, and interactive multimedia resources designed and developed by the e-learning centre of the HEI in collaboration with the module instructor. The DMTs were grouped in three categories for the purpose of the study as illustrated in Chapter 4. The multimodal task assessment required the participants to create a

piece of DMT in the form of a short documentary style video based on a History topic as assigned by the module instructor.

Using phenomenography as the interpretivist approach to research an educational context involving higher education students learning with and through digital multimodal texts within the History discipline was a choice I made based on the literature review on students 'experiences of learning. I felt that phenomenography was relevant to gain the insights into students' different ways of experiencing learning situations where they are involved as recipients of knowledge and as constructors of knowledge. This phenomenographic study allowed for reflections on the relational aspects between knowledge, students and practices as far as the contribution of DMTs to teaching and learning at higher education is concerned to be highlighted.

The infusion of multimodal practices in the teaching and learning of a subject like Mauritian History at first year undergraduate level has raised issues that may contribute to the enhancement of current pedagogical practices in our Higher Education system. The findings from the study demonstrate quite an overall positive picture of the willingness of students to embrace a technology-enhanced pedagogy which offers them variety and flexibility in the way they acquire and produce knowledge. In terms of the different categories of DMTs used to represent the curricular content, it is evident from the findings that the reading practices and preferences of students are changing and they are attaching more value to new forms of reading and writing, to learning resources that are richer in modes of expression such as videos, animations, audio, and interactivity, amongst others. However, despite the belief that all students of the Net Generation navigate through such multimodal resources easily, we cannot take it for granted that these students have the necessary visual literacy and critical thinking skills to learn through DMTs. At the same time, the opportunity to develop these important 21st century skills should be given to the students. It is important that educators are properly trained into making effective use of DMTs to enhance both their practices and those of their students. Such training should be pedagogically driven and not technologically driven so as to ensure that the use of DMTs encourage the development of high order thinking skills and creativity.

The multimodal assessment component embedded in the study indicates that there was a change in students' perspective on knowledge production and knowledge assessment. The findings regarding this part of the study generally highlighted the challenges and opportunities associated with such types of learning activity. Being from a non-IT related field, the participants felt they had gained much both academically and personally from being involved in a task where they were supposed to be using technological tools and devices. It appears that such tasks though challenging may seem more authentic and therefore meaningful for students as compared to conventional type of academic work students are engaged with at HE. Learning about their local History through a learning by doing and exploring approach was found to be beneficial. Moments of uncertainties, discomforts, constraints, frustrations, enjoyment and pride were all part of the participants' learning experience. Not only did the activity allow for opportunities to engage the multiliteracies of the undergraduates but also contributed to the development of interpersonal and intrapersonal skills that conventional reading and writing tasks do not foster.

I believe that the outcomes of this study could revitalise History teaching and learning and also other disciplines within the Humanities. The findings point towards students' expectations of learning which is more dynamic and in line with their daily literacy practices. This calls for a reconceptualisation of pedagogies and practices at all levels of our education system which better cater for the needs of this generation of learners and future generations. Inculcating digital practices that foster multiliteracies of the students will equip them with new skills and prepare them to face new challenges of a heavily mediatised world. Although this study focused on DMTs contribution to History teaching and learning, the findings are also valuable for educators in general, educational technologists, curriculum developers, book publishers writing about literacies and pedagogies.

References

Achuonye, K. A. (2015). Predominant teaching strategies in schools: Implications for curriculum implementation in mathematics, science and technology. *Educational Research and Reviews, 10*(15), 2096-2103. doi:10.5897/ERR2015.2184

Adam , F. (2014). Methodological and epistemic framework: From Positivism to Post-positivism. In F. Adam, *Measuring national innovation performance-The innovation union scoreboard revisited* (pp. 5-7). Berlin: Springer Berlin Heidelberg. doi:10.1007/978-3-642-39464-5

Adami, E. (2017). Multimodality: Introducing multimodality. In O. García, N. Flores, & M. Spotti, *The Oxford handbook of language and society* (p. 562). Oxford: Oxford University Press.

Agarwal, R. (2015). A 'ontology' and 'epistemology' in qualitative research. *International Journal of Engineering Research & Management Technology, 2*(3), 258-262. Retrieved from http://www.ijermt.org/

Ahmad, Y. (2006). The scope and definitions of heritage: From tangible to intangible. *International Journal of Heritage Studies, 12*(3), 292–300. doi:10.1080/13527250600604639

Ainsworth, S. (2008). The educational value of multiple-representations when learning complex scientific concepts. In J. K. Gilbert, R. Miriam, & M. Nakhleh (Eds.), *Visualization: Theory and practice in Science education* (pp. 191-208). Springer.

Åkerlind, G. (2005). Learning about phenomenography: Interviewing, data analysis and the qualitative research paradigm. In J. Bowden, & P. Green (Eds.), *Doing developmental phenomenography* (pp. 63– 73). Melbourne, Australia: RMIT University Press.

Åkerlind, G. (2012). Variation and commonality in phenomenographic research method. *Higher Education Research and Development, 31*(1), 115-127. doi:10.1080/07294360.2011.642845

Allybokus, B. S. (2015). *The implementation of learner-centered teaching in Mauritian state secondary schools: Examining teachers' beliefs and and classroom practice* . (Doctoral dissertation, UCL Institute of Education, London, UK). Retrieved from http://discovery.ucl.ac.uk/id/eprint/10021912

Alsadi, W. M. (2015). I see what is said: The interaction between multimodal metaphors and intertextuality in cartoons. *The Boolean, Snapshots of Doctoral Research at University College Cork*, pp. 13-19. Retrieved from http://publish.ucc.ie/boolean/2015/00

Álvarez, J. (2016). Meaning making and communication in the multimodal age: Ideas for language teachers. *Colombian Applied Linguistics Journal, 18*(1), 98-115. doi:10.14483/calj.v18n1.8403

Anderberg, E. (2000). Word meaning and conceptions: An empirical study of relationships between students' thinking and use of language when reasoning about a problem. *Instructional Science, 28*(2), 89–113. doi:0.1023/A:1003612324706

Andretta, S. (2007). Phenomenography: A conceptual framework for information literacy education. *Aslib Proceedings: New Information Perspective. 59*, pp. 152-168. London: Emerald Group Publishing Limited. doi:10.1108/00012530710736663

Andrews, R. (2011). Does e-learning require a new theory of learning? Some initial thoughts. *Journal for Educational Research Online, 3*(1), 104–121. Retrieved from http://www.j-e-r-o.com

Anstey, M., & Bull, G. (2010). Helping teachers to explore multimodal texts. *Curriculum and Leadership Journal, 8*(16). Retrieved June 3, 2015, from http://www.curriculum.edu.au/

Archer, A. (2010). Multimodal texts in higher education and the implications for writing pedagogy. *English in Education, 44*(3), 201-213. Retrieved from https://www.nate.org.uk/

Archer, A. (2011). Clip-art or design: Exploring the challenges of multimodal texts for writing centres in higher education. *Southern African Linguistics and Applied Language Studies*, 387-399. doi:10.2989/16073614.2011.651938

Archer, A. (2014). Designing multimodal classrooms for social justice. *Classroom Discourse, 5*(14), 106-116. doi:10.1080/19463014.2013.859842

Arhippainen, L., & Tähti, M. (2003). Empirical evaluation of user experience in two adaptive mobile application prototypes. *Proceedings of the 2nd International Conference on Mobile and Ubiquitous Multimedia*, (pp. 27-34). Norrköping, Sweden.

Arvidson, S. (2015). Gurwitsch, Aron (1901−73). *In The Routledge Encyclopedia of Philosophy*. Retrieved from https://www.rep.routledge.com/articles/biographical/gurwitsch-aron-1901-73/v-1

Ashton, P. (n.d). *Teaching Heritage.* Retrieved from Board of studies, NSW: http://www.teachingheritage.nsw.edu.au/section09/ashton3.php

Aufderheide, P. (2007). *Documentary film: A very short introduction.* New York, NY: Oxford University Press.

Azorin, J. M., & Cameron, R. (2010). The application of mixed methods in organisational research: A literature review. *The Electronic Journal of Business Research Methods, 8*(2), 95-105. Retrieved from www.ejbrm.com

Baddeley, A. D. (1986). *Working memory.* Oxford: Oxford University Press.

Baichoo, R., Parahoo, S. K., & Fagoonee, I. (2003). Mauritius. In D. Teferra, P. G. Altbach, D. Teferra, & P. G. Altbach (Eds.), *African higher education: An international reference handbook* (pp. 1-714). Bloomington: Indiana University Press.

Baik, C., Naylor, R., & Arkoudis, S. (2015). *The first year experience in Australian universities: Findings from two decades, 1994-2014.* Retrieved from https://melbourne-cshe.unimelb.edu.au/__data/assets/pdf_file/0016/1513123/FYE-2014-FULL-report-FINAL-web.pdf

Baldry, A., & Thibault, P. J. (2006). *Multimodal transcription and text analysis.* London: Equinox Publishing Limited.

Banister, S. (2007). Ethical issues and qualitative methods in the 21st century: How can digital technologies be embraced in the research community? *Journal of Ethnographic and Qualitative Research, 1*, 1-10. Retrieved from http://edhd.bgsu.edu/~sbanist/portfolio/scholar/jeqr.pdf

Barnacle, R. (2005). Interpreting interpretation: A phenomenological perspective on phenomenography. In J. A. Bowden, & P. Green (Eds.), *Doing developmental phenomenography* (pp. 47–55). Melbourne: RMIT University Press.

Barnard, A., McCosker, H., & Gerber, R. (1999). Phenomenography: A qualitative research approach for exploring understanding in health care. *Qualitative Health Research, 9*(2), 212-226. doi:10.1177/104973299129121794

Bassili, J. N. (2008). Motivation and cognitive strategies in the choice to attend lectures or watch them online. *Revue de l'education a distance/Journal of Distance Education, 22*(3), 129-148. Retrieved from http://www.ijede.ca/index.php/jde/issue/view/54

Bateman, J. A. (2014). *Text-Image relations and empirical methods.* New York: Routledge.

Bates, A. W. (2015). *Teaching in a digital age: Guidelines for designing teaching and learning for a digital age.* Vancouver, BC: Tony Bates Associates Ltd. Retrieved from https://opentextbc.ca/teachinginadigitalage/

Battarbee, K. (2004). *Co-experience: Understanding user experiences in social interaction (Doctoral dissertation, Aalto University, Helsinki, Finland).* Retrieved from https://aaltodoc.aalto.fi/handle/123456789/11462

Baxter Magolda, M. B. (1992). *Knowing and reasoning in college: Gender-related patterns in students' intellectual development.* San Francisco: Jossey-Bass.

Baxter Magolda, M. B. (2004). Evolution of a constructivist conceptualization of epistemological reflection. *Educational Psychologist, 39*(1), 31-42. doi:10.1207/s15326985ep3901_4

Bearne, E. (2003). Rethinking literacy: Communication, representation and text. *Literacy, 37*(3), 98-103. doi:10.1046/j.0034-0472.2003.03703002.x

Becker, H., Greer, B., & Hughes, E. (1968). *Making the grade: the academic side of college life.* New York: John Wiley.

Belenky, M. F., Clinchy, B. M., Goldberger, N. R., & Tarule, J. M. (1986). *Women's ways of knowing: The development of self, voice, and mind.* New York, NY, US: Basic Books.

Bell, D. (2011). Documentary film and the poetics of history. *Journal of Media Practice, 12*(1), 3-25. doi:10.1386/jmpr.12.1.3_1

Benckendorff, P., Ruhanen, L., & Scott, N. (2009). Deconstructing the student experience: A conceptual framework. *Journal of Hospitality and Tourism Management, 16*(1), 84-93. doi:10.1375/jhtm.16.1.84

Bennett, S., & Maton, K. (2010). Beyond the 'digital natives' debate: Towards a more nuanced understanding of students' technology experiences. *Journal of Computer Assisted Learning, 26*(5), 321-331. doi:10.1111/j.1365-2729.2010.00360.x

Berk, R. (2009). Teaching strategies for the net generation. *Transformative Dialogues: Teaching & Learning Journal, 3*(2), 1-24. Retrieved from http://www.kpu.ca/

Betchoo, N. K. (2017). The impact of nine-year schooling on higher learning in Mauritius. *European Scientific Journal*, 163-175. Retrieved from https://eujournal.org/

Bezemer, J. (2012, February 16). *What is multimodality*. Retrieved August 25, 2015, from Insitute of Education, UCL: https://mode.ioe.ac.uk/2012/02/16/what-is-multimodality/

Bezemer, J., & Kress, G. (2008). Writing in multimodal texts: A social semiotic account of designs for learning. *Written Communication, 25*, 166–195. doi:org/10.1177/0741088307313177

Boadu, G. (2015). Effective teaching in History: The perspectives of history student-teachers. *International Journal of Humanities and Social Sciences, 3*(1), 38-51. Retrieved from https://ijhss.net/

Bock, Z. (2016). Multimodality, creativity and children's meaning-making: Drawings, writings, imaginings. *Stellenbosch Papers in Linguistics*, 1-21. Retrieved from http://hdl.handle.net/10566/2121

Bodemer, D., & Ploetzner, R. (2002). Encouraging the active integration of information during learning with multiple and interactive representations [Online Proceedings]. *International Workshop on Dynamic Visualizations and Learning.* Tübingen: Knowledge Media Research Center. Retrieved from https://www.iwm-tuebingen.de/workshops/visualization/proceedings.htm

Bolstad, R., & Lin, M. (2009). *Students' experiences of learning in virtual classrooms.* New Zealand Council for Educational Research. Wellington: New Zealand Council for Educational Research. Retrieved from https://www.nzcer.org.nz/research/publications/students-experiences-learning-virtual-classrooms

Booth, A. (2006). *Scholars and educators': Perspectives on research-teaching relationships in History.* Retrieved from https://www.heacademy.ac.uk/system/files/booth.doc

Booth, A. (n.d). *The making of history teaching in 20th-century British higher education.* Retrieved from Making History: The changing face of the profession in Britain: https://www.history.ac.uk/makinghistory/resources/articles/teaching_of_history.html #23

Booth, S. (1997). On phenomenography, learning and teaching. *Higher Education Research & Development, 16*(2), 135-158. doi:10.1080/0729436970160203

Bourne, J., & Jewitt, C. (2003). Orchestrating debate: A multimodal approach to the study of the teaching of higher order literacy skills. *Literacy, 37*(2), 64-72. doi:10.1111/1467-9345.3702004

Bowden, J. A. (2000). The nature of phenomenographic research. In J. A. Bowden, & E. Walsh, *Phenomenography* (pp. 1-18). Melbourne: RMIT University Press.

Bowden, J. A. (2005). Reflections on the phenomenographic team research process. In J. A. Bowden, & P. Green (Eds.), *Doing developmental phenomenography* (pp. 11-31). Melbourne: RMIT University.

Bowden, J. A., & Walsh, E. (2000). *Phenomenography.* Melbourne, Australia: RMIT Publishing.

Bowman, N. (n.d.). *Nick Bowman, Ph.d* [Personal website]. Retrieved from Teaching philosophy: http://ndbowman.info/teaching.htm

Boyer, E. L. (1990). *Scholarship reconsidered : Priorities of the professoriate.* Princeton, N.J: Carnegie Foundation for the Advancement of Teaching.

Brooks, G. P. (1998). Perry: Fact, fiction, and outcomes assessment. *Annual Meeting of the Mid-Western Educational Research.* Chicago, IL: ERIC database. Retrieved from https://files.eric.ed.gov/fulltext/ED428084.pdf

Brown, A. L., Bransford, J. D., Ferrara, R. A., & Campione, J. C. (1983). Learning, understanding and remembering. In J. H. Flavell, & E. M. Markman (Eds.), *Handbook of child psychology: Cognitive development* (Vol. 3, pp. 77-166). New York: Wiley.

Brown, G. (2008). The ontology of learning environments. In P. Kell, W. Vialle, D. Konza, & G. Vogl, *Learning and the Learner: Exploring learning for new times* (pp. 220-236). Wollongong, Australia: Faculty of Education, University of Wollongong.

Brown, J. S. (2000). Growing up digital: How the web changes work, education, and the ways people learn. *Change: The Magazine of Higher Learning, 32*(2), 11-20. doi:10.1080/00091380009601719

Brown, T. (2011). Using film in teaching and learning about changing societies. *International Journal of Lifelong Education*, 233-247.

Bruce, C. (1994). Reflections on the experience of the phenomenographic interview. In R. Ballantyne, & C. Bruce (Ed.), *Phenomenography: Philosophy and Practice* (p. 483). Brisbane: Centre for Applied Environmental and Social Education Research, Faculty of Education, Queensland University of Technology.

253

Bryman, A. (2008). *Social research methods.* Oxford: Oxford University Press.

Bryman, A., & Bell, E. (2007). *Business research methods.* Oxford: Oxford University Press.

Buckingham , D. (2007a). Digital media Literacies: Rethinking media education in the age of the internet. *Research in Comparative and International Education, 2*(1), 43-55. doi:10.2304/rcie.2007.2.1.43

Buckingham, D. (2007b). Media education goes digital: An introduction. *Learning, Media and Technology, 32*(2), 111-119. doi:10.1080/17439880701343006

Buckingham, D. (2013). *Media education: Literacy, learning and contemporary culture.* Cambridge, U.K: Polity Press.

Buckingham, D., & Martínez-Rodríguez, J. B. (2013). Interactive youth: New citizenship between social networks and school settings. *Comunicar, 40*(XX), 10-13. doi:10.3916/C40-2013-02-00

Burdick, A., Drucker, J., Lunenfeld, P., Presner , T., & Schnapp, J. (2012). *Digital humanities.* MA: MIT Press.

Burkholder , C., & MacEntee, K. (2016). Exploring the ethics of the participant-produced archive: The complexities of dissemination. In D. Warr, M. Guillemin, S. Cox, & J. Waycott (Eds.), *Ethics and visual research methods: Theory, methodology and practice* (pp. 211-224). London: Palgrave Macmillan.

Burkholder, C. (2018). *Looking back and looking around: Revisiting and exploring civic engagement through cellphilms with ethnic minority youth in Hong Kong.* (Doctoral dissertation, McGill University, Canada). Retrieved from http://digitool.library.mcgill.ca/

Burkholder, C. (in press). Looking within and looking around: On cellphilming with pre-service Social Studies teachers in Prince Edward Island. In M. Cotnam-Kappel , & M. Schmitz (Eds.), *Radical youth pedagogy: Flipping the script on the culture of schooling.* New York, NY: Peter Lang.

Burrun, B. (1998). *A critical analysis of the loss of popularity of History of Mauritius as a subject at upper secondary level* (Unpublished degree dissertation, Mauritius Institute of Education /University of Mauritius, Reduit, Mauritius).

Burrun, S. (2011). *Attaining quality education in Mauritius at secondary level: A case study of the zone 2 (state secondary) schools from the educator's perspectives .* (Master's thesis, University of Pretoria, South Africa). Retrieved from http://hdl.handle.net/10500/5076

Burton, C. H. (2008). Superhero as metaphor: Using creative pedagogies to engage. *International Journal for the Scholarship of Teaching and Learning, 2*(2), 1-20. doi:10.20429/ijsotl.2008.020207

Bustamante, V. (2015). *Implementing 21st pedagogical shifts: A study of shifting educational practice and its impact on school culture.* (Master's thesis, University of

Alberta, Edmonton, Alberta, Canada). Retrieved from https://dspace.library.uvic.ca/bitstream/handle/1828/6065/Bustamante_Vicente_MEd _2015.pdf;sequence=1

Callejo, J. (2013). Media time use among adolescents and young adults: analysis of differences. *Communication & Society/Comunicación y Sociedad, 26*(2), 1-26. Retrieved from https://www.unav.es/fcom/communication-society/es/index.php

Carlson, S. (2005, October 07). *The net generation goes to college*. Retrieved September 15, 2017, from The Chronicle of Higher Education: https://www.chronicle.com/article/The-Net-Generation-Goes-to/12307

Caron, C., Raby, R., Mitchell, C., Théwissen-LeBlanc, S., & Prioletta, J. (2017). From concept to data: Sleuthing social change-oriented youth voice on YouTube. *Journal of Youth Studies, 20*(1), 47-62. doi:10.1080/13676261.2016.1184242

Chandler, P., & Sweller, J. (1991). Cognitive load theory and the format of instruction. *Cognition and Instruction, 8*(4), 293-332. doi:10.1207/s1532690xci0804_2

Charsky, D. (2010). From edutainment to serious games: A change in the use of game characteristics. *Games and Culture, 5*(2), 177–198. doi:10.1177/1555412009354727

Cibangu, S. K., & Hepworth, M. (2016). The uses of phenomenology and phenomenography: A critical review. *Library & Information Science Research, 38*(2), 148-160. doi:10.1016/j.lisr.2016.05.001

Clark, J. M., & Paivio , A. (1991). Dual coding theory and education. *Educational Psychology Review, 3*(3), 149-210. doi:10.1007/BF01320076

Clark, R. E. (1983). Reconsidering research on learning from media. *Review of Educational Research, 53*(4), 445-459. doi:10.2307/1170217

Clark, R., & Mayer, R. (2011). *E-learning and the science of instruction* (3rd ed.). San Fransico: Pfeiffer.

Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education (7th ed.)* . New York: Routledge.

Colby, S. L., & Ortman, J. M. (2014). *The baby boom cohort in the United States: 2012-2060: Population estimates and projections.* US: United States Census Bureau. Retrieved from https://www.census.gov/prod/2014pubs/p25-1141.pdf

Collier-Reed, B. I., & Ingerman, A. (2013). Phenomenography: From critical aspects to knowledge claim. In M. Tight, & J. Huisman, *Theory and method in higher education research: International perspectives on Higher Education Research* (Vol. 9, pp. 243-260). Bingley, UK: Emerald Group Publishing.

Collier-Reed, B. I., Ingerman, Å., & Berglund, A. (2009). Reflections on trustworthiness in phenomenographic research: Recognising purpose, context and change in the process of research. *Education as Change, 13*(2), 339-355. doi:10.1080/16823200903234901

Cooshna-Naik, D., & Teelock, V. (2006). Enhancing the teaching and learning of history and geography through information and communications technology: A Mauritian experience. *Educational Technology Research and Development, 54*(4), 422–434. doi:10.1007/s11423-006-9608-y

Cope , B., & Kalantzis, M. (2000). *Multiliteracies: Literacy learning and the design of social futures.* London, UK: Routledge.

Cope, B., & Kalantzis, M. (Eds.). (2015). *A pedagogy of multiliteracies: Learning by design* [Kindle Book]. London: Palgrave Macmillan.

Cope, C. (2004). Ensuring validity and reliability in phenomenographic research using the analytical framework of a structure of awareness. *Qualitative Research Journal, 4*(2), 5-18. Retrieved from http://journals.sagepub.com/home/qrj

Corden, A., & Sainsbury, R. (2006). *Using verbatim quotations in reporting qualitative social research: researchers' views.* Social Policy Research Unit. York: University of York. Retrieved from https://www.york.ac.uk/inst/spru/pubs/pdf/verbquotresearch.pdf

Crafton, L. K., Silvers, P., & Brennan, M. (2009). Creating a critical multiliteracies curriculum: Repositioning art in the early childhood classroom. In M. J. Narey, *Making meaning: Constructing multimodal perspectives of language, literacy, and learning through Arts-based early childhood education* (pp. 31-51). NY: Springer Science & Business Media.

Craig, R. J., & Amernic, J. H. (2006). PowerPoint presentation technology and the dynamics of teaching. *Innovative Higher Education, 3*(3), 147–160. doi:10.1007/s10755-006-9017-5

Crawford, K., Gordon, S., Nicholas, J., & Prosser, M. (1994). Conceptions of mathematics and how it is learned: The perspectives of students entering university. *Learning and Instruction, 4*(4), 331-345. doi:10.1016/0959-4752(94)90005-1

Cresswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five approaches.* Thousand Oaks: Sage.

Cresswell, J. W. (2003). *Research design - Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, California: Sage Publications.

Cresswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks: Sage Publications.

Cummins, J., & Early, M. (2011). *Identity texts: The collaborative creation of power in multilingual schools.* Stoke-on-Trent, U.K: Trentham Books.

Cyphert, D. (2004). The problem of PowerPoint: Visual aid or visual rhetoric? *Business Communication Quarterly, 67*(1), 80-84. doi:10.1177/1080569904671008

Dahlgren, L. O., & Fallsberg, M. (1991). Phenomenography as a qualitative approach in social pharmacy research. *Journal of Social and Administrative Pharmacy, 8*(4), 150-156. Retrieved from http://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-32776

Darbyshire, D., & Baker, P. (2010). Cinema in medical education – Has it penetrated the mainstream? *J Med Mov, 7*(1), 8-14. Retrieved from http://revistamedicinacine.usal.es/es/

De Lange, N., Olivier, T., & Wood, L. (2008). Participatory video documentary: Just for whom? *Education as Change, 12*(2), 109-122. doi:10.1080/16823200809487210

De Martin-Silva, L., Fonseca, J., Jones, R. L., Morgan, K., & Mesquita, I. (2015). Understanding undergraduate sports coaching students' development and learning: The necessity of uncertainty. *Teaching in Higher Education, 20*(7), 669-683. doi:10.1080/13562517.2015.1072153

DeChane, D. J. (2014). How to explain the millennial generation? Understand the context. *Inquiries Journal/Student Pulse, 6*(3), 1-3. Retrieved January 22, 2018, from http://www.inquiriesjournal.com/a?id=878

Deckers, L. (2010). *Motivation: Biological, psychological, and environmental (3rd ed.).* Boston: MA: Pearson/Allyn & Bacon.

Denscombe, M. (2008). Communities of practice: A research paradigm for the mixed methods approach. *Journal of Mixed Methods Research, 2*(3), 270-283. Retrieved from http://www.brown.uk.com/teaching/HEST5001/denscombe.pdf

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2000). *The SAGE handbook of qualitative research* (2nd ed.). Thousand Oaks: Sage.

Dewey, J. (1916). *Democracy and education.* New York: Macmillan.

Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process.* Chicago: Henry Regnery.

Dewey, J. (1938). *Experience and education.* Toronto: Collier-MacMillan Canada Ltd.

Domur, P. K. (2015). Using History textbooks in secondary schools in Mauritius. *Yesterday and Today*(14), 259-262. Retrieved from http://www.scielo.org.za/

Donelly, D. (2014). Using feature Film in the teaching of History: The practitioner decision-making dynamic. *Journal of International Social Studies, 4*(1), 17-27. Retrieved from http://www.iajiss.org

Dringenberg, E., Mendoza-Garcia, J. A., Tafur, M., Fila, N. D., & Hsu, M. (2015). Using Phenomenography on key considerations for making methodological decisions. *ASEE Annual Conference and Exposition*, (pp. 1-25). Seattle, Washington.

Dudeney, G., Hockly, N., & Pegrum, M. (2013). *Digital literacies: Research and resources in language teaching.* United Kingdom : Pearson Education Limited.

Dwyer, J. (2012). *Communication for business and the professions: Strategies and skills.* Melbourne, Australia: Pearson Higher Education.

Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology, 53*, 109-132. doi:10.1146/annurev.psych.53.100901.135153

Edwards, S. L. (2007). Phenomenography: "Follow the yellow brick road!". In S. Lipu, K. Williamson, & A. Lloyd, *Exploring Methods in Information Literacy Research* (pp. 87-110). Wagga Wagga,NSW, Australia: Centre for Information Studies, Charles Sturt University.

Ellis, R. A., & Calvo, R. A. (2006). Discontinuities in university student experiences of learning through discussions. *British Journal of Educational Technology, 37*(1), 55-68. doi:10.1111/j.1467-8535.2005.00519.x

Ellis, R. J., & Simons, R. F. (2005). The impact of music on subjective and physiological indices of emotion while viewing film. *Psychomusicology, 19*, 15-40. Retrieved from https://openmusiclibrary.org/journal/psychomusicology-1/?content=article&page=21

Elphinstone, L. J. (1990). *The development of the course experience questionnaire.* University of Melbourne. Retrieved from http://hdl.handle.net/11343/39207

Engeström, Y. (1999). Activity theory and individual and social transformation. In Y. Engeström, R. Miettinen, & R.-L. Punamäki (Eds.), *Perspectives on activity theory* (pp. 19-38). New York, NY, US: Cambridge University Press.

Entwistle, N., & Ramsden. (1983). *Understanding student learning.* Australia: Croom Helm.

Entwistle, N., McCune, V., & Hounsell, D. (2002). *Approaches to studying and perceptions of university teaching-learning environments: Concepts, measures and preliminary findings.* Edinburgh: University of Edinburgh.

Erdemir , N. (2011). The effect of PowerPoint and traditional lectures on students' achievement in Physics. *Journal of Turkish Science Education, 8*(3), 176-189. Retrieved from http://www.tused.org/internet/tused/sayilar/defaultarchive.asp?islem=gruplar&sene1=Volume-8%20Issue-3

Fallace, T. D. (2010). John Dewey on history education and the historical method. *Education and Culture, 26*(2), 20-35. Retrieved from https://docs.lib.purdue.edu/eandc/

Fielding, J. (2005). Engaging students in learning History. *Canadian Social Studies, 32*(2). Retrieved from https://canadian-social-studies-journal.educ.ualberta.ca/

Fink, M. A., & Foote, D. C. (2007). Using the Simpsons to teach humanities with Gen X and Gen Y adult students. In E. J. Tidsell , & P. M. Thompson (Eds.), *Popular culture and entertainment media in adult education* (pp. 44-45). San Francisco:CA: Josey Bass.

Fink, N. (2013). *Picture superiority effect in prospective memory: Examining the influence of age and attention load* (PhD Thesis, Clemson University, South Carolina). Retrieved from https://tigerprints.clemson.edu/cgi/viewcontent.cgi?article=2098&context=all_dissertations

Fishman, S. M., & McCarthy, L. P. (1998). *John Dewey and the challenge of classroom practice.* New York: Teachers College Press.

Flewitt, S. R. (2006). Using video to investigate preschool classroom interaction: Education research assumptions and methodological practices. *Visual Communication, 5*(1), 25-50. doi:10.1177/1470357206060917

Ford, K. (2014). *Competency-based education: History, education and challenges.* UMUC Center for Innovation in Learning and Student Success(CILSS). Retrieved from https://www.umuc.edu/documents/upload/competency-based-education.pdf

Forlizzi, J., & Ford, S. (2000). The building blocks of experience: An early framework for interaction designers. *Proceedings of Conference on Designing Interactive Systems*, (pp. 419-423).

Forster, M. (2013). Data-analysis issues in a phenomenographic investigation of information literacy in nursing. *Nurse Researcher, 21*(2), 30-34. doi:10.7748/nr2013.11.21.2.30.e329

Forster, M. (2015). Refining the definition of information literacy: The experience of contextual knowledge creation. *Journal of Information Literacy, 9*(1), 62-73. doi:10.11645/9.1.1981

Forster, M. (2016). Phenomenography: A methodology for information literacy research. *Journal of Librarianship and, 48*(4), 353-362. doi: 10.1177/0961000614566481

Franchi, E. (n.d). *What is cultural heritage?* Retrieved November 15, 2017, from KhanAcademy: https://www.khanacademy.org/humanities/art-history-basics/beginners-art-history/a/what-is-cultural-heritage

Frankel, J. A. (2010). Mauritius: African success story. *HKS Faculty Research Working Paper Series RWP10-036*. Retrieved from https://dash.harvard.edu/handle/1/4450110

Freire, P. (2005). *Pedagogy of the oppressed: 30th anniversary edition.* New York: Continuum International Publishing Group Ltd.

Furlong, A. (2013). *Youth studies: An introduction.* Paignton, UK: Routledge.

Gage, N. L. (1989). The paradigm wars and their aftermath: A "historical" sketch of research on teaching since 1989. *Educational Researcher, 18*(7), 4-10. doi:10.3102/0013189X018007004

Gallagher, P., Wilson, N., Edwards, R., Cowie, R., & Baker, M. G. (2011). A pilot study of medical student attitudes to, and use of, commercial movies that address public health issues. *BMC Research Notes, 4*(111), 1-7. doi:10.1186/1756-0500-4-111

Gibbings, P. D. (2008). *Experience of problem-based learning (PBL) in virtual space: A phenomenographical study* (PhD Thesis, Queensland University of Technology, Brisbane, Australia). Retrieved from https://eprints.qut.edu.au/26423/

Goburdhun, S. (2008). *An investigation into factors impacting on the decline of the status of history as a subject at secondary level in Mauritius* (Unpublished master's thesis, University of Brighton, Brighton, Uk).

Goburdhun, S., & Sandhaya, G. (2012). Before History becomes History. In H. Mariaye (Ed.), *Transforming practices: The research journey* (pp. 16-27). Reduit, Mauritius: Mauritius Institute of Education.

Goh, P. S. (2013). Conception of competency: A phenomenographic investigation of beginning teachers in Malaysia. *The Qualitative Report, 18*(20), 1-16. Retrieved from http://nsuworks.nova.edu/tqr/vol18/iss20/2

Goodoory, K., & Goburdhun, S. (2012). Using mobile phone to develop teaching and learning resources for History education. *5th International Conference of Education, Research and Innovation (ICERI2012)* (pp. 1538-1547). Madrid: International Academy of Technology, Education and Development (IATED).

Gordon-Gentil, A., Constantin, D., & Pamplemousses Production (Directors). (2007). *From so far- Indian Immigration in Mauritius* [Motion Picture]. Pamplemousses, Mauritius: Pamplemousses Production.

Gordon-Gentil, A., Constantin, D., & Pamplemousses Production (Directors). (2008). *From so far: The story of African immigration to Mauritius.* [Motion Picture]. Pamplemousses, Mauritius: Pamplemousses Production.

Grady, C. L., McIntosh, A. R., Rajah, N. M., Beig, S., & Craik, F. I. (1999). The effects of age on the neural correlates of episodic encoding. *Cerebral Cortex*, 805–814. doi:doi.org/10.1093/cercor/9.8.805

Green, M., Pynn, H., & Lopez, M. (2013, May 28). Perry's theory of intellectual and ethical development, Digital Primer Project [video file]. Retrieved from https://www.youtube.com/watch?v=RnmQzV4Sko0

Green, P., & Bowden, J. A. (2009). Principles of developmental phenomenography. *The Malaysian Journal of Qualitative Research, 2*(2), 51-70. Retrieved from http://www.myjurnal.my/public/about.php#

Guba, E., & Lincoln, Y. (1994). Competing paradigms in qualitative research. In N. Denzin, & Y. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 105-117). Thousand Oaks, California: Sage.

Gysbers, V., Johnston, J., Hancock, D., & Denyer, G. (2011). Why do students still bother coming to lectures, when everything is available online? *International Journal of Innovation in Science and Mathematics Education, 19*(2), 20-36. Retrieved from https://openjournals.library.sydney.edu.au/index.php/CAL/index

Hall, R. F. (2013). Mixed methods: In search of a paradigm. In Q. Lê, & T. Le (Eds.), *Conducting research in a changing and challenging world* (pp. 71-78). New York, NY: Nova Science Publishers Inc.

Hammarlund, K. G. (2012). Promoting procedural knowledge in history education. In D. Ludvigsson, *Enhancing student learning in history: Perspectives on university history teaching* (p. 136). Uppsala, Sweden: Swedish Science Press.

Hammarlund, K. G. (2015). Continuous assessment of historical knowledge and competence: Challenges, pitfalls and possibilities. In D. Ludvigsson, & A. Booth (Ed.), *Linköping Conference on History Teaching and Learning in Higher Education* (pp. 33-49). Linköping, Sweden: Linköping University. Retrieved from http://liu.diva-portal.org/smash/get/diva2:786270/FULLTEXT01.pdf

Hampson, M., Patton, A., & Shanks, L. (2013). *10 ideas for 21st century education.* Retrieved October 20, 2017, from Innovation Unit: https://www.innovationunit.org/publications/10ideasfor21centuryeducation/

Handsfield,, L. J., Dean, T. R., & Cielocha, K. M. (2009). Becoming critical consumers and producers of text: Teaching literacy with web 1.0 and web 2.0. *The Reading Teacher, 63*(1), 40-50. doi:10.1598/RT.63.1.4

Hardin-Ramanan, S., Ballasoupramanien, L., Gopee, S. M., Rowtho, V., & Charoux, O. (2019). Graduate work-readiness challenges in Mauritius. In S. Dhakal, V. Prikshat, A. Nankervis, & J. Burgess (Eds.), *The transition from graduation to work: Challenges and strategies in the twenty-first century Asia Pacific and beyond* (pp. 143-160). Singapore: Springer.

Hargittai, E. (2010). Digital Na(t)ives? Variation in internet skills and uses among members of the "net generation". *Sociological Inquiry, 80*(1), 92-113. doi:10.1111/j.1475-682X.2009.00317.x

Harris, R. J., & Haydn, T. (2006, September). Pupil perceptions of history as a school subject. Paper presented at the European Conference on Educational Research (ECER 2006), Geneva 2006, 13-16 September 2006. Retrieved from http://www.unige.ch/fapse/SSE/ecer2006/

Harvey, L., Burrows, A., & Green, D. (1992). *Total student experience: a first report of the QHE national survey of staff and students' views of the national survey of staff and students' views of the important criteria of quality.* Birmingham: QHE.

Harwell, M. R. (2011). Research design in qualitative/quantitative/mixed Methods [Google Books version]. In C. F. Conrad, & R. C. Serlin (Eds.), *The SAGE handbook for research in education: Pursuing ideas as the keystone of exemplary inquiry* (2nd ed., pp. 147-182). Thousand Oaks, California: SAGE publications.

Hasan, H., & Kazlauskas, A. (2014). Activity Theory: who is doing what, why and how. In H. Hasan (Ed.), *Being practical with theory: A window into business research* (pp. 9-14). Wollongong, Australia: THEORI. Retrieved from http://eurekaconnection.files.wordpress.com/2014/02/p-09-14-activity-theory-theori-ebook-2014.pdf

Hassenzahl , M., & Tractinsky , N. (2006). User experience - a research agenda. *Behaviour & Information Technology, 25*(2), 91-97. doi:org/10.1080/01449290500330331

Hassett, D. D., & Curwood, J. S. (2009). Theories and practices of multimodal education: The instructional dynamics of picture books and primary classrooms. *The Reading Teacher, 63*(4), 270-282. doi:10.1598/RT.63.4.2

Hazamy, A. A. (2009). *Influence of pictures on word recognition.* Electronic Theses & Dissertations. 430. Retrieved from https://digitalcommons.georgiasouthern.edu/etd/430

Helsper, E., & Eynon, R. (2010). Digital natives: Where is the evidence? *British educational research journal, 36*(3), 503-520. doi:g/10.1080/01411920902989227

Herbert, S. (2014). A framework for teachers' knowledge of mathematical. *MERGA 2014: : Curriculum in focus: research guided practice:* (pp. 702-705). Sydney: Proceedings of the Mathematics Education Research Group of Australasia . Retrieved from http://hdl.handle.net/10536/DRO/DU:30064934

Herbert, S., Vale, C., Bragg, L. A., Loong, E., & Widjaja, W. (2015). A framework for primary teachers' perceptions of mathematical reasoning. *International Journal of Educational Research, 74*, 26-37. doi:10.1016/j.ijer.2015.09.005

Herrington, J., Mitchell, V., Rowe, M., & Titus, S. (2015). The case studies: Authentic learning. In V. Bozalek, D. Ng'ambi, D. Wood, J. Herrington, J. Hardman, & A. Amory, *Activity theory, authentic learning and emerging technologies: Towards a transformative higher education pedagogy* (pp. 192-210). New York: Routledge.

Héry-Vielpeau, E. (2013). L'enseignement de l'histoire et le film : l'histoire d'un apprivoisement (1920-2000). *HAL*, 1-12. Retrieved from https://halshs.archives-ouvertes.fr/halshs-00784848/document

History teaching and learning syllabus grades 3-6. (2015). (Mauritius Institute of Education, Ed.) Retrieved from Grade 1-7 textboooks 2018: http://online.fliphtml5.com/eisr/xogn/index.html#p=1

Hobbs, R. (2006). Non-optimal uses of video in the classroom. *Learning, Media and Technology, 31*(1), 35–50. doi:10.1080/17439880500515457

Hockley, W. E. (2008). The picture superiority effect in associative recognition. *Memory & Cognition, 36*(7), 1351–1359. doi:org/10.3758

Hodge, R., & Kress, G. (1988). *Social semiotics* (1st ed.). Cambridge: Cornell University Press.

Hofer, B. K., & Pintrich, P. R. (1997). The development of epistemological theories: Beliefs about knowledge and knowing and their relation to learning. *Review of Educational Research, 67*(1), 88-140. doi:10.2307/1170620

Hofstetter, F. T. (2001). *Multimedia literacy.* New York, NY: McGraw-Hill.

Hornbæk, K., & Hertzum, M. (2017). Technology acceptance and user experience: A review of the experiential component in HCI. *ACM Transactions on Computer-Human Interaction, 24*(5), 1-30. doi:10.1145/3127358

Horst, H. A., Herr-Stephenson, B., & Robinson, L. (2010). Media Ecologies. In Ito et al., *Hanging out, messing around, geeking out: Living and learning with new media* (pp. 29–78). Cambridge, London: MIT Press.

Hounsell, D. (1997). Understanding teaching and teaching for understanding. In F. Marton, D. Hounsell, & N. Entwistle, *The experience of earning: Implications for teaching and studying in higher education* (pp. 238-257). Edingburgh: Scottish Academic Press.

Howe, N., & Strauss, B. (2000). *Millennials rising: The next great generation.* New York: Vintage Books.

Howe, N., & Strauss, W. (2007, July-August). The next 20 years: How customer and workforce attitude will evolve. *Harvard Business Review*, pp. 41-52. Retrieved from http://download.2164.net/PDF-newsletters/next20years.pdf

ICT Statistics Mauritius. (2016). Port-Louis: Ministry of Finance and Economic Development. Retrieved from http://statsmauritius.govmu.org/English/Publications/Documents/EI1327/ICT_Yr201 6.pdf

Imafuku, R., Saiki, T., Kawakami, C., & Suzuki, Y. (2015). How do students' perceptions of research and approaches to learning change in undergraduate research? *International Journal of Medical Education, 6*, 47-55. doi:10.5116/ijme.5523.2b9e

Ingerman, Å., Linder, C., & Marshall, D. (2009). The learners' experience of variation: Following students' threads of learning physics in computer simulation sessions. *Instructional Science, 37*(3), 273-292. Retrieved from http://www.diva-portal.se/smash/get/diva2:218032/FULLTEXT02.pdf

Ireland, J., Tambyah, M. M., Neofa, Z., & Harding, T. (2009). The tale of four researchers : Trials and triumphs from the phenomenographic research specialization. *AARE 2008 International Education Conference : Changing Climates : Education for Sustainable Futures* (pp. 1-15). Brisbane: QUT Digital Repository. Retrieved from https://eprints.qut.edu.au/20457/1/c20457.pdf

Isen, A. M., & Reeve, J. (2005). The influence of positive affect on intrinsic and extrinsic motivation: Facilitating enjoyment of play, responsible work behavior, and self-control. *Motivation and Emotion, 29*(4), 295-323. doi:10.1007/s11031-006-9019-8

ISO 9241-11. (2018). *Ergonomics of human-system interaction-Part 11:Usability: Definitions and concepts.* International Standardization Organization (ISO).

Ito, M., Horst, H., Bittanti, M., boyd, d., Herr-Stephenson, B., Lange, P. G., & . . . Tripp, L. (2009). *Living and learning with new media: Summary of findings from the digital youth project.* Chicago: The John D. and Catherine T. MacArthur Foundation Reports on Digital Media and Learning. Retrieved from http://digitalyouth.ischool.berkeley.edu/files/report/digitalyouth-WhitePaper.pdf

Jadoo, J., & Fakun, N. (2017, January 21). *Educating for the future: Are we failing our kids?* Retrieved April 23, 2018, from News on Sunday: http://defimedia.info/educating-future-are-we-failing-our-kids

Janks , H. (2013). Critical literacy in teaching and research. *Education Inquiry, 4*(2), 225–242. doi:10.3402/edui.v4i2.22071

Janks, H. (2010). *Literacy and power.* Abingdon: Routledge.

Janks, H. (2012). The importance of critical literacy. *English Teaching: Practice and Critique, 11*(1), 150-163. Retrieved from https://edlinked.soe.waikato.ac.nz/research/files/etpc/files/2012v11n1dial1.pdf

Järvelä, S. (2001). Shifting research on motivation and cognition to an integrated approach on learning and motivation in context. In S. Volet , & S. Järvelä (Eds.), *Motivation in learning contexts. theoretical advances and methodological implications.* London: Pergamon/Elsevier.

Jarvin, L. (2015). Edutainment, games, and the future of education in a digital World. In E. L. Grigorenko (Ed.), *The global context for new directions for child and adolescent development. New Directions for Child and Adolescent Development* (Vol. 147, pp. 33-40). Wiley Online Library. doi:10.1002/cad.20082

Jarvis, P., Holford, J., & Griffin, C. (2003). *Theory and practice of learning* (2nd ed.). London: Routledge.

Jenkins, K., & Munslow, A. (2004). *The nature of history reader.* London and New York: Routledge.

Jewitt, C. (2002). The move from page to screen: The multimodal reshaping of school English. *Journal of Visual Communication, 1*(2), 171-196. doi:org/10.1177/147035720200100203

Jewitt, C. (2005). Multimodality, "Reading" and "Writing" for the 21st century. *Discourse: Studies in the Cultural Politics of Education, 26*(3), 315-331. doi:10.1080/01596300500200011

Jewitt, C. (2008). Multimodality and literacy in school classrooms. *Review of Research in Education, 32*, 241–267. doi:doi.org/10.3102/0091732X07310586

Jewitt, C. (Ed.). (2009). *The Routledge handbook of multimodal analysis.* London: Routledge.

Jewitt, C. (2013). Multimodal methods for researching digital technologies. In S. Price, C. Jewitt, & B. Brown, *The SAGE handbook of digital technology research* (pp. 250-261). London: SAGE Publications Ltd. doi:10.4135/9781446282229.n18

Jewitt, C., Bezemer , J., & O'Halloran, K. (2016). *Introducing multimodality.* London and New York: Routledge.

Jewitt, C., Kress, G., Ogborn, J., & Tsatsarelis. (2001). Exploring learning through visual, actional and linguistic communication: The multimodal environment of a science classroom. *Educational Review, 53*(1), 5-18. doi:10.1080/00131910123753

Jhurree, V. (2005). Technology integration in education in developing countries: Guidelines to policy makers. *International Education Journal, 6*(4), 467-483. Retrieved from http://iej.cjb.net

Johansson, B., Marton, F., & Svensson, L. (1985). An approach to describing learning as change between qualitatively different conceptions. In L. H. West, & A. Leon Pines,

Cognitive structure and conceptual change (pp. 233-257). New York: New York Academic Press.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Towards a definition of mixed methods research. *Journal of Mixed Methods Research, 1*(2), 112-133. doi:10.1177/1558689806298224

Jones, C., & Kennedy, G. (2011). Stepping beyond the paradigm wars: Pluralist methods for research in learning technology. *ALT-C 2011, 18th International Conference: Thriving in a Colder and More Challenging Climate, 6-8 Sep 2011*, (pp. 18-28). Leeds, UK. doi:10.3402/rlt.v19s1/7798

Jones, C., & Shao, B. (2011). The net generation and digital natives: Implications for higher education. *Higher Education Academy*, 1-53. Retrieved from http://oro.open.ac.uk/id/eprint/30014

Jordan, W. P. (2000). *Designing pleasurable products: An introduction to the new human factors [e-book]*. London, New York: Taylor & Francis e-library.

Jordanova, L. (2006). *History in practice* (2nd ed.). London: Bloomsbury Academic.

Joseph, S. (2011). What are upper secondary school students saying about History? *Caribbean Curriculum, 18*, 1-26. Retrieved from https://journals.sta.uwi.edu/cc/

Jugee, S., & Santally, M. I. (2016). The tablet PC initiative in Mauritius- A situational analysis. *IJAEDU- International E-Journal of Advances in Education, 2*(4), 14-22. Retrieved from http://ijaedu.ocerintjournals.org

Junco, R., & Cotten, S. R. (2011). Perceived academic effects of instant messaging use. *Computers & Education, 56*, 370-378. doi:10.1016/j.compedu.2010.08.020

Junco, R., & Cotten, S. R. (2012). No A 4 U: The relationship between multitasking and academic performance. *Computers & Education*, 505-514. Retrieved from https://www.learntechlib.org/p/66713/

Juslin, P. (2013). What does music express? Basic emotions and beyond. *Frontiers in Psychology, 4*(596), 596. doi:10.3389/fpsyg.2013.00596

Kafai, Y. B., & Peppler, K. A. (2011). Youth, technology and DIY: Developing participatory competencies in creative media. (S. Wortham, Ed.) *Youth Cultures, Language, and Literacy: Review of Research in Education, 35*, pp. 89-119. doi:10.3102/0091732x10383211

Kahraman, S., Çevika, C., & Kodan, H. (2011). Investigation of university students' attitude toward the use of PowerPoint according to some variables. *Procedia Computer Science*, 1341–1347. doi:10.1016/j.procs.2011.01.013

Kaiser, K. (2009). Protecting respondent confidentiality in qualitative research. *Qualitative Health, 19*(11), 1632–1641. doi:10.1177/1049732309350879

Kalogeras, S. (2014). *Transmedia Storytelling and the New Era of Media Convergence in Higher Education.* London: Palgrave Macmillan.

Kankainen, A. (2006). Finding uses for new technology: Moving with a magic thing. *User Experience Magazine, 5*(3). Retrieved from User Experience Magazine: http://uxpamagazine.org/moving_with_magic_thing/

Kaptelinin, V. , & Nardi, B. A. (2006). *Acting with technology: Activity theory and interaction design* [Google Books version]. London: MIT press.

Karchmer-Klein, R., & Shinas, V. (2012). 21st century literacies in teacher education: Investigating multimodal texts in the context of an online graduate-level literacy and technology course. *Research in the Schools, 19*(1), 60-74. Retrieved from http://www.msera.org/rits.htm

Keeling, S. (2003). Advising the millennial generation. *Journal of the National Academic Advising, 23*(1 & 2), 30-36. doi:org/10.12930/0271-9517-23.1-2.30

Kennedy, G.E., Judd, T. S., Churchward, A., Gray, K., & Krause, K.-L. (2008). First year students' experiences with technology: Are they really digital natives? *Australasian Journal of Educational Technology, 24*(1), 108-122. doi:10.14742/ajet.1233

Kennedy, G., Judd, T., Dalgarno, B., & Waycott, J. (2010). Beyond natives and immigrants: Exploring types of net generation. *Journal of Computer Assisted Learning, 26*(5), 332-343. doi:10.1111/j.1365-2729.2010.00371.x

Ketonen, E. (2017). *The role of motivation and academic emotions in university studies: The short- and long-term effects on situational experiences and academic achievement (Doctoral dissertation).* University of Helsinki, Finland .

King, N., & Horrocks, C. (2010). *Interviews in qualitative research.* Thousand Oaks: SAGE.

King, P. M., & Kitchener, K. S. (1994). *Developing reflective judgment: Understanding and promoting intellectual growth and critical thinking in adolescents and adults.* San Francisco: Josey Bass.

Kirkwood, A., & Price, L. (2005). Learners and learning in the twenty-first century: What do we know about students attitudes towards and experiences of information and communication technologies that will help us design courses? *Studies in Higher Education,, 30*(3), 257-274. doi:10.1080/03075070500095689

Kitson, L. (2011). Reconceptualising understandings of texts, readers and contexts: One English Teacher's response to using multimodal texts and interactive whiteboards. *English in Australia*, 76-86. Retrieved from https://core.ac.uk/download/pdf/143854887.pdf

Knutson, B. J., & Beck, J. A. (2003). Defining an experience: A call for research. *e-Review of Tourism Research (eRTR), 1*(2), 48-51. Retrieved from https://ertr.tamu.edu/

Koch, M., Luck, K. V., Schwarzer, J., & Draheim, S. (2018). The novelty effect in large display deployments - Experiences and lessons-learned for evaluating prototypes. *16th European Conference on Computer-Supported Cooperative Work*, (pp. 1-19). doi:10.18420/ecscw2018_3

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development.* Englewood Cliffs, NJ: Prentice-Hall.

Krause, K. L., & Coates, H. (2008). Students' engagement in the first year university. *Assessment & Evaluation in Higher Education, 33*(5), 493-505. doi:10.1080/02602930701698892

Kress, G. (2010). *Multimodality. A social semiotic approach to contemporary communication.* London, UK: Routledge.

Kress, G., & Selander, S. (2012). Multimodal design, learning and cultures of recognition. *Internet and Higher Education, 15*(4), 265-268. doi:10.1016/j.iheduc.2011.12.003

Kress, G., & van Leeuwen, T. (1996). *Reading images: The grammar of visual design.* Oxon: Routledge.

Kress, G., & van Leeuwen, T. (2001). *Multimodal discourse: The modes and media of contemporary communication.* Oxford, UK: Oxford University Press.

Kuhn, T. S. (1962). *The structure of scientific revolutions* (1st ed.). Chicago: University of Chicago Press.

Kuhn, T. S. (1970). *The structure of scientific revolutions* (2nd ed.). Chicago: University of Chicago Press.

Kvale, S. (1996). *InterViews—An introduction to qualitative research interviewing.* CA: Thousand Oaks: Sage.

Kvale, S. (2007). *Doing interviews.* CA: Sage Publications.

Lari, F. S. (2014). The impact of using PowerPoint presentations on students' learning and motivation in secondary schools. *International Conference on Current Trends in ELT*, (pp. 1672 – 1677). doi:10.1016/j.sbspro.2014.03.592

Larsson, J., & Holmström, I. (2007). Phenomenographic or phenomenological analysis: does it matter? *International Journal of Qualitative Studies on Health and Well-being, 2*(1), 55-64. doi:10.1080/17482620601068105

Lauer, C. (2009). Contending with terms: "multimodal" and "multimedia" in the academic and public spheres. *Computers and Composition, 26*(4), 225-239. doi:10.1016/j.compcom.2009.09.001

Laurillard, D. (1993). *Rethinking university teaching, a framework for the effective use of educational technology* (1st ed.). London, United Kingdom: Routledge.

Laurillard, D. (2002). *Rethinking university teaching: A conversational framework for the effective use of learning technologies* (2nd ed.). London: Routledge Falmer.

Learning Environment. (2013). *The glossary of education reform*. Retrieved from The Glossary of Education Reform: https://www.edglossary.org/learning-environment/

Lee, P. (2005). Putting Principles into Practice: Understanding History. In S. M. Donovan, & J. D. Bransford, *How students learn : History, mathematics, and science in the*

classroom / Committee on How People Learn, A Targeted Report for Teachers (p. 616). Washington, DC: The National Academies Press.

Lee, P., & Shemilt, D. (2003). A scaffold, not a cage: Progression and progression models in history. *Teaching History, 113*, 13-23. Retrieved from https://www.jstor.org/stable/43259908

Lepper, M. (1988). Motivational considerations in the study of instruction, cognition and instruction. *Cognition and Instruction, 5*(4), 289-309. doi:10.1207/s1532690xci0504_3

Liles, R. E. (2007). The use of feature films as teaching tools in social work education. *Journal of Teaching in Social Work, 27*(3-4), 45-60. doi:10.1300/J067v27n03_04

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry.* Beverly Hills: CA: Sage.

Lippincott, J. K. (2007, October 19). Student content creators: Convergence of literacies. *EDUCAUSE Review, 42*(6), 16-17. Retrieved from Educause Review: https://er.educause.edu/articles/2007/10/student-content-creators-convergence-of-literacies

Liston, C. (n.d). *Teaching Heritage.* Retrieved from Board of studies, NSW: http://www.teachingheritage.nsw.edu.au/section09/liston.php

Liu, S.-C. (2018). Environmental education through documentaries: Assessing learning outcomes of a general environmental studies course. *EURASIA J. Math., Sci Tech. Ed, 14*(4), 1371–1381. doi:10.29333/ejmste/83653

Lopatto, D. (2007). Undergraduate research experiences support science career decisions and active learning. *CBE-Life Sciences Education, 6*(4), 297-306. doi:10.1187/cbe.07-06-0039

Lowenthal, D. (1985). *The past is a foreign country.* Cambridge: Cambridge University Press.

Ludvigsson, D., & Booth, A. (2015). Building knowledge, building connections. In D. Ludvigsson, & A. Booth (Ed.), *Enriching History teaching and learning: Challenges, possibilities and practices* (pp. 7-13). Linköping: Linköping Conference on History Teaching and Learning in Higher Education, Linköping University.

Luke, A. (2000). Critical literacy in Australia: A matter of context and standpoint. *Journal of Adolescent and Adult Literacy, 43*(5), 448-461. Retrieved from http://www.jstor.org/stable/40017081

Luke, C. (2003). Pedagogy, connectivity, multimodality and interdisciplinarity. *Reading Research Quarterly, 38*(3), 397-403. Retrieved from https://www.jstor.org/stable/4151827

Luo, H. (2011). Qualitative research on educational technology: Philosophies, methods and challenges. *International Journal of Education, 3*(2), 1-13. doi:10.5296/ije.v3i2.857

MacEntee, K., Burkholder, C., & Schwab-Cartas, J. (Eds.). (2016). *What's a cellphilm? Integrating mobile phone technology into participatory visual research and activism.* Rotterdam: Sense Publishers.

Mackenzie, N., & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues In Educational Research, 16*(2), 193-205. Retrieved from http://www.iier.org.au/iier16/mackenzie.html

MacNaughton, G., Rolfe, S. A., & Siraj-Blatchford, I. (2001). *Doing early childhood research: International perspectives, theory and practice.* Australia: Allen & Unwin.

Magro, G., Ramos de Carvalho, J., & Marcelino, M. J. (2014). Improving history learning through cultural heritage, local history and technology. *10th International Conference Mobile Learning 2014*, (pp. 34-40). Madrid. Retrieved from https://files.eric.ed.gov/fulltext/ED557197.pdf

Mahlke, S. (2008). *User experience of interaction system: Theories, Methods, empirical results, and their application to the development of interactive systems (Doctoral Thesis).* Berlin: Technische Universität Berlin. doi:org/10.14279/depositonce-1793

Mäkelä, A., & Folton Suri, J. (2001). Supporting users' creativity: Design to induce pleasurable experiences. *Proceedings of the International Conference on Affective Human Factors Design*, (pp. 387-394). London, UK.

Marcus, A. S. (2005). "It is as it was": Feature film in the history classroom. *The Social Studies, 96*, 61-67. doi:10.3200/TSSS.96.2.61-67

Marcus, A. S. (2007). Students making sense of the past: "It's almost like living the event.". In A. Marcus (Ed.), *Celluloid blackboard: Teaching history with film* (pp. 121-166). Charlotte, NC: Information Age Publishing.

Marcus, A. S., & Stoddard, J. D. (2007). Tinsel town as teacher: Hollywood film in the high school classroom. *The History Teacher, 40*(3), 303-330. doi:10.2307/30036826

Marcus, A. S., Metzger, S. A., Paxton, R. J., & Stoddard, J. D. (2018). *Teaching History with film: Strategies for secondary social studies.* New York: Routlegde.

Margaryan, A., Littlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality? University students' use of digital technologies. *Computers & Education, 56*(2), 429-440. doi:10.1016/j.compedu.2010.09.004

Marić, M., & Sakač, M. (2014). Individual and social factors related to students' academic achievement and motivation for learning. *Suvremena psihologija, 17*(1), 63-79. Retrieved from https://hrcak.srce.hr/127274

Marton, F. (1981). Phenomenography: Describing conceptions of the world around us. *Instructional Science, 10*(2), 177-200. doi:http://10.1007/BF00132516

Marton, F. (1986). Phenomenography—A research approach to investigating different understandings of reality. *Journal of Thought, 21*(3), 28-49. Retrieved from http://www.jstor.org/stable/42589189

Marton, F. (1994). Phenomenography. In T. Husén , & N. T. Postlethwaite (Eds.), *The Internationational Encyclopedia of Education* (2nd ed., Vol. 8, pp. 4424-4429). Pergamon.

Marton, F. (2000). The structure of awareness. In J. Bowden, & E. Walsh (Eds.), *Phenomenography* (pp. 102-116). Melbourne: RMIT University Press.

Marton, F., & Booth, S. (1997). *Learning and awareness.* New Jersey: Lawrence Erlbaum Associates.

Marton, F., & Pong, W. Y. (2005). On the unit of description in phenomenography. *Higher Education Research & Development, 24*(4), 335-348. doi:10.1080/07294360500284706

Marton, F., & Sui, A. (2004). *Classroom discourse and the space of learning.* Hillsdale, NJ: Lawrence Erlbaum.

Marton, F., Carlsson, M. A., & Halász, L. (1992). Differences in understanding and the use of reflective variation in reading. *British Journal of Educational Psychology, 62*(1), 1-16. doi:10.1111/j.2044-8279.1992.tb00995.x

Marton, F., Hounsell, D., & Entwistle, N. J. (1997). *The experience of learning: Implications for teaching and studying in higher education* (2nd ed.). Edinburgh: Scottish Academic Press.

Mauritius in figures. (2017). Statistics Mauritius: Ministry of Finance & Economic Development. Retrieved from http://statsmauritius.govmu.org/English/Publications/Documents/MIF/MIF_2017.pdf

Maürtin-Cairncross , A. (2014). A glimpse of generation-Y in higher education : Some implications for teaching and learning environments. *South African Journal of Higher Education, 28*(2), 564 - 583. Retrieved from https://journals.co.za

Mayer, E. R., & Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educational Psychologist, 38*(1), 43-52. Retrieved from https://www.tandfonline.com/toc/hedp20/current

Mayer, R. (2001). *Multimedia learning.* New York, NY: Cambridge University Press.

Mayer, R. E. (2005). Cognitive theory of multimedia learning. In M. E. Richard (Ed.), *The Cambridge handbook of multimedia learning* (pp. 31-48). New York, NY: Cambridge University Press.

Mayer, R. E. (2010). Applying the science of learning to medical education. *Medical Education, 44*, 543–549. doi:10.1111/j.1365-2923.2010.03624.x

McLeod, A. S. (2017). *Kolb-learning Styles*. Retrieved May 14, 2017, from Simply Psychology: https://www.simplypsychology.org/learning-kolb.html

McLoughlin, C., & Lee, M. J. (2010). Personalised and self regulated learning in the Web 2.0 era: International exemplars of innovative pedagogy using social software. *Australasian Journal of Technology, 26*(1), 28-43. doi:10.14742/ajet.1100

Mercer, S. (2012). The complexity of learner agency. *Apples-Journal of Applied Language Studies, 6*(2), 41-59. Retrieved from http://apples.jyu.fi/

Metzger, S. A., & Suh, Y. (2008). Significant or safe? Two cases of instructional uses of History feature films. *Theory & Research in Social Education, 36*(1), 88-109. doi:10.1080/00933104.2008.10473361

Mills, K. A. (2010). A review of the "Digital Turn" in the new literacy studies. *Review of Educational Research, 80*(2), 246-271. doi:org/10.3102/0034654310364401

Minear, P. S. (1940). Historical consciousness vs. historical knowledge. *Journal of Bible and Religion, 8*(2), 72-76. Retrieved from https://www.jstor.org/stable/1457712

Ministry of Education and Human Resources. (2014). *Education reforms in action 2008-2014: Learning for life.* Ministry of Education and Human Resources. Retrieved from http://ministry-education.govmu.org/English/Documents/EDUCATION%20REPORT%20in%20Action%2002.9.14.pdf

Mir, R., & Watson , A. (2000). Strategic management and the philosophy of science: The case for a constructivist methodology. *Strategic Management Journal, 21*(9), 941–953. Retrieved from https://www.jstor.org/stable/3094262

Mishra, P., Koehler, M., & Zhao, Y. (2007). *Faculty development by design: Integrating technology in higher education.* Greenwich, CT: Information Age Publishing.

Mitchell, C. (2014). Digital Media and the knowledge-producing practices of young people in the age of AIDS. In K. Sandford, T. Rogers , & M. Kendrick (Eds.), *Cultural Studies and Transdisciplinarity in Education* [Google Books version] (Vol. 1, pp. 81-93). Singapore: Springer. Retrieved from https://books.google.mu/books?isbn=9814451037

Mitchell, C., & De Lange, N. (2013). What can a teacher do with a cellphone? Using participatory visual research to speak back in addressing HIV&AIDS. *South African Journal of Education, 33*(4), 1-13. Retrieved from http://www.scielo.org.za/

Mitchell, C., Campbell, B., Pizzuto, S., & Benoit, B. A. (2019). Seeing through television and film: The teacher's gaze in professional learning. In K. Pithouse-Morgan, D. Pillay, & C. Mitchell (Eds.), *Memory mosaics: Researching teacher professional learning through artful memory-work* (pp. 95-112). New York, NY: Springer.

Mitchell, C., Theron, L., Stuart , J., Smith , A., & Campbell, Z. (2011). Drawings as research method. In L. Theron, C. Mitchell, A. Smith, & J. Stuart (Eds.), *Picturing research: Drawings as visual methodology* [Google Books version]. Sense Publishers.

Mogey, N. (2011). What is it that is really acting as a barrier to widespread use of summative e-assessment in UK higher education? *International Journal of e-Assessment, 1*(1), 1-9. Retrieved from http://ijea.org.uk/index.php/journal/index

Mohadeb, P. (2010). Mauritius. In P. Pillay, *Higher education financing in East and Southern Africa* (pp. 81-101). Somerset West, South Africa: African Minds.

Mohamedbhai, G. (2014). Massification in higher education institutions in Africa: Causes, consequences and responses. *International Journal of African Higher Education, 1*(1), 59-83. doi:10.6017/ijahe.v1i1.5644

Molesworth, M., Nixon , E., & Scullion, R. (2009). Having, being and higher education: The marketisation of the university and the transformation of the student into consumer. *Teaching in Higher Education,, 14*(3), 277-287. doi:10.1080/13562510902898841

Moreno, R. (2006). Does the modality principle hold for different media? A test of the method-affects-learning hypothesis. *Journal of Computer Assisted Learning, 22*(3), 149-158. doi:10.1111/j.1365-2729.2006.00170.x

Moreno, R. (2007). Optimising learning from animations by minimising cognitive load: Cognitive and affective consequences of signalling and segmentation. *Applied Cognitive Psychology, 21*, 765-781. doi:10.1002/acp.1348

Moreno, R., & Mayer, R. E. (2007). Interactive multimodal learning environments: Special issue on interactive learning environments: Contemporary issues and trends. *Educational Psychology Review, 19*, 309–326. doi:10.1007/s10648-007-9047-2

Morrison, A. D., Clemens, M., & McClellan Ribble, E. A. (2015). Characteristics of effective multimedia for teaching: Applying cognitive theories of multimedia learning to complex content. *Teaching and Learning with Technology Symposium, Denver, Colorado, 2015* (pp. 1-12). Journal of Teaching and Learning Systems (JTLS). Retrieved from https://msudenver.edu/media/content/tlts/MorrisonClemensRibbleTLTS2015FINAL 12152015.pdf

Morrison, C. D. (2014). From 'sage on the stage' to 'guide on the side': A good start. *International Journal for the Scholarship of teaching and learning (ijSOTL), 8*(1), 1-15. doi:10.20429/ijsotl.2014.080104

Morrison, C. M., & Secker, J. (2017). Understanding librarians' experiences of copyright: Findings from a phenomenographic study of UK information professionals. *Library Management, 33*(6/7), 354-368. doi:org/10.1108/LM-01-2017-0011

Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods, 1*(2), 1-19. Retrieved August 12, 2014, from http://www.ualberta.ca/~ijqm/

Morville , P. (2004). *User experience design*. Retrieved from Semantic Studio: http://semanticstudios.com/user_experience_design/

Morville, P., & Sullenger, P. (2010). Ambient findability: Libraries, serials, and the internet of things. *The Serials Librarian, 58*(1-4), 33-38. doi:10.1080/03615261003622999

Munslow, A. (2001, October). *What History is*. Retrieved from What is History?: https://www.history.ac.uk/ihr/Focus/Whatishistory/munslow6.html

Munslow, A. (2003). *The New History: History, Concepts, Theories and Practice series.* Harlow: Longman.

Munslow, A. (2006). *Deconstructing History* [Google Books version] (2nd ed.). London and New York: Routledge. Retrieved from https://books.google.mu/books?isbn=0415391431

Munslow, A. (2015). Genre and history/historying. *Rethinking History: The Journal of Theory and Practice, 19*(2), 158–176. doi:10.1080/13642529.2014.973711

Nader, C. (2003, October 9). *Generation Y: Complex, discerning and suspicious.* Retrieved from The Age: https://www.theage.com.au/articles/2003/10/08/1065601910385.html

Neary, M., & Winn, J. (2009). The student as producer: Reinventing the student experience in higher education. In L. Bell, H. Stevenson, & M. Neary (Eds.), *The future of higher education: Policy, pedagogy and the student experience.* London: Continuum.

Neelankavil, J. P. (2015). *International business research.* New York, NY: M.E.Sharpe.

New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review, 66*(1), 60-93. doi:10.17763/haer.66.1.17370n67v22j160u

News on Sunday. (2017, March 12). Economic challenges ahead for Mauritius: The six commandments. Retrieved from https://defimedia.info/economic-challenges-ahead-mauritius-six-commandments

Ngcobo, N. (2012). *Yesterday* as a study for tomorrow: On the use of film texts in addressing gender and HIV and AIDS with secondary school youth in KwaZulu-Natal. *Educational Research for Social Change (ERSC), 1*(2), 71-83. Retrieved from ersc.nmmu.ac.za

Ngcobo, N. (2015). The use of film as an intervention in addressing gender violence: Experiences in a South African secondary school. *Agenda, 29*(3), 32-41. doi:10.1080/10130950.2015.1056586

Nijhawan, L. P., Manthan, J. D., Muddukrishna, B. S., Bhat, K. M., Bairy, K. L., Udupa, N., & Musmade, P. B. (2013). Informed consent: Issues and challenges. *Journal of Advanced Pharmaceutical Technology & Research, 4*(3), 134-140. doi:10.4103/2231-4040.116779

Nisbet, M., & Aufderheide, P. (2009). Documentary film: Towards a research agenda on forms, functions, and impacts. *Mass Communication and Society, 12*(4), 450-456. doi:10.1080/15205430903276863

Noboa, J. (2013). Teaching history on the border: Teachers voice their views. *International Journal of Qualitative Studies in Education, 26*(3), 324-345. doi:10.1080/09518398.2012.762477

Norman, D. A. (2013). *The design of everyday things* (Revised ed.). New York, NY: The Perseus Books Group.

North-Coombes, D. (1997). Slavery, emancipation and the labour 'crisis' in the sugar industry of Mauritius, 1790-1842. *Tanzania Zamani, 3*(1), 16-49.

Oblinger, D. G., & Oblinger, J. L. (2005). *Educating the net generation.* North Carolina: EDUCAUSE. Retrieved from http://www.educause.edu/ir/library/pdf/pub7101.pdf

O'Halloran, K. (2012). *Halliday and multimodal semiotics*. Retrieved December 16, 2016, from SemiotiX New Series: A Global Information Bulletin.Semiotix XN-7 (2012): https://semioticon.com/semiotix/2012/03/halliday-and-multimodal-semiotics/

Ojo, E. O. (2016). *On teaching economics 1: A qualitative study of a south african university.* (Phd Thesis, University of the Witwatersrand, Johannesburg). Retrieved from http://hdl.handle.net/10539/20757

O'Mahony, N. (2014). Cognitive learning and motivation of first year secondary school students using an interactive and multimedia-enhanced e-book made with i-Books Author. *Irish Journal of Academic Practice, 3*(1), Article 5. doi:10.21427/D79424

Orgill, M. (2012). Variation theory. In N. M. Seel, *Encyclopedia of the sciences of learning* (pp. 2608-2611). New York, NY, Germany: Springer.

Ornek, F. (2008). An overview of a theoretical framework of phenomenography in qualitative education research: An example from physics education research. *Asia-Pacific Forum on Science Learning and Teaching, 9*(2), 1-14. doi:10.1.1.665.613

Paakkari, L., Tynjälä, P., Torppa, M., Villberg, J., & Kannas, L. (2015). The development and alignment of pedagogical conceptions of health education. *Teaching and Teacher Education, 49*, 11-21. doi:org/10.1016/j.tate.2015.02.005

Paivio, A. (1971). *Imagery and Verbal Processes.* New York: Holt, Rinehart & Winston.

Paivio, A. (1986). *Mental representations:A dual coding approach.* Oxford: Oxford University Press.

Parasuraman, A., Grewal, D., & Krishnan, R. (2006). *Marketing research* [Google Books version] (2nd ed.). Boston: Cengage Learning. Retrieved from https://books.google.mu/books?id=G9gTZLV50u4C

Parker, I. (2001, May 28). *Absolute powerpoint.* Retrieved from The New Yorker: https://www.newyorker.com/magazine/2001/05/28/absolute-powerpoint

Pascarella, E., & Terenzini, P. (2005). *How college affects students.* San Francisco: Jossey-Bass.

Pascarella, J. (2008). Confronting the challenges of critical digital literacy: An Essay Review Critical Constructivism: A Primer. *Educational Studies*, 246-255. doi:10.1080/00131940802117761

Patton, M. (1990). Qualitative research and evaluation methods. In *Designing qualitative studies* (2nd ed., pp. 169-186). Beverly Hills, CA: Sage. Retrieved from http://legacy.oise.utoronto.ca/research/field-centres/ross/ctl1014/Patton1990.pdf

Paziuk, G. (2013). Communicating with multimodality and multiliteracies. *Teaching Innovation Projects, 3*(1). Retrieved April 22, 2016, from https://ir.lib.uwo.ca/tips/vol3/iss1/10

Penn-Edwards, S. (2010). Computer-aided phenomenography: The role of leximancer computer software in phenomenographic investigation. *The Qualitative Report, 15*(2), 252-267. Retrieved from http://nsuworks.nova.edu/tqr/vol15/iss2/2

Peppler, K. A., & Kafai, Y. B. (2007). From SuperGoo to Scratch: Exploring creative digital media production in informal learning. *Learning, Media & Technology, 32*(2), 149-166. Retrieved from https://www.learntechlib.org/p/99740/

Perry , W. J. (1970). *Forms of intellectual and ethical development in the college years: A scheme.* New York, US: Holt, Rinehart and Winston Inc.

Petocz, P., & Reid, A. (2003). Relationships between students' experience of learning statistics and teaching statistics. *Statistics Education Research Journal, 2*(1), 39-53. Retrieved from http://iase-web.org/documents/SERJ/SERJ2(1).pdf

Phillips, M. G. (2006). Introduction: Sports history and postmodernism. In M. G. Phillips, *Deconstructing sport history: A post modern analysis* (p. 266). Albany, New York, U.S.A: State University of New York Press.

Piccoli, G., Ahmad , R., & Ives, B. (2001). Web-based virtual learning environments: A research framework and a preliminary assessment of effectiveness in basic IT skills training. *MIS Quarterly, 25*(4), 401-426. doi:10.2307/3250989

Pithouse-Morgan, K., van Laren, L., Mitchell, C., Mudaly, R., & Singh, S. (2015). Digital animation for 'going public' on curriculum integration of HIV and AIDS in higher education. *South African Journal of Higher Education, 29*(2), 237–259.

Pontoretto, J. G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of Counseling Psychology, 52*(2), 126-136.

Prensky, M. (2001). Digital natives, digital immigrants part 1. *On the Horizon, 9*(5), 1-6. doi:10.1108/10748120110424816

Prinsloo, P., Slade, S., & Galpin, F. (2011). A phenomenographic analysis of student reflections in online learning diaries. *The Journal of Open, Distance and e-Learning, 26*(1), 27-38. doi:10.1080/02680513.2011.538562

Prosser, M. (1994). Some experiences of using phenomenographic research methodology in the context of research in teaching and learning. In J. Bowden, & E. Walsh, *Phenomenographic research: Variations in method* (pp. 31-43). Melbourne: RMIT: EQARD.

Prosser, M. (2000). Using phenomenographic research methodology in the context of research in teaching and learning. In J. A. Bowden, E. Walsh, & (Eds.), *Phenomenography* (pp. 34-46). Melbourne: RMIT University Press.

Prosser, M., & Trigwell, K. (1999). *Understanding learning and teaching: The experience in higher education.* Buckingham, UK: The Society for Research into Higher Education & Open University Press.

Raheja, M. H. (2010). *Reservation reelism: Redfacing, visual sovereignty, and representations of Native Americans in film.* Lincoln, B: University of Nebraska Press.

Rajabalee, Y., Santally, M. I., & Cooshna-Naik, D. (2012). The split attention effect on learning outcomes in a multimedia learning environment. *International Journal of Learning, 18*(9), 257-278. doi:10.18848/1447-9494/CGP/v18i09/47747

Rajah-Carrim, A. (2007). Mauritian Creole and language attitudes in the education system of multiethnic and multilingual Mauritius. *Journal of Multilingual and, 28*(1), 51-71. doi:10.2167/jmmd474.1

Rallis, S. F., & Rossman, G. B. (2012). *The research journey- Introduction to inquiry.* New York: The Guilford Press.

Ramkalawon, L., & Bholoa , A. (2016). Using tablet PC in the teaching and learning of secondary mathematics: A case of a girl's class in Mauritius. *2016 SAI Computing Conference (SAI)* (pp. 850 - 857). London: IEEE. doi:10.1109/SAI.2016.7556078

Ramma, Y. A., Bholoa, , A., Watts , M., & Nadal, P. S. (2018). Teaching and learning physics using technology: Making a case for the affective domain. *Education Enquiry, 9*(2), 210-236. doi:10.1080/20004508.2017.1343606

Ramtohul, R. (2016). Globalisation, internationalisation and higher education in Mauritius: The compromise of quality. *Africa Development / Afrique et Développement, 41*(3), 117-138. Retrieved from https://www.jstor.org/stable/90013882

Reeve, J. (1989). The interest-enjoyment distinction in intrinsic motivation. *Motivation and Emotion, 13*(2), 83-103. doi:10.1007/BF00992956

Reid, A., Wood, L. N., Smith, G. H., & Petocz, P. (2005). Intention, approach and outcome: University mathematics students' conceptions of learning mathematics. *International Journal of Science and Mathematics Education, 3*(4), 567–586. doi:10.1007/s10763-004-5818-0

Renninger, K. A. (2009). Interest and identity development in instruction: An inductive model. *Educational Psychologist, 44*(2), 105-118. doi:10.1080/00461520902832392

Retz, T. (2016). At the interface: Academic history, school history and the philosophy of history. *Journal of Curriculum Studies,, 48*(4), 503-517. doi:10.1080/00220272.2015.1114151

Richardson, A. (2002). An ecology of learning and the role of elearning in the learning environment: A discussion paper. *Connecting the Future: Global Summit of Online Knowledge Networks* (pp. 47-51). Dulwich: education.au.limited.

276

Rideout, V. J., Foehr, U. G., & Roberts, D. F. (2010). *Generation M2: Media in the Lives of 8- to 18-Year-Olds.* California: Henry J. Kaiser Family Foundation. Retrieved from https://files.eric.ed.gov/fulltext/ED527859.pdf

Roberts, G. (1997). Postmodernism versus the standpoint of action. *History and Theory, 36*(2), 249-260. Retrieved from https://www.jstor.org/stable/2505340

Robertson, J., & Blackler, G. (2006). Students' experiences of learning in a research environment. *Higher Education Research & Development, 25*(3), 215-229. doi:10.1080/07294360600792889

Robertson, S. L. (2010). *Challenges facing universities in a globalising world.* Centre for Globalisation, Education and Societies, University of Bristol, Bristol, UK. Retrieved from http://susanleerobertson.com/publications

Robinson, K. (2009). *The Element: How finding your passion changes everything.* London: Penguin Books.

Rodgers, C. (2002). Defining reflection: Another look at John Dewey and reflective thinking. *Teachers College Record, 104*(2), 842-866. Retrieved from http://www.tcrecord.org/

Rosenbaum, S. E., Glenton, C., & Cracknell, J. (2008). User experiences of evidence-based online resources for health professionals: User testing of The Cochrane Library. *BMC Medical Informatics and Decision Making, 8*(34), 1-11. doi:10.1186/1472-6947-8-34

Roto, V. (2006). *Web browsing on mobile phones-Characteristics of user experience (Doctoral dissertation).* Helsinki: Helsinki University of Technology. Retrieved from http://lib.tkk.fi/Diss/2006/isbn9512284707/

Roto, V., Law, E., Vermeeren, A., & Hoonhout, J. (2011). *User experience white paper: Bringing clarity to the concept of user experience [white paper].* Dagstuhl, Germany: Result of the Dagstuhl Seminar on Demarcating User Experience, September 15-18, 2010. Retrieved April 27, 2018, from http://www.allaboutux.org/files/UX-WhitePaper.pdf

Runesson, U. (2006). What is it possible to learn? On variation as a necessary condition for learning. *Scandinavian Journal of Educational Research, 50*(4), 397-410. doi:10.1080/00313830600823753

Russell, W. B. (2012). The art of teaching Social Studies with film. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 85*(4), 157-164. doi:10.1080/00098655.2012.674984

Ryan , R. M., & Deci, E. L. (2000a). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78. doi:10.1037110003-066X.55.1.68

Ryan, R. M., & Deci, E. L. (2000b). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54-67. doi:10.1006/ceps.1999.1020

Sabbaghan, S. (2015). The affordances of variation theory (new phenomenography) in enhancing EAL students' learning. In P. P. Babb, A. M. Takeuchi, & J. Lock (Ed.), *IDEAS: Designing Responsive Pedagogy* (pp. 158-167). Calgary: Werklund School of the Education, University of Calgary.

Säljö, R. (1988). Learning in education settings: Methods of inquiry. In P. Ramsden, *Improving learning: new perspectives* (pp. 32–48). London: Kogan Page.

Säljö, R. (1996). Minding action - Conceiving of the world versus participating in cultural practices. In G. Dall'alba, & B. Hasselgren, *Reflections on phenomenography* (pp. 19-33). Gothenburg: Sweden.

Säljö, R. (1997). Talk as data and practice- a critical look at phenomenographic inquiry and the appeal to experience. *Higher Education Research & Development, 16*(2), 173 - 190. doi:10.1080/0729436970160205

Sandberg, J. (1994). Human competence at work: An interpretative approach. Sweden: Gothenburg University. Retrieved from http://hdl.handle.net/2077/13996

Sandberg, J. (1997). Are phenomenographic results reliable? *Higher Education Research & Development, 16*(2), 203-212. doi:10.1080/0729436970160207

Sandberg, J. (2000). Understanding human competence at work: an interpretative approach. *Academy of Management Journal*, 9-25. doi:10.5465/1556383

Sankey, M., Birch, D., & Gardiner, M. (2010). Engaging students through multimodal learning environments: The journey continues. *ASCILITE 2010:: 27th annual conference of the Australasian Society for Computers in Learning in Tertiary Education: Curriculum, technology and transformation for an unknown future* (pp. 852–863). Brisbane: University of Queensland.

Santally, M. I. (2004). Students'perceptions of web-based learning. *Academic Exchange Quarterly*, 220-224.

Santally, M. I. (2005). From face-to-face classrooms to innovative computer-mediated pedagogies: Observations from the field. *Journal of Interactive Online Learning, 3*(4), 1-14. Retrieved from http://www.ncolr.org/jiol/issues/pdf/3.4.4.pdf

Santally, M. I., & Senteni, A. (2006). Personalisation in web-based learning environments. *International Journal of Distance Education Technologies, 4*(4), 15-35. doi:10.4018/jdet.2006100103

Sasseville, B., & Marquis, M.-H. (2015). L'image en mouvement en classe d'univers social : Étude sur les pratiques déclarées des enseignantes et enseignants du secondaire. *Canadian Journal of Education, 38*(4), 1-23. Retrieved from http://journals.sfu.ca/cje/index.php/cje-rce/article/view/1908/1799

Saunders, B., Kitzinger, J., & Kitzinger, C. (2015). Anonymising interview data: challenges and compromises in practice. *Qualitative Research, 15*(5), 616-632. doi:10.1177/1468794114550439

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action.* New York: Basic books.

Scotland, J. (2012). Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the sientific, interpretive, and critical research paradigms. *English Language Teaching, 5*(9), 9-16. doi:10.5539/elt.v5n9p9

Scott, C. L. (2015). *The future of learning 3: What kind of pedagogies for the 21st century?* Paris: UNESCO Education Research and Foresight.[ERF Working Papers Series No. 15]. Retrieved from http://unesdoc.unesco.org/images/0024/002431/243126e.pdf

Seechurn, R. K., Ramtohul, L., Googoolye, K., Vaghjee-Rajiah, T., & Neeliah, H. (2013). A tale of five sectors in Mauritius: Agriculture, Textile/EPZ Tourism, Financial Services and ICT/BPO...an employment perspective. *International HRD Conference, Mauritius 2013: Excellence in HRD for sustainable growth* (pp. 1-24). Pointe aux Piments, Mauritius: HRDC.

Seixas, P. (2017). A model of historical thinking. *Educational Philosophy and Theory, 49*(6), 593-605. doi:10.1080/00131857.2015.1101363

Selfe, C. L. (2007). *Multimodal composition: Resources for teachers.* Cresskill, NJ, United States: Hampton Press.

Selvon, S. (Ed.). (2005). *A comprehensive history of Mauritius.* Rose-Hill: Mauritius Printing Specialists.

Selwyn, N. (2009). The digital native–myth and reality. *Emerald Group Publishing Limited. In Aslib Proceedings, 61*(4), 364-379. doi:doi.org/10.1108/00012530910973776

Selwyn, N. (2012). Social media in higher education. *The Europa World of Learning*. Retrieved April 14, 2018, from http://www.educationarena.com/pdf/sample/sample-essay-selwyn.pdf

Serafini, F. (2012). Expanding the four resources model: Reading visual and multi-modal texts. *Pedagogies: An International Journal, 7*(2), 150-164. doi:10.1080/1554480X.2012.656347

Sheldon, K. M., & Filak, V. (2008). Manipulating autonomy, competence, and new evidence that all three needs matter. *British Journal of Social Psychology*, 267–283. doi:10.1348/014466607X238797

Shulman, L. (2011). Feature essays: The Scholarship of Teaching and Learning: A personal account and reflection. *International Journal for the Scholarship of Teaching and Learning, 5*(1), 1-7. doi:10.20429/i

Siefkes, M. (2015). How semiotic modes work together in multimodal texts: Defining and representing intermodal relations. *10plus1: Living Linguistics*(1), 113-131. Retrieved from http://10plus1journal.com/?page_id=280

Siemens, G., & Tittenberger, P. (2009). *Handbook of emerging technologies for learning.* Winnipeg: University of Manitoba.

Sin, S. (2010). Considerations of quality in phenomenographic research. *International Journal of Qualitative Methods, 9*(4), 305-319. doi:10.1177/160940691000900401

Singh, A. P. (2014). A review on research design and its important parameters. *International Journal of Advance Research In Science And Engineering, 3*(7), 319-324. Retrieved from www.ijarse.com

Smith , N., & Rock, J. (2014). Documentary as a statement: defining old genre in a new age. *Journal of Media Practice, 15*(1), 58-62. doi:10.1080/14682753.2014.892698

Smith, D. J., & Valentine, T. (2012). The use and perceived effectiveness of instructional practices in two-year technical colleges. *Journal on Excellence in College Teaching, 23*(1), 133-161. Retrieved from https://eric.ed.gov/?id=EJ972560

Smith, L. (2015). *Critical information literacy and political agency: A critical, phenomenographic and personal construct study* (PhD Thesis, University of Strathclyde, Glasgow, Scotland) Retrieved from http://oleg.lib.strath.ac.uk/R/?func=dbin-jump-full&object_id=26632

Smith, M. (2010). *Young people: A phenomenographic investigation into the ways they experience information* (PhD Thesis, Loughborough University, Leicestershire, UK). Retrieved from https://dspace.lboro.ac.uk/2134/6632

Speer, S., & Seeber, G. (2013). Financial understanding: A phenomenographic access to students' concepts of credits. *Journal of Social Science Education, 12*(2), 42-52. doi:10.4119/UNIBI/jsse-v12-i2-121

Stahl, B. C. (2008). *Information systems: Critical perspectives* [Google Books version]. New York, NY: Routledge. Retrieved from https://books.google.mu/books?isbn=1134080409

Stein, P. (2007). *Multimodal pedagogies in diverse classrooms: Representation, rights and resources* [Google Books version]. New York, NY: Routledge. Retrieved from https://books.google.mu/books?isbn=113414444X

Stein, P., & Newfield, D. (2006). Multiliteracies and multimodality in English in education in Africa: Mapping the terrain. *English Studies in Africa, 49*(1), 1-21. doi:10.1080/00138390608691341

Stoddard, J. D. (2012). Film as a 'thoughtful' medium for teaching history. *Learning, Media and Technology, 37*(3), 271-288. doi:10.1080/17439884.2011.572976

Stoddard, J. D., & Marcus, A. S. (2017). Media and Social Studies education. In M. M. Manfra, & C. M. Bolick (Eds.), *The Wiley Handbook of Social Studies Research* (p. 656). Wiley-Blackwell.

Stokes, S. (2002). Visual Literacy in teaching and learning: A Literature perspective. *Electronic Journal for the Integration of Technology in Education, 1*(1), 10-19. Retrieved from http://ejite.isu.edu/Volume1No1/Stokes.html

Stordy, P. (2015). Taxonomy of literacies. *Journal of Documentation, 71*(3), 456-476. doi:10.1108/JD-10-2013-0128

Strauss, W., & Howe, N. (1991). *Generations: The history of America's future, 1584 to 2069.* New York: William Morrow & Company.

Strong-Wilson, T., Mitchell, C., Morrison, C., Radford, L., & Pithouse-Morgan, K. (2014). Looking forward through looking back: Using digital memory-work in teaching for transformation. In L. Thomas (Ed.), *Becoming teacher: Sites for teacher development in Canadian Teacher Education* (pp. 442-468). Ottawa, ON: Canadian Association for Teacher Education.

Subrun, L., & Subrun, V. (2015). The digital world of education in Mauritius: Adapting the Mauritian education system with the pace of technology. *International Journal of Learning, Teaching and Educational Research, 13*(4), 14-19. Retrieved from https://www.ijlter.org/index.php/ijlter/index

Svensson, L. (1997). Theoretical foundations of phenomenography. *Higher Education & Development, 16*, 159–171. doi:10.1080/0729436970160204

Swarat, S., Olivier, P. H., Tran, L., Childers, J. G., Tiwari, B., & Babcock, J. L. (2017). How disciplinary differences shape student learning outcome assessment: A case study. *AERA Open, 3*(1), 1-12. doi:10.1177/2332858417690112

Szabo, A., & Hastings, N. (2000). Using IT in the undergraduate classroom: Should we replace the blackboard with PowerPoint? *Computers & Education, 35*, 175-187. doi:10.1016/S0360-1315(00)00030-0

Tamisoglou, C. (2010). Students' ideas about school history: A view from Greece. *Procedia Social and Behavioral Sciences, 2*(2), 476–480. doi:10.1016/j.sbspro.2010.03.047

Tan, K. (2009). Variation theory and the different ways of experiencing educational policy. *Educational Research for Policy and Practice, 8*(2), 95–109. doi:10.1007/s10671-008-9060-3

Tan, L., & Guo, L. (2009). From print to critical multimedia literacy: One teacher's foray into new literacies. *Journal of Adolescent & Adult Literacy, 23*(4), 315–324. doi:10.1598/JAAL.53.4.5

Tapscott, D. (1998). *Growing up digital: The rise of the net generation.* New York, NY: McGraw-Hill.

Tapscott, D. (2009). *Grown up digital: How the net generation is changing.* New York: McGraw Hill.

Tapscott, D., & Williams, A. D. (2008). *Wikinomics: how mass collaboration changes everything.* New York, NY: Atlantic.

Taylor , L., & Parsons, J. (2011). Improving student engagement. *Current Issues in Education, 14*(1), 1-33. Retrieved from http://cie.asu.edu/

Teelock, V. (2009). *Mauritian History: From its beginnings to modern times.* Moka: Mahatma Gandhi Institute.

Teeroovengadum, V., Heeraman, N., & Jugurnath, B. (2017). Examining the andecedents of ICT adoption in education using an extended Technology Acceptance Model (TAM). *International Journal of Education and Development using Information and Communication Technology (IJEDICT), 13*(3), 4-23. Retrieved from https://eric.ed.gov/?id=EJ1166522

The World Bank in Mauritius. (2018, June 04). Retrieved from The World Bank: http://www.worldbank.org/en/country/mauritius/overview

Thompson, P. (2013). The digital natives as learners: Technology use patterns and approaches to learning. *Computers & Education, 65*, 12–33. doi:10.1016/j.compedu.2012.12.022

Thüring, M., & Mahlke, S. (2007). Usability, aesthetics and emotions in human–technology interaction. *International Journal of Psychology, 42*(4), 253-264. doi:10.1080/00207590701396674

Tight, M. (2016). Phenomenography: The development and application of an innovative research design in higher education research. *International Journal of Social Research Methodology, 19*(3), 319-338. doi:org/10.1080/13645579.2015.1010284

Tirvassen, R. (2007). Anglicisation of education in Mauritius. *Education Research and Perspectives, 34*(1), 88-114. Retrieved from http://www.erpjournal.net/

Trigwell, K. (2000). A phenomenographic interview on phenomenography. In J. A. Bowden, & E. Walsh , *Phenomenography* (pp. 62-82). Melbourne: RMIT University .

Tufte, E. (2003, January 09). *PowerPoint is evil.* Retrieved from Wired: https://www.wired.com/2003/09/ppt2/

Uljens, M. (1996). On the philosophical foundations of phenomenography. In G. DallAlba, & B. Hasselgren, *Reflections on phenomenography – Toward a methodology?* (pp. 105-130). Göteborg: Acta Universitatis Gothoburgensis.

UNESCO. (1954). *Convention for the protection of cultural property in the event of armed conflict.* Retrieved from United Nations of Educational, Scientific and Cultural Organization: http://unesdoc.unesco.org/images/0008/000824/082464mb.pdf

University of Mauritius. (2015). *University of Mauritius strategic plan 2015-2020 (Abridge version).* Reduit: University of Mauritius. Retrieved from http://uomsites.uom.ac.mu/images/Uomfiles/Aboutus/UoMStrategicPlan20152020/FLASH/index.html

Väänänen-Vainio-Mattila, K., Väätäjä, H., & Vainio, T. (2009). Opportunities and challenges of designing the service user experience (SUX) in Web 2.0. In P. Saariluoma, & H.

Isomäki, *Future interaction design II* (pp. 117-139). London, UK: Springer Science & Business Media.

Vainikka, E., & Herkman, J. (2013). Generation of content-producers? The reading and media production practices of young adults. *Participations Journal of Audience & Reception Studies, 10*(2), 118-138. Retrieved from http://www.participations.org/

van Leeuwen, T. (2005). *Introducing social semiotics: An introductory textbook [e-book].* Abingdon, England: Taylor & Francis e-Library.

Van Nieuwenhuyse, K. (2016). Is seeing believing: On the educational use of mainstream historical films in the history classrooom. *Yearbook of the International Society of History Didactics/Jahrbuch der Internationalen Gesellschaft für Geschichtsdidaktik, 37*, 191-212.

Vandercammen, L., Hofmans, J., & Theuns, P. (2014). Relating specific emotions to intrinsic motivation: On the moderating role of positive and negative emotion differentiation. *PLoS ONE*. doi:10.1371/journal.pone.0115396

VanSledright, B. (2013). *Assessing historical thinking and understanding : Innovative designs for new standards.* New York and London: Routledge.

Vasquez, V. (2010). *Getting beyond "I Like the Book": Creating space for critical literacy in K-6 classrooms (2nd ed).* Newark: International Reading Association.

Vencatachellum, I., & Munusami, V. (2006). Barriers to effective corporate e-learning in Mauritius. *Seventh International Conference on HRD Research and Practice across Europe, Tilburg, Netherlands, 22-24 May 2006.*

Wagner, D.-A. (2018). Teachers' use of films in the history classroom: A survey of 19 high school teachers in Norway. *Nordidactica-Journal of Humanities and Social Science Education, 1*, 22-44. Retrieved from https://www.kau.se/nordidactica

Wahyuni, D. (2012). The research design maze: Understanding paradigms, cases, methods and methodologies. *Journal of Applied Management Accounting Research, 10*(1), 69-80. Retrieved from https://maaw.info/JAMAR.htm

Wakimoto, D. K., & Bruce, C. S. (2014). Academic librarians' varying experiences of archives: A phenomenographic study. *The Journal of Academic Librarianship, 40*(5), 452-459. doi:10.1016/j.acalib.2014.06.007

Walsh , M. (2007). Reading digital texts. *Australian Journal of Language and Literacy, 30*(1), 40-53.

Walsh, L. (2009). *A phenomenographic study of introductory physics students: Approaches to problem solving and conceptualisation of knowledge.* (PhD Thesis, Dublin Institute of Technology, Dublin, Ireland.) doi:10.21427/D73598

Walsh, M. (2006). The 'textual shift': Examining the reading process with print, visual and multimodal texts. *Australian Journal of Language and Literacy, 29*(1), 24-37. Retrieved from https://search.informit.com.au/documentSummary;dn=063500573261111;res=IELIND

Walsh, M. (2009). Pedagogic potentials of multimodal literacy. In L. Tan Wee Hin, & R. Subramanian (Eds.), *Handbook of research on new media literacy at the K-12 Level: Issues and challenges* (pp. 32-47). US: ICI Global.

Walsh, M. (2010). Multimodal literacy: What does it mean for classroom practice? *Australian Journal of Language and Literacy, 33*(3), 211-239. Retrieved from https://www.alea.edu.au/documents/item/63%20%5B27

Walshe, K., & Smith, J. (2011). *Healthcare management.* Maidenhead, UK: McGraw-Hill Education.

Watson, F. A. (2016). Lessons learned on approaches to data collection and analysis from a pilot study. *Nurse Researcher, 24*(1), 32-36. doi:10.7748/nr.2016.e1444

Weaver, K., & Olson, J. K. (2006). Understanding paradigms used for nursing research. *Journal of Advanced Nursing, 53*(4), 459-469. doi:10.1111/j.1365-2648.2006.03740.x

Weigel, M. (2015, April 15). *Learning Experience Design vs. User Experience: Moving From "User" to "Learner"*. Retrieved April 15, 2018, from Getting Smart: http://www.gettingsmart.com/2015/04/learning-experience-design-vs-user-experience-moving-from-user-to-learner/

Wiles, R., Crow, G., Heath, S., & Charles, V. (2008). The management of confidentiality and anonymity in social research. *International Journal of Social Research Methodology, 11*(5), 417-428. doi:10.1080/13645570701622231

Willingham, D. T. (2009). *Why don't students like school?Because the mind is not designed for thinking.* San Francisco: Jossey-Bass .

Willis, J. W. (2007). *Foundations of qualitative research: Interpretive and critical approaches.* Thousand Oaks, CA: Sage Publications Inc.

Wilson, N. (2013). Perry's scheme of intellectual and ethical development [PowerPoint slides]. Retrieved from https://www.slideshare.net/NoahWilson/perrys-scheme-of-intellectual-and-ethical-development

Winters, K. L. (2010). Quilts of authorship: A literature review of multimodal assemblage in the field of literacy education. *Canadian Journal for New Scholars in Education, 3*(1), 1-12. Retrieved from https://journalhosting.ucalgary.ca/index.php/cjnse/index

Wirihana, L. A., & Barnard, A. (2012). Women's perceptions of their healthcare experience when they choose not to breastfeed. *Women and Birth, 25*(3), 135-141. doi:10.1016/j.wombi.2011.08.005

Wojcikiewicz, S. K. (2010). Dewey, Peirce, and the categories of learning. *Education and Culture, 26*(2), 65-82. Retrieved from http://www.jstor.org/stable/10.5703/educationculture.26.2.65

Wood, L., & Oliver, M. A. (2011). Video production as a tool for raising educator awareness about collaborative teacher-parent partnerships. *Educational Research, 53*(4), 399-413. doi:10.1080/00131881.2011.625151

Woodall, T., Hiller, A., & Resnick, S. (2014). Making sense of higher education: students as consumers and the value of the university experience. *Studies in Higher Education*, 48-67. doi:org/10.1080/03075079.2011.648373

Wormeli, R. (2015, August). *Moving students from passive consumers to active creators*. Retrieved from AMLE Magazine: https://www.amle.org/BrowsebyTopic/WhatsNew/WNDet/TabId/270/ArtMID/888/ArticleID/526/Moving-Students-from-Passive-Consumers-to-Active-Creators.aspx

Wysocki, A. F. (2004). *Opening new media to writing: Openings and justifications.* Utah, US: Utah State University Press.

Yates, C., Partridge, H., & Bruce, C. (2012a). Exploring information experiences through phenomenography. *Library and Information Research, 36*(112), 96-119. Retrieved from https://www.lirgjournal.org.uk/

Yates, C., Stoodley, I., Partridge, H., Bruce, C., Cooper, H., Day, G., & Edwards, S. L. (2012b). Exploring health information use by older Australians within everyday life. *Library Trends, 60*(3), 460-478. doi:10.1353/lib.2012.0004

Yi, Y. (2008). Relay writing in an adolescent online community. *Journal of Adolescent and Adult Literacy, 51*(8), 670-680. doi:doi.org/10.1598/JAAL.51.8.6

Yuniarinto, A., Thoyib, A., Solimun, S., & Sularso, A. (2017). Retail attribute's effect on shopping motivation and customer loyalty: Age as a moderating variable. *Science Journal of Business and Management, 5*(1), 27-36. doi:10.11648/j.sjbm.20170501.14

Zanazanian, P. (2015). Historical consciousness and being Québécois: Exploring young English-Speaking students' interactions with Quebec's Master Historical Narrative. *Canadian Ethnic Studies, 47*(2), 113-135. doi:10.1353/ces.2015.0013

Zeleňák, E. (2011). Modifying Alun Munslow's classification of approaches to history. *Rethinking History: The Journal of Theory and Practice, 15*(4), 523-537. doi:10.1080/13642529.2011.616415

Zhu, J. (2017). Epistemological developmental theories. In *East-West Crosscurrents in Higher Education: Understanding Chinese engineering doctoral students in U.S. institutions* (pp. 11-28). Singapore: Springer.

Zimmermann, P. G. (2008). *Beyond usability – Measuring aspects of user experience (PhD Thesis,* Swiss Federal Institute of Technology, Zurich). Retrieved from ETH Zurich Research Collection. doi:org/10.3929/ethz-a-005778404

Zwedberg, S., & Naeslund, L. (2011). Different attitudes during breastfeeding consultations when infant formula was given: A phenomenographic approach. *International Breastfeeding Journal, 6*(1), 1-8. doi:10.1186/1746-4358-6-1

Zygmont, C. S. (2014). *A phenomenographical study of the qualitative variation of adventure/wilderness programme experiences among adolescent high school participants in the Western Cape.* (PhD Thesis, Stellenbosch University, Stellenbosch, South Africa). Retrieved from https://scholar.sun.ac.za/bitstream/handle/.../zygmont_phenomenographical_2014.pdf

Appendix A

STUDENT BACKGROUND PROFILE QUESTIONNAIRE

Thank you, in advance, for responding to the following questions. This instrument is being administered as part of a PhD research which is aimed at **exploring undergraduate students' experiences of learning with digital multimodal texts** (texts that include any combination of images, sound, colour and animation and which are mainly accessed through electronic media) as part of your Mauritian History Module (HIST1002Y). The questionnaire is designed to gather some background information, including your access to and use of Information and Communication Technology (ICT) tools, your self-rated communication skills, your software skills, your learning preferences and your educational background. All data will be kept confidential. Thank you for your participation. I appreciate your feedback!

BIOGRAPHICS DETAILS

1. **Student ID number**: …………………………………………..

2. **Age:** …………………………….…

3. **Gender:** ☐ Male   ☐ Female

4. **Place of Residence (Specify the name of the town/village):**

   …………………………………………………….………………

5. **Programme of Study**:

   ☐ BA History and Political Science
   ☐ BA History and Sociology
   ☐ BA Joint Humanities

6. **When did you register on your current programme of the study?**
   ☐ 2013   ☐ 2014   ☐ 2015

7. **At A-Level, you opted for which subject side? Choose one of the four below.**

   ☐ Arts   ☐ Science   ☐ Economics   ☐ Technical

8. **What motivated you to pursue your tertiary studies in the chosen field?**

   …………………………………………………….…………………………………

   …………………………………………………….………………………………

ICT ACCESS AND USE

9) **Indicate the electronic equipment you currently own.**

   ☐ Tablet

☐ Desktop computer (PC)

☐ Laptop

☐ Mobile phone WITHOUT Internet Connection

☐ Mobile phone WITH Internet Connection

☐ Dedicated e-book device (e.g., Kindle, Nook, Sony Reader, etc.)

☐ Digital Camera

☐ Printer

☐ MP3 Player

☐ None of the above

☐ Other (please specify)

....

9) How would you rate your previous experience with the following before registering on your programme of study? (please tick ✓)

	Excellent	Good	Fair	Poor	Never used
• Searching for information on the internet					
• Creating a word processed document (using Microsoft Word)					
• Editing and manipulating images using a computer					
• Creating and editing videos					
• Creating a PowerPoint Presentation					
• Creating a file in Microsoft Excel					
• Participating in an online Discussion Forum					
• Communicating using email					

10) How often do you use the computer/laptop use for the following tasks?

	Frequently	Occasionally	Rarely	Never
• Social networking (Facebook, Twitter, etc)				
• Reading content (e.g., e-books, research articles, etc.)				
• Accessing emails				
• Playing games				
• Listening to music or watching videos				
• Completing coursework or participating in lectures				
• Communication through chat (e.g Skype, MSN, …)				
• Designing artworks such as posters, cards, etc				
• Creating multimedia artifacts such as videos and animations				

LEARNING PREFERENCES AND ATTITUDES

12) For each item, indicate how well it describes you.

Very much like me – 4	*Like me – 3*	*A little bit like me – 2*	*Not at all like me – 1*

I **prefer lecture-based classes** instead of learning from resources made available on the e-learning platform.	
I find 'lecture-only' classes boring and prefer to be doing something active in class such as discussing, brainstorming	
I prefer **to listen** to lectures instead of reading lecture notes.	
I prefer **to read aloud the lecture notes** instead of listening to lectures	
To understand the lectures, I **prefer to make my own notes.**	
I usually **look for additional images and videos** to support my learning.	
I feel I learn better when I read printed text (e.g printed handouts or books) instead of when I read texts on the screen	
I am keen to learn about new aspects of my subject and to explore new ideas	
I **do not** find it difficult to communicate in front of my lecturers and peers.	
I feel shy to talk in class but I can express my views in writing.	

ADDITIONAL INFORMATION

Are you going to attend the video editing/digital history Workshop which will be organized in the context of the module HIST1002Y?

□ Yes   □ No

If **yes**, please state why

…………………………………………………………………………………………..…………….

If **No**, please state why

…………………………………………………………………………………………..…………….

Appendix B

CENTRE FOR INNOVATIVE AND LIFELONG LEARNING (CILL)

UNIVERSITY OF MAURITIUS

INFORMED CONSENT LETTER TO PARTICIPATE IN INTERVIEW

Dear Participant,

My name is Dorothy Cooshna-Naik and I am a Senior Lecturer at the University of Mauritius. I am currently a registered PhD candidate of the University of KwaZulu-Natal, in Durban (Edgewood Campus), South Africa. I invite you to take part in a research study which I am undertaking for my PhD degree. This study will explore undergraduate students' experiences of learning with digital multimodal texts. As a student currently enrolled on the Mauritian History (MH101) module, you will be accessing the learning content in varied digital multimodal texts such PowerPoint displays with images and text, films/videos with moving images and audio, interactive multimedia. You will also have the opportunity to create your own digital multimodal texts in the form of a short video clip. You have been identified as an individual who would meet the criteria for my research. I would be grateful if you would agree to participate in my study.

With regards to the above, I wish to conduct two individual interview sessions (first and second semester) of approximately 30-45 minutes with you and will also like to have your views during one focus group discussion of approximately one hour during the second semester.

Please note that:-
- Your confidentiality is guaranteed as your inputs will not be attributed to you in person, but reported only as a population member opinion.
- Any information given by you cannot be used against you, and the collected data will be used for purposes of this research only.
- All data recordings and transcripts will be stored in a locked filing cabinet and also on a password protected computer only accessible to me. All data will be destroyed after 5 years.
- Every effort will be made to ensure that no one will know that you took part in this study. Any shared information will be used in a way that will prevent people from being able to identify you. Pseudonyms will be used to preserve anonymity and confidentiality.
- This research aims at uncovering your varied experiences with respect to learning with digital multimodal texts so as to better respond to your needs and preferences and offer you and your peers an opportunity to reflect on your experience.
- Your involvement is purely for academic purposes only, and there are no financial benefits involved.
- You are free to withdraw from the research at any stage without negative or undesirable consequences.
- If you are willing to be interviewed, please indicate (by ticking applicable) whether or not you are willing to allow the interview to be recorded by the following equipment:

	Willing	Not willing
Audio equipment		
Photographic equipment		
Video equipment		

I can be contacted at

Email: d.cooshna@uom.ac.mu
Cell: 5752 9192 .

My Supervisors are:

Prof Claudia Mitchell, McGill University, 3700 McTavish St., Montreal, Quebec, H3A 1Y2
Email: claudia.mitchell@mcgill.ca

Dr Linda Van Laren, University of KwaZulu-Natal, Edgewood Campus, Durban
Email: Vanlarenl@ukzn.ac.za

Dr R. Tirvassen, University of Pretoria, South Africa
Email: tirvassen@hotmail.com

Thank you for your co-operation.

_____

Dorothy Cooshna-Naik (Mrs)

DECLARATION

I... (full name of participant) hereby confirm that I
understand the contents of this document and the nature of the research project, and I consent to
participate in the research project. I understand that I am at liberty to withdraw from the project at any
time, should I so desire.

SIGNATURE OF PARTICIPANT   **DATE**

....

Appendix C-1

SEMI-STRUCTURED INTERVIEW SCEHDULE FOR LEARNING SITUATION 1 (LS1) Learner as consumer of digital multimodal texts as included in the context of Mauritian History module (HIST1002Y)	
Questions and Focus	***Possible probing questions for the interviewer***
Biographic details/ Motivation for studies/career expectations Secondary Education learning experiences/ Teaching and learning approaches /Hobbies & Interests	
How old are you? Which Secondary school did attend?	*Probe on whether participant attended a private or public secondary school?*
When did you complete your Higher School Certificate (HSC)?	*Year. If there is a gap between year of completion of HSC and year of registration at University, probe into what participant did during that period.*
What was your favourite subject at school?	*Can you tell me why?*
What motivated your interest to continue your further studies?	
What made you decide to choose the field of study you are currently enrolled on?	*Probe on career- What career they wish to embrace.*
What do you like to do during your free time?	*Probe into participant's interest.* *Any specific hobby or hobbies?*
Can you tell me how you used to learn when you were at secondary school?	*Probe on how the classes were held, what type of learning materials were provided or were accessed*
Is it different or not from the way you are learning at the University?	*Probe on what's different or what's similar.*
Past usage of digital multimodal texts /purpose and context of use.	***Possible probing questions for the interviewer***
Prior to your registration at the University, can you recall any situation where you used a digital text/ resource?	*Can you describe this situation? <u>If yes,</u> proceed to Probe questions PQ2 & PQ3 PQ2. Can you describe the digital texts you are referring to?* If context is not given, probe further *PQ3. In what context did you use this digital text? Can you describe the situation?*
Current views /feelings about the Mauritian History module	
So far, how are you finding the Mauritian History module?	*Probe further into details such as delivery mode, learning materials*
Views/Preference of digital multimodal texts	
In the context of this module, you accessed different learning materials in the form of PowerPoints	*Can you tell me why you think this is your preferred type of learning material?*

lectures, word processed lecture notes, Films, Web sites, Interactive multimedia with quiz and games. Which of these would you consider to be your preferred type of learning material?	
What aspects of this specific type of digital learning material (resource) appealed to you?	*If participant mentions PowerPoint presentations,* *Proceed by asking participant to recall one PowerPoint lecture from the list and say why they chose it? If it's the interactive multimedia, the same strategy will apply. Any specific aspects of the digital text you want to talk about?* *Can you show me?*
How do you feel when you interact with the different types of information present in this multimodal digital resource?	
You talked about the digital multimodal text/resource you liked the most. What about the other types of Multimodal digital texts that were available?	*Can you tell me more about …*
Can you tell me what you think about the introduction of such multimodal digital texts in the Mauritian History module?	*Do you think they have their reason to be included in the Mauritian History module?*

Appendix C-2

<table>
<tr><td colspan="2" style="background:#c0581f;color:white;text-align:center">SEMI-STRUCTURED INTERVIEW QUESTIONS FOR LEARNING SITUATION 2 (LS2)
LS2 – Learner as creator of a digital multimodal text
A multimodal assignment task included in the context of Mauritian History module
(HIST1002Y): Making of a digital video</td></tr>
<tr><td>Questions and Focus</td><td>Possible probing questions for Interviewer</td></tr>
<tr><td>Past usage of digital multimodal texts /purpose and context of use.</td><td></td></tr>
<tr><td>In the context of the Mauritian History module, you have recently completed a video assignment.
Is this the first time that you have created a digital video?</td><td><u>If yes</u>, proceed to probing question
1. Can you tell me a bit about the circumstance/ situation where you were brought to create a video?
2. Can you describe how you felt about your first created video?</td></tr>
<tr><td>Initial views /reaction (feelings and attitudes) about the video assignment – pre-task reflection</td><td></td></tr>
<tr><td>When you were given the assignment about the creation of the video, can you tell me what your first reaction towards such an assignment was?</td><td>Probe: Any concerns/worries?</td></tr>
<tr><td>Did you understand what was expected from you?</td><td>If <u>yes</u>, probe:
Can you describe what exactly you were supposed to do in this
If <u>no:</u> What was not clear?</td></tr>
<tr><td colspan="2" style="text-align:center">REFLECTIONS DURING THE VIDEO MAKING TASK (PROCESS)
Researcher and participant will watch the video together and then will proceed with the reflections</td></tr>
<tr><td>Participant's involvement from thinking to realisation of the video.</td><td></td></tr>
<tr><td>Can you describe how you went about creating this video from start to end?</td><td></td></tr>
<tr><td>What are the moments you enjoyed the most while doing the video?</td><td></td></tr>
<tr><td>Any difficulties you encountered during the process of making the video</td><td>Probe: Can you tell me a bit about these difficulties?
Probe: What did you do when you face these difficulties?</td></tr>
<tr><td>Any moments during the process you did not enjoy while you were making the video?</td><td>Probe: Did these moments influence the choices you made in the making of the video?</td></tr>
<tr><td>What choices the participants made with regards to the modes of communication in the video?</td><td>Probe:In what way do you think the choices you have made add meaning to what you want to convey in the video?</td></tr>
</table>

I note that you have made use of various images. Audio, fonts, effects, etc in your video Can you tell me why you chose to add these effects? Can you tell me why you chose to add this particular music? Can you tell me what made you choose these images/videos you have used to create the videos?	
REFLECTIONS AFTER THE VIDEO MAKING TASK	
According to you who should see this video? Why?	
Have you shown your video to anyone else?	*Probe:* *If yes? What response did you get?* *If No? Why*
So what do you feel about your overall creation? /How do you feel about your own work?	
If you had the chance to do the assignment again, can you tell me what changes you would have brought to your work?	*Probe: Any specific parts in the video you would like to review?*
What do you think you have gained both on a personal and educational level after having completed this assignment?	

Appendix D

Write your reflections using the guiding questions below. You may add any other thoughts you deem pertinent

Name: ………………………………………   **Student ID……………………………………. Date: ……………………**

After the creation of the video
What do you think about your creation?
What was especially satisfying to you about either the process of creation or the finished product? (optional)
Tell us a bit about any difficult /frustrating moments (if any) you encountered during the process of this video assignment.
If you had the chance to do this assignment again, what changes would you bring?

How do you feel after having created the video? Choose the smiley to depict your feeling/emotion.

Image source: http://www.comet-cartoons.com/smileyFeelings.php
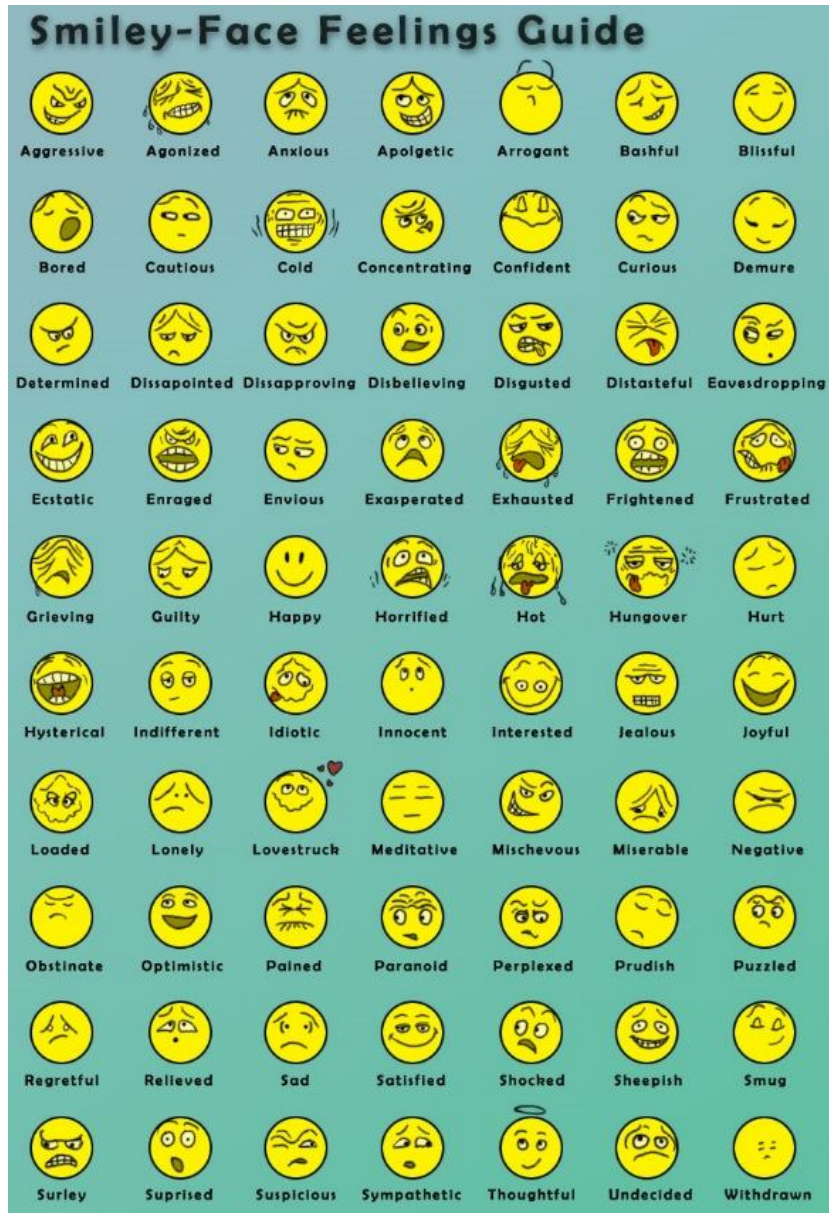
Any other thoughts you would like to share?

Appendix E

<div style="border:1px solid black; padding:5px">

FOCUS GROUP DISCUSSION GUIDE

</div>

Date to be held: Tuesday 19th April 2016
Time: 11h00 – 12h00
Venue: Campus Faculty of Agriculture conference room (FoA)
Number of Participants: 9 [6 females (F) and 3 males (M) from the sampled participants who participated in the first interviews

STEPS:

1. **Welcome Participants [around 3 minutes]**
2. **Introducing the purpose of the focus group discussion**
3. **Ice breaking Questions [around 2-3 minutes]**
   So to start with, let's find out some more about each other by going around the table.
   Tell us your name and the programme of study you are currently enrolled in.
4. **Transition questions [around 5 minutes]**
   [As participants will be asked to write a tweet, I would ask some transition questions to know a bit about their acquaintance to such writing task. I am thinking to show them a PPT slide that summarises what a tweet is. But before I embark with explaining about tweets, I will open the transition questions with something they are more familiar with that is Facebook.]

   - How many of you have a facebook account? What do you use facebook for?
   - What do you know about tweets?

5. **MAIN DISCUSSIONS**
Now, we shall carry out a tweet type of activity which will allow you to write your thoughts in short messages of not more than 140 characters. You all have a blank sheet of paper in front of you. Write the name assigned to you on the paper. What we want you to do is to reflect on the prompts that will be given and then write your tweets to share your thoughts. Prompt 1 is related to the first semester where you had accessed to a variety of digital multimodal texts. Think back over your first semester where you had access to some digital multimodal texts in the form of a multimedia CD of the French in Mauritius, Interactive game on the British in Mauritius, films. However to help you recall, take a few minutes to browse through them on the laptop in front of you before we engage in the tweet activity. You may wish to seek assistance with the facilitators if needed. **[around 15 minutes]**

[If laptops are available, moderators will assist participants in reviewing the digital multimodal texts or otherwise these will be displayed using an RGB. Allowing some time for students to review the digital multimodal texts will help them in recalling as it's been a few months since these were used by the participants]

298

PROMPT 1: [around 10-15 minutes]
So, your first prompt is :

> **"Digital multimodal texts as resources to learn about Mauritian History: What does it mean to you as first year undergraduates?**

[Participants will spend around 10-15 minutes to write their tweets. Once tweets are collected, the facilitators will collect same, compile and enter in Wordle to generate the word Cloud]. They will then be invited to discuss openly about what each other wrote:

Some further probes: What would be the type of learning material you think you learn better with?

PROMPT 2: [around 10-15 minutes]
In the meantime the second prompt will be given
Your second prompt is in relation to assessment where you were required to be creators of digital texts- e.g creating a video, a PowerPoint.

> **You as creators of digital multimodal texts: Implications for learning at undergraduate level**

[Participants will spend around 10-15 minutes to discuss within their teams and reflect on the Prompt 2. They will write their views, thoughts on a sheet of paper. The floor will then be open for discussion.

PROMPT 3: [around 10 minutes]
This question will be an open discussion where participants will be encouraged to have a conversation in response to a question, thus allowing me to gather perspectives from the participants with regards to reading and learning about Mauritian History.

> **Suppose you were a lecturer teaching the Mauritian History module, what would you do to make your students enjoy reading and learning?** [Question that foster ownership]

The views will be noted down/recorded.

Appendix F-1

Extract from Poonam's interview transcript (LS1) carried out on 04.11.15

142
143 I: hmmm so you were not used to er computers when you were at secondary
144 school?
145
146 P: yes i was used to computers but very rarely even i have a pc at home but i -i
147 never used to find out what is microsoft word what is are powerpoints because there
148 is internet and the things every students love facebook youtube ((laugh))
149
150 I: so you were using it for socialising
151
152 P:() yes
153
154 I: okay and uhm now in the context of your er mauritian history module you accessed
155 different types of learning materials [right
156
157 P: [yes
158
159 I: so you had powerpoints you had lecture notes on word pdfs and so on you had
160 also i think films
161
162 P: yes
163
164 I: i guess there was also multimedia interactive multimedia the cd with the french and
165 there was a game so if you- you you looked at a-at all these er which one of these er
166 would you consider to be your preferred type of learning material if there is any?
167
168 P: there are two i would say first of all the films because how i how to..in primary in
169 history and georgraphy i used to learn how slaves stayed where they-where they
170 lived how they were treated but only in notes in books etc reading notes but when i
171 came at the university and watch the film you see the pain the actual ..the vision
172 where they use to stay they used to climb cliffs and hide in caves it's very painful
173
174 I:mhmm
175
176 P: visually it's more painful and it has a more deep reaction than reading just notes.
177
178 I: so this was the slaves- the film on the slaves
179
180 P: yes on the immigrants and all
181
182 I: the indian immigrants one
183
184 P: yes and we have the film i think or an interview where slaves used to hide at le
185 Morne
186
187 I: okay mhmm
188
189 P: it was very touching where -where they showed us that how they climbed and if
190 someone slipped there the would die

4

191

192   I: mmm

193

194   P: so this is the first one that i like and the second one was the game

195

196   I: er ..was this this one er about the french or the british one

197

198   P: the.. french revolution the cd

199

200   I: yes

201

202   P: there was a game on it

203

204   I: ah okay can you just show me which one we can-we can have some discussions
205   about that

206

207   P: ((participant locating on the desktop the part of the resource on which the
208   discussion will happen)) here it's the quiz

209

210   I: okay

211

212   P: of the french in ile de france

213

214   I: mhmm

215

216   P: and i used to read it and clicked on the but i didn't but when i got the first answer
217   wrong i didn't try i used to read again and try until i get the right answer

218

219   I: okay

220

221   P: this and another one which was on moodle..[it   was very interesting

222

223   I: [ah er]
224   you mean this one er

225

226   P: there was a small fish

227

228   I: okay yeah so what do you like-what would you like to say about this -this type this
229   resource?

230

231   P: it-it's first of all it's fun it en-it encourages us to read our notes some-some
232   students are i-i-i'm very lazy to be frank to turn pages in my copybook and to read
233   notes but this one you want to I- you want to read you'll do every-any-anything   to
234   win and if ever you've got a wrong answer in this game you'll have to get back to
235   your -to your notes

236

237   I: mmm mmm

238

239   P: to get the right answer because the game would not go further

5

Appendix F-2

Screenshot from F4 Analyse software showing line by line coding of Interview transcript of one participant

Note: Once the transcript is imported in the software, it appears as numbered paragraphs and not as line numbers. You can then start the coding process by highlighting the significant /meaningful utterances. Codes and subcodes will appear on the right hand side column. Memos can be added to the codes. Clicking on a code displays all the utterances relevant to this code along with the paragraph number where it appears in the transcript as imported in the software.

Appendix F-3

Extract of coding and grouping of significant utterances from Interview transcripts of learning situation 1-LS1 (Moving from individual to collective)

Aspects guided by interview schedule	Open codes	Properties	Common to Transcripts[17]	Meaningful statements/quotes
	(Producer's/Creator's experience) *Past experience of Production of DMTs – (creators)*	Creating PPT presentation in context of school assignment Creating PPT presentation for others	T2 ; T13; T3	*T: it was **an assignment** then i **chose to do it as a powerpoint presentation*** (Transcript_Tesha_06.11.15, Paragraph 82) *V: yes just like that err helping i used it er for example when **i helped my brother doing a particular homework using powerpoint**" (Transcript_Vidya031115, Paragraph 40)* *D: " They asked me to actually they give a course where you have to do er communication that's where they **asked me to do er a small presentation** to know that I could…" (Transcript_Disha 061115, Paragraph 94)* *A: "[yes] **i was also interested** in video editing but it was more for anim and-and gaming just for fun"(int_transcript_Alvin 12.11.15, Paragraph 66)*
		Creating videos for fun	T12; T3	
	Purpose of consumption and/or production of DMTs.	To complement learning from non-digital learning material	T8, T11, T12	*D: "**Books** and sometimes on the **web for research**" (Transcript_Disha 06.11.15, paragraph 62)* *C: " i was looking **mainly informations on videos** to **better understand the notes and definitions "** (Transcript_Caroline 131015, Paragraph 28) (T11)* *E:"at home **i went on youtube for example** for gp if uhm i **didn't understand something in class** i prefer to ..not google it but watch it so i can have a better understanding" (Int_Transcript Elisa 301015,*

---

[17] (Transcripts labelled with number and participants' pseudonyms) T1-Farida; T2-Tesha; T3-Alvin; T4-Urmila; T5-Bina ; T6-Geeta ; T7- Heshani ; T8- Elisa ; T9- Khajifah ; T10- Lovena ; T11- Caroline ; T12-Disha ; T13-Vidya ; T14-Jay ; T15- Poonam ; T16-Romika ; T17-Shamim ; T18- Mustafa

| | | For entertainment purpose (watching dramas) | T7, T9 | Paragraph 26)

H: "*: korean dramas so they are like we have like we have our indian tv tv opera soap operas these are korean dramas like er the artists who leave in korea they make their own-their own series and **these are broadcasted on online tv channels so i usually watch it online**"* (Int_transcript _Heshani 161115, Paragraph 62) |
|---|---|---|---|---|
| Views about the consumption of specific digital texts/digital multimodal texts | **Most liked/appreciated/preferred digital learning materials accessed during the module** | Watching Films and Movies; Documentary films | T1; T3; T4; T6; T8; T10 ; T11 ; T15 ; T16 | F: "*the movies were ..not the best but i preferred it most because **watching a movie as I said earlier it has great impact on you, you can actually reflect upon what you are seeing**, I can interact it in this way and another person can interact it in another way and then we can discuss or I can explain it to him or her what I am actually understanding and she can equally share her views*" (Transcript_Farida 171115, Paragraph 38)

A: "*if i had to choose a preferred one i think the-**the movies were were better things the movies that we've watched they-they totally showed about the interviews** which they made to the people and we have the people own words ..who were who had been interviewed*" (int_transcript_Alvin 12.11.15, Paragraph 76)

U: "*my preferred type of learning mat- **would be movies**"* (Int_Transcript Urmila 171115, Paragraph 88)

L: "*uhm.. **it's the films that it was easier to understand than just going through your notes and reading** ..*" (Transcript_Lovena021115, Paragraph 66) |

Appendix F-4

Emerging meaning statements based on significant utterances from Interview transcripts of learning situation 1 (LS1)- Participants as consumers/users of assigned DMTs
1. Learning with films/videos is seen as an opportunity for critical reflection
2. Films/videos is seen as a source of authentic learning (visualizing the past though moving images)
3. Films/videos promote empathy
4. Watching films in History classroom breaks the monotony
5. Watching films in History classroom makes the class more interesting
6. DMT such as the Multimedia CD is an effective revision support
7. Learning with DMT is flexible and allow for learner control over content
7. Use of DMTs is context dependent
8. DMTs are seen as easy access to information
9. Learning with DMTs such as the interactive multimedia promotes reading
10. DMTs seen as a new way of learning at tertiary level
11. Learning with DMTs seen as effective
12. DMT such as the multimedia CDs is seen as added value for learning
13. Learning with DMTs is about concise learning
14. Using DMTs as learning support for assignment, revisions, etc
15. DMTs seen as adding variety to curricular content
16. DMTs as valuable learning support
17. DMTs seen as an opportunity to have access to content which are generally difficult to access.
18. DMTs seen as an opportunity to consolidate, reinforce, facilitate, their learning
19. DMTs as educational tool
20. DMTs such as PPTs are informative
21. DMTs such as PPTs with videos and images are useful
22. DMTs make it more easy to assimilate everything
23. DMTs such as PPTs act as a guide and help in writing detailed notes
24. DMTs such as interactive multimedia makes learning fun
25. Recalling a film is easier than recalling a book
26. Some DMTs offer more opportunities than others

Appendix F-5

Initial 'Categories of description' based on the emerging meaning statements

CONSUMER PERSPECTIVES (LS1) - Categories of description

Category of description (CoD)	Using DMTs is seen as/is about	Description	Focus is on
CoD 1	… as getting information from authentic sources	Still and moving images, oral histories from films/videos makes learning more authentic/real/less abstract. Students relate better to such DMT	The value and benefits of DMTs as a source of information
CoD 2	…as multiple ways of acquiring knowledge about the subject	Knowledge is acquired through various ways– learning from viewing and interpreting visuals from PPTS/Films/, learning from interacting with a multimedia game; listening to audio elements present in the DMTs, etc. Reading is as per user's choice/self-directed learning	The process of learning from DMTs; Pedagogical approach shift
CoD 3	….learning through different medium and semiotic modes	The effectiveness of the DMTs as a learning medium is seen in relation to the means and medium modes present in specific medium a visual/oral modes of representation (static graphics/the moving images/the sound/the written) contribute to learning	Focus is on the medium used and the modes of representation (semiotic modes) and how they contribute to the participant's experiences of specific DMTs
CoD 4	…as an opportunity to make the learning less monotonous	Variety in the types of learning resources/materials (the DMTs) breaks the monotony of normal lecture notes and reading from books. Students have the opportunity to learn the content through various modes and approaches.	Focus is on the variety in the types of DMTs
CoD 5	… as valuable learning support	DMTs seen as helpful/valuable to support revision and also for retention and recalling. Content presented is through static and visuals/animations/moving images. Curricular content in the form of DMTs encourages reading and learning of notes	Focus is on the purpose of the DMTs
CoD 6	….as being dependent on the context and situations	The preference towards specific DMTs depend on the contexts and situations. (E.g viewing PPTs after lectures considered to be appropriate but not convenient during lectures)	Focus is on the preferences of DMTs in relation to contexts/situations

CoD 7	…as a novelty	DMTs is compared to conventional types of learning resources	Focus is on new way of presenting learning content
CoD 8	… as emotionally engaging	Visuals/moving images/sound elements emotionally impact on students /empathy	Focus on the affective dimension of learning

Appendix G

UNIVERSITY OF MAURITIUS

ADMISSIONS AND STUDENT RECORDS OFFICE

MEMO

Date: 16 September 2014

To: Mrs Dorothy COOSHNA-NAIK
      Senior Lecturer, CILL

Thro: Assoc Prof (Dr) M I Santally
      Officer-in-Charge, CILL

~~~~~~

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT THE UNIVERSITY OF MAURITIUS

Please refer to your memo dated 09 September 2014 addressed to the Vice-Chancellor.

I wish to inform you that your request to conduct your research in the Department of History and Political Science Department of the Faculty of Social Studies and Humanities has been approved.

B ISSUR (Mrs)
For Registrar

c.c: Dean, Faculty of Social Studies and Humanities
        Assoc Prof Chan Low
        Assoc Prof V Teeluck

RC/BI/vk

Appendix H

Angela Bryan & Associates

6 La Vigna
Plantations
47 Shongweni Road
Hillcrest

Date: 20 November 2018

To whom it may concern,

This is to certify that the Doctoral Thesis: Undergraduate Students' Experiences of Learning with Digital Multimodal Texts written by Dorothy Cooshna Naik has been edited by me for language.

Please contact me should you require any further information.

Kind Regards

Angela Bryan

angelakirbybryan@gmail.com

0832983312

Appendix I

UNDERGRADUATE STUDENTS' EXPERIENCES OF
LEARNING WITH DIGITAL MULTIMODAL TEXTS

ORIGINALITY REPORT

10%	9%	3%	2%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

MATCH ALL SOURCES (ONLY SELECTED SOURCE PRINTED)

< 1%

★ core.ac.uk
Internet Source

Exclude quotes	On	Exclude matches	< 5 words
Exclude bibliography	On		