Curriculum Becoming in the Assemblage of Lower Secondary Education in Ireland

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ABSTRACT

The Junior Cycle Framework acts as a catalyst for major curriculum reform in lower secondary education in Ireland. This thesis is concerned with mapping the becoming of this new curriculum. It proffers the emerging changes through a focus on the following areas of interest:

a. The assemblage of lower secondary education in Ireland.

b. The purpose of education as desired by the assemblage.

c. The ideology, framework and pedagogy of the Junior Cycle curriculum

This study uses the concept of emergence from Complexity Theory which offers the ideas of how an educational system as an open, adaptive system, self-organises and changes. It blends these ideas with concepts from the work of Deleuze and Guattari in "*A Thousand Plateaus*" (2003), to offer the conceptual toolbox to help map the complexity of lower secondary education in Ireland. To gather a holistic and multi-perspectival understanding of the reform, the research engaged in:

a. Twenty-one semi-structured interviews with policy stakeholders.

b. Ten semi-structured interviews with four principals and six teachers.

c. Six focus group interviews with 10 students in each of the 3 selected schools.

The analytic process used was rhizo-analysis.

The findings demonstrate that curriculum in lower secondary education is becoming as a multiplicity and rhizome. This is mapped through the following lines of flight:

a. The assemblage is self-organising by arranging and fitting together a more ecological structure.

b. The assemblage desires liberation and is becoming as a multiplicity, expanding, the ideas of knowledge, the human subject and values in a process of strong emergence and becoming. The teaching and learning encounter is the process through/within which the human being finds their home within the world

c. Curriculum is viewed as a rhizome, incorporating an ideology, framework and pedagogy. The two roles that encourage becoming are those of curriculum creator and curriculum maker.

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Acronyms	
ACCS	Association of Community and Comprehensive schools
AFL	Assessment for Learning
ASTI	Association of Secondary Teachers of Ireland
AT	Assessment Task
CAS	Complex Adaptive System
CBA	Classroom Based Assessment
CT	Complexity Theory
DEIS	Delivering Equality of Opportunity in Schools
DES	Department of Education and Skills
IBEC	Irish Business and Employers Confederation
JCPA	Junior Cycle Profile of Achievement
JCT	Junior Cycle for Teachers
JMB	Joint Managerial Body
L2L	Lever Two Learning Programmes
NAPD	National Association of Principals and Deputies
NCCA	National Council for Curriculum and Assessment
OECD	Organisation for Economic Cooperation and Development
PISA	Programme for International Student Assessment
SEC	State Examinations Commission
SEN	Special Educational Needs
SLAR	Subject Learning and Assessment Review
TIMMS	Trends in International Mathematics and Science Studies
TUI	Teachers Union of Ireland

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Finally, to Max my dog. You have sat at my feet over the four years when I was writing at home. You were a great listener.

(Be)coming Thoughts…

The main concern of this thesis is to research what is emerging and becoming in lower secondary education in Ireland as a result of the enactment of the Junior Cycle curriculum. The 'Framework for Junior Cycle' (NCCA, 2012) was announced by the Minister for Education, Mr Ruairi Quinn, in 2012, as a large scale curriculum reform. It was a move beyond the reform of subjects and encouraged a revolutionary overhaul of the whole approach to curriculum in lower secondary education in Ireland. This research proposes to map and critique the initial six years of the Junior Cycle curriculum reform by exploring the following question: ***How is curriculum becoming in the assemblage of lower secondary education in Ireland?*** This mapping covers three main intensities that emerged within the data:

- The landscape of lower secondary education in Ireland – its historical, cultural, social, educational and political background.

- The purposes of education for lower secondary education in Ireland.

- The Junior Cycle Curriculum – its ideology, framework, and pedagogy as it engages in the process of curriculum creation and curriculum making.

These three areas are intertwined, nested and meshed together and although for clarity, I map them initially as separate landscapes of interest, they are in constant connection and interrelationship. The enactment of the 'Framework for Junior Cycle' has been a highly contested process, highlighting the complexity of previous attempts at curriculum reform in Ireland and the urgent need to change the curriculum culture and mindsets prevailing in lower secondary education. This research is interested in seeking what is coming to light for curriculum as the actors in lower secondary self-organise and respond to the changes that the Junior Cycle curriculum offers. Curriculum reform challenges the educator to rethink and re-imagine alternative knowledge, values, skills, behaviours and dispositions. The question

whether the Junior Cycle has succeeded in generating such a challenge is the motivation of this thesis.

From the beginning it is important to state that I am very nested within post-primary education in Ireland. I was a teacher of English and Religious Education for over twenty-five years and then deputy principal and principal of a large all-girls school situated in the suburbs of Dublin. This school was a pilot school for the new Junior Cycle curriculum and it was from the experience and observations of the positive change that emerged for students and teachers in the educational encounter in the classroom, that I was motivated to carry out this study to further interrogate and problematise whether this new curriculum best served the student and lower secondary education. I was an associate with Junior Cycle for Teachers since its beginning in the areas of Leadership and Assessment. My approach to this thesis was to become nomad, coming and going across the landscape of lower secondary education, working between the data and the theory, moving through points, threading familiar and unfamiliar territory in a quest to map the becoming of curriculum for lower secondary education in Ireland.

THE LANDSCAPE OF LOWER SECONDARY

Post-primary education in Ireland consists of a three-year Junior Cycle (lower secondary), followed by a two or three-year Senior Cycle (upper secondary), depending on whether the optional Transition Year (TY)[1] is taken. Lower secondary education begins at the age of 12 years and senior cycle from 15/16. In October 2012, the Minister of Education, Ruairi Quinn, announced the launch of a new curriculum framework for lower secondary education in Ireland called the Junior Cycle. It heralded fundamental and seismic change to curriculum in Ireland and proposed a framework that would disrupt not only the present practices of teaching,

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[1] TY provides an opportunity for students to experience a wide range of educational inputs, including work experience, over the course of a year that is free from formal examinations. Students can opt to take this year after completion of junior cycle.

learning and assessment but the very purposes of education at lower secondary education and how those purposes would be enacted. The National Council for Curriculum and Assessment[2] (NCCA) attempted to overhaul lower secondary education in 1989 and with the rebalancing of the curriculum in 1999, they wanted to reduce the focus on examination and broaden the range of teaching and assessment practices for students. Students were studying twelve to thirteen subjects for examination purposes and these subjects were divided into higher, ordinary and some at foundation levels. All subjects were marked and assessed by the State Examinations Commission (SEC) and students were awarded a certificate for sitting this examination called the 'Junior Certificate'. Grades were allocated using A's, B's, C,s etc. The central focus for teachers and students was the examination at the end of third year and this had a backwash on the type of pedagogy used within the classroom. Teachers favoured rote learning and often used the examination papers as their syllabus. The overhaul of this system failed and teachers and student reset themselves back to the status quo. The NCCA explains the reason for this was:

> Because, for the most part, the assessment reforms associated with the new curriculum were not delivered, leading to a new curriculum being strangled by an old examination system.(NCCA, November 2011)

In 1999 a review of the Junior Certificate curriculum was carried out and it was clear to all involved in education that unless assessment changed, nothing else would change in the approach to teaching and learning in schools in lower secondary education in Ireland.

An important tenet to acknowledge is that one of the main motivations for the Junior Certificate examination was as a practice run for the examination that occurred at the end of senior cycle called the Leaving Certificate. Students take up to seven subjects for this examination, one of which must be Irish. Subjects are normally studied at either Ordinary or

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[2] The role of the National Council for Curriculum & Assessment (NCCA), which was established on a statutory basis in 2001, is to lead developments in curriculum and assessment and to support the implementation of changes resulting from this work. https://www.education.ie/en/The-Department/Agencies/National-Council-for-Curriculum-and-Assessment-NCCA-.html

Higher Level. Two subjects, Irish and Mathematics, can be studied at Foundation Level. The results of these Leaving Certificate examinations feed into a points system for matriculation to university. In Ireland, the Leaving Certificate is a high stakes examination and it has generated a culture of grind schools and rote learning. The examinations are held over three weeks in June and whilst some subjects have a practical component, many subjects are reliant on performance during that one examination. Lower secondary education in Ireland has functioned in the shadow of this senior cycle examination and its educational structures, processes and pedagogical approach of the teacher and student in the classroom have been affected by it (Gleeson, 2010). Students favour a teaching approach that prepares them for this examination through note taking and the teachers work at breaking down the content into simplified and answerable segments. They ensure that the syllabi are covered in a linear, instrumental and deterministic manner. The announcement of the 'Framework for Junior Cycle' in 2012 disrupted the purpose of Junior Cycle as a trial run for the Leaving Certificate alone and called for an identity for lower secondary within itself. This proposed change was a challenge to the equilibrium of a system that did not wish to engage in change.

This study has named the landscape of lower secondary education in Ireland the 'Assemblage' (Deleuze and Guattari, 2003). Assemblage refers to the complex and dynamic flows, connections and becomings that emerge and disperse relationally between the different bodies and actors that occupy this space. The assemblage of lower secondary education has manifold histories, traditions, values and cultures (Gleeson, 2010). It uses its own language about education, has highly evolved concepts about what education is about and is a field of practice charged with emotion. The assemblage is made up of four interrelating and interpenetrating educational spaces or domains. Van den Akker (1999) offers the different strata of macro, meso, micro and nano for understanding curriculum[3] and these will be utilised

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[3] Although the "supra" level, is also listed in Van den Akker's chart, and has its place within the assemblage, it is not an area that will be researched in the same depth.

to name the four occupied domains in the assemblage that are of our main concern. **Table 1** offers a snapshot of who makes up these different domains:

Table 1 The Assemblage: Lower Secondary Education in Ireland	
Macro domain	National educational agencies of lower secondary education
Meso domain	Leadership of schools in lower secondary education
Micro domain	Teachers in schools in lower secondary education
Nano domain	Students in schools in lower secondary education

The agency of these interrelationships and connectivities is paramount for the success of curriculum reform in this assemblage. Osberg advises that it is important to view an assemblage as "dynamic rather than static, it exists only in the interaction between things and is therefore not itself a thing" (2008,p.146). Each of these domains in the assemblage are adaptive spaces and they change according to their experience in their inter-relationships with each other. Complexity arises through the fact that these domains interact across the entire system, not just between themselves. It includes for example, the senior cycle, tertiary level, primary school assemblages, work world assemblages, as well as European and global influences, adding to the complexity underpinning this research.

THE THEORETICAL FRAMEWORK

Education and the study of curriculum offers the researcher many binaries and dichotomies which do not take into consideration the lived educational messiness and intricacies of the school and classroom. The theoretical framework used to explain these 'messy' inter-relationships is drawn from Complexity Theory. Conceptual insights in Complexity Theory offer a non-linear, dynamic and holistic approach to curriculum reform and it helps map the

nature of the connections in the assemblage, their continuity and how they change. The specific concepts that are deployed in this thesis are:

a. Lower secondary education in Ireland as an open, complex system

b. Connectivity, diversity and non-linearity

c. Self-organisation

d. Emergence

These concepts propose strong epistemological, ontological and axiological challenges for the educator as it encourages the view of curriculum as a process that is transformational and emerging.

Complexity Theory is then taken and interwoven with concepts of Deleuze and Guattari from their book "*A Thousand Plateaus*" (2003). The concepts chosen are assemblage, plateau, rhizome, smooth and striated spaces, nomad and becoming. These offer an imagining for Complexity Theory. Imaginaries are not just about representing or symbolising something else but rather in the thinking of Deleuze and Guattari, they are always relating to and connecting to other concepts. Semetsky (2006) writes that no one theory or single unit can prescribe or describe the behaviour of an open system and so in response to this advice, a blended theoretical framework is being offered within this thesis. Complexity theory offered a holistic landscape to traverse and Deleuze and Guattari assisted in entering it through the middle, intermezzo. It was through connecting these two systems of ideas that assisted me in mapping the inter-relationships of the assemblage but also advanced new modes of conceptualisation, a different way of seeing and hearing the incompressibility of the assemblage and a language to accurately describe it. This interwoven canvas of concepts worked as they helped break with the binaries in educational discourse and allowed the interconnections to emerge, rather than the separations. In essence, the embeddedness and openness of curriculum to emergence and becoming could effectively be explored.

METHODOLOGY

The assemblage of lower secondary education in Ireland is a highly complex landscape and what makes this research important is mapping how it is changing as it tries to navigate from a system which endorses equilibrium and the status quo to a system that is brought to the edge of chaos. This research proffers the assemblage of lower secondary education a map of how it has changed to assist in its learning. Complexity Theory offers the insight that if a system fails to learn, it will die. The importance of the assemblage as a learning system will be discussed further in Plateau 3. I have chosen a post~qualitative[4] methodology to help map the becoming of curriculum in lower secondary education. This decision to take a qualitative route created tension for me as a researcher and this will be explained in Plateau two. What was important was to capture the voices of as many actors as possible throughout the domains of the assemblage so that a holistic picture of the enactment could be amassed. To gather a holistic and multi-perspectival understanding of the process of curriculum reform through a post ~qualitative methodology, the research engaged in the following:

a. Twenty-one semi-structured interviews with policy stakeholders across the lower secondary education system in Ireland – **The Macro Domain**

b. Ten semi-structured interviews with four principals and six teachers in four lower secondary schools in Ireland. **The Meso and Micro domain**

c. Six focus group interviews with 10 students in three schools. **– The Nano domain.**

Through this large sampling of actors across the spectrum of the assemblage, the data provided substantial insight into the inter-relationship between all actors in the assemblage, i.e. between the spaces and hierarchies. I was able to build an understanding of the narrative of the different roles, events and processes employed to enact the reform at a systemic level. The analytical

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[4] The linking of qualitative and (post)qualitative methodology will be discussed in detail in Plateau 2.5.1

process that was used to capture this holistic approach, was the use of rhizo-analysis. The rhizome which will be explored in detail in Plateau 1 and Plateau 2 will offer an explanation of how it is used in the analysis. In this thesis, rhizo-analysis acts as an alternative possibility to what Deleuze and Guattari call conventional arborescent (tree-like) thought (2003). It ceaselessly establishes connections between the agents in the assemblage and has no beginning or end but rather the rhizome is always in the middle, between things, interbeing, intermezzo (Deleuze and Guattari, 2003, p.25). The map that emerges from this study, is not a tracing or a reproduction which produces more of the same by following a sequentially ordered process through links between points and positions that are restricted to a particular place, reaching conventionally logical and coherent conclusions (Sellers, 2015, p.11). Its function is to perturb conventional ordering, sequencing, categorising and linearity. The rhizome allows multiple entryways and multidimensional spaces of exploration and discovery in the open complex system of the assemblage. It was an important tool as it allowed me to come and go, move back and forth across the data, entering wherever the data brought me, disrupting my thoughts and ideas, making me build new processes of concepts as I followed what was becoming for curriculum in lower secondary in Ireland.

STRUCTURE OF THE THESIS

The structure of this thesis works as a rhizome, a multidimensional, open system of converging concepts and thoughts. What I found when I began writing this thesis was the impossibility of ever completing a full chapter. If I was writing a literature review, I needed the theoretical framework to explain the concepts and why I was using them. When I was writing the methodology chapter, I had to have the theoretical framework. I found that the data chapters on the purpose of education and curriculum enactment needed separate literature reviews. All attempts to offer a conventional sequence of chapters failed. What became apparent was that the landscape of this thesis was a rhizome, a series of interconnected and

interdependent intensities, "dynamic spaces in flux, of in-betweenness-intermezzo with/in which numerous possible pathways and connections (may) exist and (may) be explored" (Sellers, 2009, p.13), with no aspect standing in isolation. I had to think differently about how I would map the complexity of curriculum reform within the assemblage. Drawing inspiration from both Deleuze and Guattari (2003) and Sellers (2009), the 'thesis moves outside a conventional, chaptered dissertation' (p. 6) and offers eight plateaus instead. Sellers describes the function of a plateau is to "disturb, disrupt, decentre, disperse, destabilize and dispense with the linearity of conventional academic writing….commingling the interplay among imaginaries, a rhizome generates plateaus and plateaus generates more of the rhizome" (2009, p.13). Each plateau has its own climate, its own tone, its own timbre (Deleuze and Guattari, 2003, p.25). They retain an inter-relationship with the other plateaus and reflect the dynamism and complexity of the data itself in a manner not otherwise achievable through independent, isolated chapter structures.

The thesis opens with "(Be)coming Thoughts" and closes with "(Be)going Thoughts". These spaces are the spaces for my reflections and voice within the thesis. Each plateau then mirrors this same process. This approach was chosen to capture the movement and flow of the thesis. It is about my position as nomad, "proceeding from the middle, through the middle, **coming and going** rather than starting and finishing" (Deleuze and Guattari, 2003, p.25). The principle focus of this thesis is about the **becoming** of curriculum in the assemblage of lower secondary education in Ireland and I blended the two concepts to remind me that the middle is where things begin to pick up speed (Deleuze and Guattari, 2003, p.25). Whilst we move from one plateau to another, the mapping of the becoming of curriculum will emerge through/within the connectivity of all plateaus. The structure of the thesis is as follows:

Plateau 1 -Theoretical Framework

This plateau maps and explains the blending and interweaving of Complexity Theory and the selected concepts of Deleuze and Guattari (2003). It explores the question how does the

theoretical framework assist in the re-imagining of education and curriculum in lower secondary in Ireland? I began with this plateau as it frames all the concepts that will be employed throughout the thesis and the rationale for their use.

Plateau 2 – Methodology

This plateau proffers an understanding and framework for the methodological choices that have been made and the tensions experienced in order to conduct this research. It gives the reader an understanding of how this research will advance and it offers its epistemological, ontological and axiological foundations. The methods of collecting data, analysis, ethical concerns and how rigour and validity were maintained in a qualitative approach will also be outlined.

Plateau 3 – The Assemblage of Lower Secondary Education in Ireland

The landscape and structure of the assemblage of lower secondary education is outlined in this plateau. How the four domains of the assemblage inter-relate and connect with each other in the reform of the Junior Cycle curriculum are mapped. This plateau is situated at this point of the thesis to offer an understanding as to how curriculum has been working for the assemblage.

At this point in the structure of the thesis there is a change:

The next four plateaus are divided into pairs or inter-linked couples. Plateau 4 & 5 are intensities which explore the purpose of education in the assemblage of lower secondary education Plateaus 6 & 7 study curriculum and the enactment of the Junior Cycle curriculum. The first plateau of each pair offers a literature review of the area of interest and it is followed by a plateau from the data on how the assemblage is responding to this intensity. And so, the thesis continued to flow as follows:

Plateau 4 – Education as Becoming and Emergence

This plateau explores the literature on educational purposes and utilizes the concepts on strong emergence from Osberg (2008), Biesta (2015b), Davis and Sumara (2008) and Doll (2012).

Plateau 5 - The Educational Purpose and Desire of the Assemblage

Data obtained from the different actors in the assemblage are utilised to explore their desires and purposes of education in lower secondary education in Ireland.

Plateau 6 – Curriculum as Rhizome

This plateau navigates the complexity of the curriculum landscape and draws on the work of Stenhouse (1975), Kelly (2009), Pinar and Grumet[5], (2008), and Slattery (2013) to propose a way of considering curriculum as rhizome.

Plateau 7 - Curriculum Creation and Making in the Assemblage

Again, the study turns to the actors for their understanding of curriculum creation and making in the reform of the Junior Cycle curriculum in the assemblage.

Plateau 8 – Education as Becoming and Curriculum as Rhizome -Discussion

A discussion of the findings of this thesis will be reviewed and the converging connections between these findings examined and considered. This plateau will outline what is (be)coming to light in the assemblage's educational purposes and curriculum in lower secondary in Ireland.

(Be)going Thoughts

These final concluding remarks will offer some last thoughts I have as nomad on the study and the assemblage. It will make suggestions for ongoing exploration and the key insights this thesis has to offer to educational and curricular research. It will highlight what is new and novel in this research. Whilst the structure might convey a linear process, the following map proffers the rhizome of the thesis as one of interconnected intensities. Plateaus visited by the reader are rarely left behind in the thesis, but act as middles for thought as it moves through to the

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[5] Pinar worked closely with Grumet, Reynolds, Taubmann and Slattery and this thesis will draw on the combined work of these writers.

(be)going thoughts. Each plateau offers the reader a mind map of the various concepts that are bubbling up within that landscape, intensities of interest and which will help map the becoming of curriculum in lower secondary education in Ireland.

Map of Thesis – From Cover to Cover
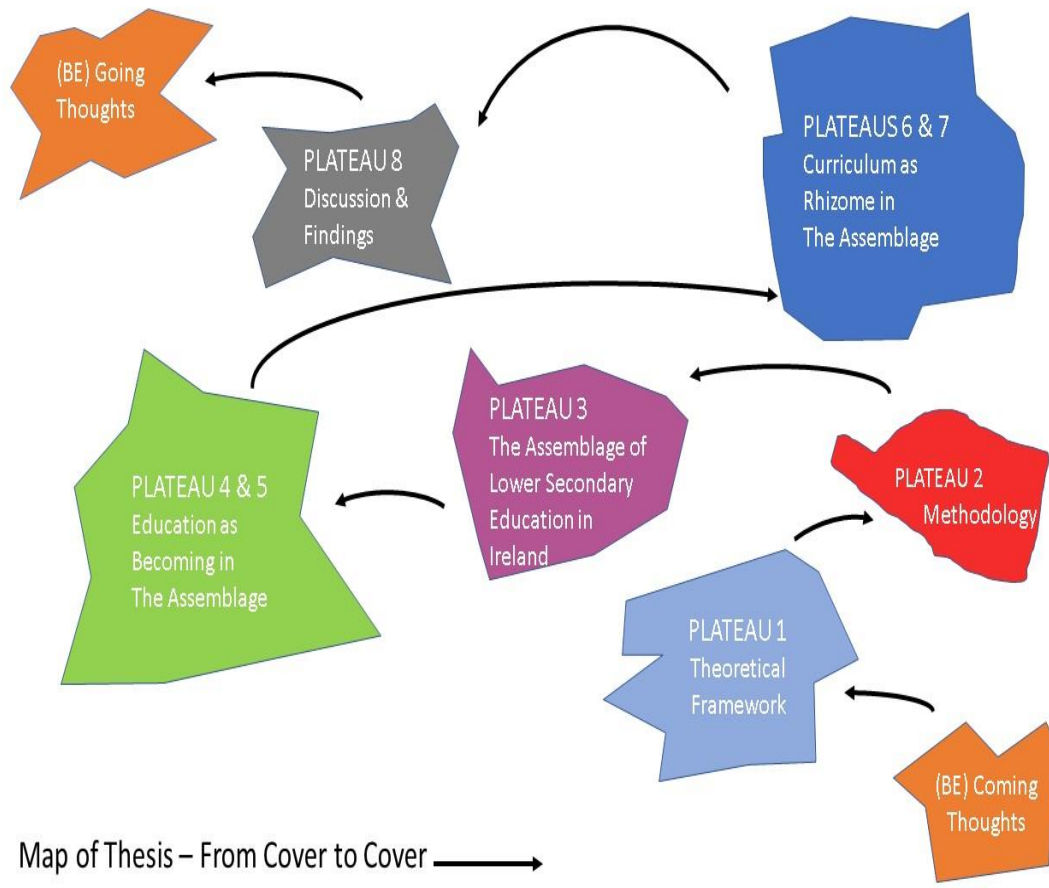
Figure 1 Map of Thesis Plateaus

We now move from (Be)coming Thoughts int the terrain of the Theoretical Framework – Plateau 1.

Plateau 1 THE THEORETICAL FRAMEWORK

1.1 (BE)COMING THOUGHTS

The purpose of this plateau is to outline and explore the concepts that make up the theoretical framework. I did not begin with a traditional structure by outlining a literature review. Rather, I began at the entry point of the theoretical framework because it offers the reader, the concepts, the language and the tools to navigate the other plateaus, without which, the complexity of curriculum reform in lower secondary education in Ireland might be difficult to traverse. It offers the theory and rationale that lies behind the choices I made about methodology, analysis and findings. This plateau unfolds by combining a scientific and philosophical theory which assists in the understanding of how an education system changes, adapts and becomes. As researcher, this was a difficult choice to make. The question that challenged me was whether one theory would suffice to offer the tools for exploring this complex landscape of lower secondary education. The answer for me was no. I needed both to help disrupt my thinking around how lower secondary education in Ireland is becoming and emerging. Complexity Theory[6] offers a holistic and ecological view of why we must think of lower secondary as an **open, adaptive system**, which is in constant dynamic **connectivity** and intra-relationships. It helps explain how curriculum change occurs through the process of **self-organisation and emergence**. I was interested in how lower secondary education finds the best fit for itself during curriculum reform and what is emerging that is new and novel. Complexity

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[6] The decision to choose Complexity Theory rather than Actor Network Theory lay in its focus on the holistic view or eco-system which encouraged images and examples from nature rather than technology. I favoured birds rather than black boxes. CT also offered an understanding of how change occurs through self-organisation and emergence through connectivity but also allowed for the agency of the individual. ANT favoured action through association and the individual seemed somewhat lost. Whilst there are overlaps between the two theories, I believed Complexity Theory aligned better with the understanding of assemblage that is offered which draws on the concept of the rhizome.

Theory insists on helping me think about connections and not about parts, segments and dichotomies.

Deleuze and Guattari in their book "*A Thousand Plateaus*" (2003) propose the concepts of ***assemblage, rhizome and becoming*** which when applied, help to see the dynamic reality of curriculum change and reform in lower secondary education in Ireland. These concepts offered further language, tools and thinking about how this ecosystem worked and they brought me right into the middle, intermezzo, between data and theory. Both these theories assisted in my favouring the concept of process, whereby I concentrated on connections rather than separations, difference rather than sameness and possibility, potential and transformation. As I moved through the plateaus, I utilized the concepts that helped me interrogate and probe the complexity of the assemblage during curriculum reform.

This plateau offers the framework as an inter-dependent working of these theories which are outlined in detail in the following discussion. Complexity Theory is addressed initially and then inflected with these aforementioned concepts from Deleuze and Guattari. This inter-dependent approach is subsequently discussed in relation to the assemblage of lower secondary education. The following **Table 2** offers a bird's eye view of the landscape of this plateau. There are five main areas of interest in the theoretical frame: understanding systems; how a system works; its disposition; how it finds the right fit; and how it emerges and becomes. These concepts offer a theoretical lens to help understand the deep complexity that exists in bringing about curriculum reform of such massive proportions in lower secondary education.

Table 2 Blended Theoretical Framework

	Complexity Theory	Deleuze & Guattari
SYSTEMS	**Complex Adaptive System**	**Rhizome**
	Dynamic	Infinite Connectivity
	Connectivity	Heterogeneity
	Diversity	Multiplicity
	Holistic	Asignifying Rupture
	Non-linear	Mapping
HOW IT WORKS	**Rules**	**Rules**
	Non-Equilibrium	Expands horizontally
	Complexity	Affected by intensities
	Initial conditions	No beginning or end
	Relations and patterns	Comes through the middle
	Internal adjustments	
	Unpredictable	
DISPOSITION	**Disposition**	**Disposition**
	A-centred	A-centred
	Distributed knowledge	Content -interrelationships
	Nested	Expression
	Communications & collaboration	Segmented but deterritorialisation
RIGHT FIT	**Self-Organisation**	**Assemblage**
	Group potential	Changes through its connections
	Bottom up process	Process of knowledge making
	Best local fit	Works on semiotic, material & social flow
		Exteriority
EMERGENCE	**Emergence**	**Becoming**
	New structures	Reality (life) is viewed as a continual process of flux or differentiation.

1.2 UNDERSTANDING COMPLEXITY THEORY

1.2.1 Defining Complexity Theory

When it comes to defining complexity, we enter a world of words that denote difficulty, intricacy, complication and connected parts. Complexity finds its origin in the mid seventeenth century and explains a "group of related elements". The Latin word "complexus" derives from "complectī" meaning to entwine. (Com = together + plectere =to braid). Complexity theory arises through what Davis and Sumara (2008) call "the confluence of several areas of Western research, including cybernetics, systems theory, artificial intelligence, chaos theory, fractal geometry and non-linear dynamics" (p.8). Thus, complexity is a way of thinking that can apply to any complex system or problem.

Tara Fenwick (2012) insists that it is practically impossible or a "presumptuous undertaking" (p.144) to define complexity theory. It describes open, unpredictable and non-linear systems and how the focus lies not on studying the parts but rather looking at the whole as they interact and connect. Complexity theory offers a view of the world in a holistic way, as a web or ecosystem in which everything is connected and linked, both human and non-human elements (Capra, 1996, p.301). Yet it is a very unpredictable world where many unintended consequences arise. Muir (1911) sums this up in a memorable sentence: "When we try to pick out anything by itself, we find it hitched to everything else in the universe". These interacting agents often acquire collective properties and thus a system becomes greater than the sum of its parts (Phelps et al., 2005, p.33). Capra (2005) adds that it "develop[s] a unified view of life by integrating life's biological, cognitive and social dimension" (p.33). Complexity thinking is a "interdiscourse" (Davis and Sumara, 2010, p.859) or a way of thinking and acting that assumes we live in a complex world where inter-connections abound, affecting us visibly and invisibly, as well as directly and indirectly (Davis and Sumara, 2006).

To assist in understanding the many elements that make up Complexity Theory, the following **Table 3** of definitions is offered, which draws on the work of Morin (2007), Cilliers (1998) and Osberg (2008):

Table 3 Defining Complexity Theory

	Characteristic	Description
System	**Open**	it exchanges matter, information and energy beyond the boundaries of the system. It may be difficult to define the systems borders. (Prigogine, 1961)
System	**Dynamic**	it changes and evolves over time through assimilations and accommodations to overcome problems and perturbations.
System	**Non-linear and unpredictable**	cause and effects are multiple and small differences in initial conditions produce very great ones in the final phenomenon.
System	**Has History**	the past is co-responsible for present behaviour and thus the system learns. Since they must 'learn' from experience, they must 'remember' previously encountered situations and compare them with new ones. A complex system has memory/history captured at both the micro- (e.g., personal experiences, personal opinions, worldview) and macroscopic (e.g., culture, ritual, value system) levels.
Interactions	**Rich**	through connectivity and diverse interrelations with agents and the system
Interactions	**Diverse**	though there may be similarity among the elements (Fractals)
Interactions	**Short Range Relationships**	exchanges with close neighbours are important. Elements in the system may be ignorant of the behaviour of the system as a whole, responding only to the information or physical stimuli available to them locally.
Interactions	**Distributive**	do not depend on central organizers or overarching government structures
Interactions	**Feeding back**	onto themselves in a recurrent manner
Interactions	**Nested or Scale Fee**	complex systems are often composed of and comprise other unities that are complex and give rise to new patterns of activities and new rules of behaviour. When a system is described within the context of a larger system, it is possible to talk of a function of the sub-system only within that context.

	Self-Organising	able to create newness and evolve itself from within. It is a bottom-up process and local circumstances dictate the nature of the emergence. The internal structure can evolve without the intervention of an external designer or the presence of some centralised form of internal control.
	Far from Equilibrium Conditions	There must be a constant flow of energy to maintain the organization of the system. This may be also called "the edge of chaos".
	Emerging	happens when the system responds to conditions and changes through inertial momentum, path dependence, positive feedback, lock-in and the richness of connectivity.
	Auto-catalytic	the system survives and moves away from equilibrium

Each of these elements of Complexity Theory offer important insights for mapping how the curriculum is becoming in lower secondary and will be used throughout the thesis.

1.2.2   Rules for Complexity Theory

Turbulence is abundant in the physical world from the collapse of stars into black holes to the changing formation of coastal dunes after large tides. This turbulence gives birth to new structures. If this turbulence is applied to sociology, such as the great movement and migration of populations and demographic changes; to education and the myriad of changing purposes; to curriculum and the vast array of changes to teaching and learning, it becomes evident that the world is highly dynamic and complex. Complexity theory insists that the idea of small cause and small effect, big cause and big effect must be laid aside. This principle has been elevated nearly as common-sense knowledge (Bronowski, 1995, p.398). It feeds the mechanistic and linear view of the world which starts with understanding the initial factors completely and believes therefore that the future cosmos is predictable (Doll, 2012, p.15). Poincaré (1905) saw that a small difference to the initial conditions may produce very big differences to the final phenomena. This highlighted that the initial circumstances could alter the face of the process and that systems were dynamic instead of linear and unpredictable instead of deterministic.

These dynamics make it difficult to determine or to describe phenomena and it was Prigogine and Stengers (1984) who suggested that "observation disappears in favour of relations". They proposed a whole new approach to science – the new rule is about observing relations and their patterns replacing observation per se and data collection. Therefore, in negotiating the complex world of lower secondary education the following rules will offer guidance:

- Non-equilibrium and turbulence bring life and energy into the system

- Simplicity is replaced by complexity

- A small difference to the initial conditions may produce very big differences to the final phenomena

- Relations and patterns are important

1.2.3   Complex, Adaptive Systems (CAS)

Complexity Theory defines education as an open, adaptive system.   Paradoxically, however, lower secondary education in Ireland has been viewed as a closed system. The disposition of the different elements of lower secondary education was to act as independent distinct bodies or closed systems. Margaret Wheatley (2006, p.3) compares this type of organisation to an "impressive fortress". She explains that fear exists of what would happen if the different elements of the organisation were allowed to recombine, re-configure or if the agents spoke truthfully to one another. Instead, Complexity Theory asks us to view these as an exchange of energy and matter between all bodies in the system and a building of intra and inter-relationships in an open system. The key and heart of the education system are the *relationships* and *collaborative intra-actions* of all its elements. The study of open systems involves the study of the dynamics between these many interacting components.   What characterises these systems are the complex behaviours that emerge as a result of non-linear interactions amongst a large number of elements at different levels of the system. In a complex organisation like education, distinct living systems move within and alongside each other. These

are what we call "***nested systems***". A student nests within a class, a class within a school, a

school within the community, a community within society, society within the world etc. Fenwick

(2012) explains that these systems are "nested within one another, co-implicating and

cohabitating. Yet each retains its own distinct identity, organising logic and emerging patterns"

(p.145).

Connectedness is an important feature of these nested systems. Morrisson (2008)

highlights this important connectedness in schools:

> In schools, children are linked to families, teachers, peers, societies and groups;
> teachers are linked to other teachers, support agencies (e.g. psychological and social
> services), policy-making bodies, funding bodies, the state legislature, and so on. The
> child (indeed the school) is not an island but is connected externally and internally in
> several ways. Disturb one element and the species or system must adapt or possibly
> die; the message is ruthless (p.21).

Cilliers (1998) adds an important tenet to our understanding of connectedness. He poses that

connectedness requires a "distributed knowledge system" and there should be no central

controller. Communication and collaboration are key elements in the development of this

connectedness. Morrison (2008) continues to explain that "complex adaptive systems scan and

sense the external environment and then make ***internal adjustments*** and developments in

order to meet the demands of the changing external environment" (p.22). These systems have

recently become known as Complex Adaptive Systems (CAS). Stacey (2007) noted that complex

adaptive systems (CAS) are made up of a large number of agents where each individual agent

behaves according to a set of rules. These rules require individual agents, through their

interaction with other agents; to adjust their actions to that of the other agents, forming what

Stacey calls "population-wide patterns" (p.303). Scientists studying the movement and unison

of flocking birds have explained that they do not have a leader but adapt according to their

neighbour. Zoologist Wayne Potts (1984) explains that they *anticipate* sudden changes in the

flock's direction of motion and once this change in direction occurs it then "spreads through the flock in a wave" (p.344). Potts called this the *chorus-line hypothesis* for bird movement (**Figure 2).**

Figure 2 Bird's move together as they anticipate sudden change

In **Figure 3** below we see individual agents interacting and connecting. From this interaction, global features emerge such as cultural and social trends. These global features encourage system-wide patterns to emerge and define the environment. These patterns influence rules of interaction of every single participant with their neighbour.
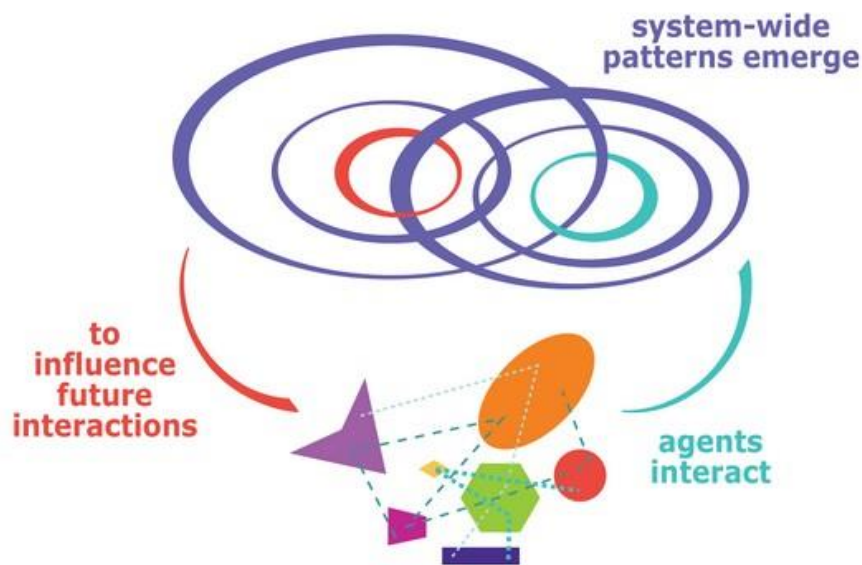
Figure 3 The emergence of system wide patterns

The patterns in a CAS are complex. The intra-actions and connections can cause unpredictable patterns. There is no reducing the encounters to simple patterns and explanations and this means that uncertainty is the main structural principle of CAS (Barad, 2003). It is clear that it is practically impossible to predict long term forecasts for such a system. This is partly because the principles influencing the system's choices for action and knowledge are not already given in the system's present patterns or its parts. Osberg and Biesta (2008) suggest that the future of the system is not evident in the patterns of the present system. As a researcher setting out to explore the patterns of change and becoming within lower secondary education, this statement gave me cause for concern. If the future of lower secondary education is not evident in the present patterns of behaviour, what is the point of my exploration of how this system is becoming? It is important to remember in trying to understand CAS, that they must be approached not in a linear or causal stance whereby they have a distinct beginning,

middle and end, but rather they move to their own unpredictable pattern. There is no foreseeable repeating behaviour but rather it is the disposition of a system that is important, not the causes. Wheatley (2006) suggests that if we look at the subsystem over time, it demonstrates an inherent orderliness. "Its wild gyrations are held within an invisible boundary. The system holds order within it and reveals this self-portrait as a beautiful pattern, its strange attractor" (p.10). The activity on the floor of the New York Stock Exchange, where chaos seems to reign, is a great example of order in disorder and disorder in order. Beneath the seeming disorder of an open system, lies order and pattern. It is this disposition to order, and between order and chaos of lower secondary that I will focus.

1.2.4 Self-organisation

Complexity Theory is interested in the way in which open systems achieve their integrity and maintain it over time. This is understood in term of the idea of self-organisation (Osberg and Biesta, 2010, p.6). Self-organisation may be defined as the ability of the group to exceed the potential of individuals working independently as captured in the photograph below.

Figure 4 Army Ants build bridges using their own bodies

The picture above in **Figure 4** shows how ants self-organise to build a bridge to the next leaf, adapting to find the best fit with the environment. It is the ability of the group to be able to create newness and evolve itself from within. It is a bottom-up process and local circumstances dictate the nature of the self-organisation (Cilliers, 2001b). An open, complex system will constantly re-organise to find the best fit with the environment. Morrison argues that Complexity Theory is highly pragmatic and draws this pragmatism into his explanation by stating that in the process of a system evolving itself from within, it is the local circumstances that dictate the nature of the emerging self-organisation (2008, p.20). A school is an open adaptive system and at the same time develops rules to enable it move between dynamism and stability, order and disorder (Fryer and Ruis, 2004). The insights that self-organisation offers, challenges our understanding of how change is rendered in education. Amidst the many global and local changes of this twenty-first century, the question to be asked is how do schools and the education system self-organise to find the best fit? The idea of self-organisation requires all curriculum creators and makers to consider whether it is possible, given the dynamism and recursive nature of a complex system, to affect the self-organisation of the assemblage?

1.2.5   Emergence

A complex, adaptive system must be an open system to allow the possibility of emergence. Yaneer Bar-Yam (2002) explains that 'emergence' refers to the existence or formation of collective behaviours — what parts of a system do together that they would not do alone. The centrality of the idea of emergence is also highlighted by Mason (2008) who concludes that:

> Complexity theory's notion of emergence implies that, given a significant degree of complexity in a particular environment, or critical mass, new properties and behaviours emerge that are not contained in the essence of the constituent elements, nor can be predicted from a knowledge of initial conditions (p.36).

To assist in understanding the process of change and emergence, Complexity Theory offers the notion of the snowball effect to explain how this happens through ***lock-in, path dependence and inertial momentum*** which result when critical mass has been attained. In a complex system, random circumstances and events occur at the lower levels of the organisation. These may receive positive ***feedback*** which reinforces the event/circumstance. This then can **lock-in** the importance of this event/circumstance and this gathers momentum. Like a snowball, it moves and gathers more and more elements, enlarging its scope and gathering additional aggregate as it moves. This snowball is on a particular path, ***path dependent*** - and it overcomes other resistances to its trajectory. Inertial momentum is overcome. Power is the directional course of the phenomenon that enjoys the dominant inertial momentum over other competing phenomenon (Mason, 2008, p.40).

Complexity is a phenomenon that thrives on the borders between order and chaos (Byrne, 1998). The skill of maintaining such border states between predictability and unpredictability, stability and instability – states far from equilibrium (Prigogine & Stengers, 1985) and on the "edge of chaos" (Langton 1990) – may in fact be a key characteristic for life on earth. Langton (1990) argues that the precursors of terrestrial life had no choice but to gain control over such dynamical states. They had to learn how "to maintain themselves on these extended transients in the face of fluctuating environmental parameters, and to steer a delicate course between too much order and too much chaos, the Scylla and Charybdis[7] of dynamical systems" (1990, p. 35). It as a zone that has insufficient agreement and certainty to make the choice of the next stop obvious but not so much disagreement and certainty that the system is thrown into chaos.

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[7] **Scylla and Charybdis** were mythical sea monsters noted by Homer; Greek mythology sited them on opposite sides of the Strait of Messina between Sicily and the Italian mainland. They function as an idiom meaning "having to choose between two evils".

……life as eternally truing to keep its balance on the edge of chaos, always in danger of falling off into too much order on the one side, and too much chaos on the other *(Langton, p. 235, Langton, 1990, p.234)*.

It is in the intermediate situation between order and chaos that self-organisation occurs. This is where the system has most energy and creativity.

Mason (2008) insists that complexity theory "draws attention to the emergent properties and behaviours that result not only from the essence of the constituent elements but more importantly they thrive on disequilibrium, dynamism, instability, diversity, uncertainty and unpredictability (2008, p.36). The scientific implication is that for a complex adaptive system to sustain itself, a critical mass is realised which causes an emergence of something new. This newness is unexpected and cannot be explained by studying the sum of the parts of the system (Ragin, 2000, p. 15). Prigogine & Stengers (1984) see the evolution of the system in terms of a series of "jumps" which signify new levels of order. It is at these bifurcation points that possible trajectories are chosen by the system and it is these change points that should be of interest in curriculum study. It is at these jumps that the system self-organises, and new behaviour begins to emerge. Osberg (2008) informs us that in practice we are therefore unable to formulate "laws" which fully explain the movement in the system, or complex process, from one state to another (2008, p.146). The theoretical framework of complexity theory offers rich insights into the nature of how a system, such as the lower secondary education system, brings about continuity and change through its insights into the holistic eco-system which generates agency through its interrelationships, self-organising and encouraging emergence for newness and transformation.

Open systems survive through emergence which depend on:

- The essence of individual elements and agents, their exponential relationships and connections;

- Rate of information flow through the system;

- The richness of connectivity between agents and the system;

- The level of diversity within and between the schemas of the agents (Stacey, 1996, p.99).

Emergence comes about when there is the presence of adaptability, communication, feedback and open systems. This emergence brings about the autocatalysis or self-sustaining of the system. As Davis and Sumara (2010, p.856) tell us that "complex systems are learning systems". Schools are learning systems. Students are learning systems and both schools and students are highly complex. They explain that emergence refers to processes by which autonomous unities can come together into larger, more powerful unities (2008, p.57). These unities open up the potential of new possibilities and in education even more complex forms.   In summary:

<div style="border:1px solid black; padding:10px;">

Complexity Theory is the study of ***open, adaptive systems*** *such as lower secondary education*, which is in constant dynamic ***connectivity*** and intra-relationships. It helps explain how change occurs through the process of ***self-organisation and emergence***.   It insists on thinking about connections and not about parts, segments and dichotomies. It views the system as a web or eco-system with the potential to give rise to more complex forms.

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Figure 5 Defining Complexity Theory

1.3 COMBINING COMPLEXITY THEORY WITH DELEUZE AND GUATTARI

Complexity Theory offers this thesis a framework that concerns itself with a holistic approach to lower secondary education and the way of thinking about how change emerges as the Junior Cycle unfolds in its enactment. Establishing **how** this occurs in terms of self-organisation and emergence during curriculum reform utilises the work of Deleuze and Guattari in "A Thousand Plateaus" (2003) through three main concepts:

- Rhizome

- Assemblage

- Becoming

Each of these concepts assisted in not only suggesting the ideas and language to help disrupt conventional thinking about lower secondary and curricular reform but also allowed a more ecological understanding of the relational nature of education and curriculum. It offered a further understanding of the dynamic structure of lower secondary education and its capacity and potential to change. In essence, it opened up the middle space (Deleuze, 1994b), where concepts are comprised of inseparable components. I took the advice of Colebrook who suggests that we should not "use philosophy to interpret biology or biology to explain philosophy: they all are two styles of thinking to mesh, transform and overlay each other (Colebrook, 2002). These three concepts: rhizome, assemblage and becoming will be described and explored below.

1.3.1 The Rhizome

Deleuze and Guattari explain that they are tired of trees and the arborescent thought and culture that is founded on them have caused far too much pain (2003, p.15). The idea of generating knowledge through roots, crowns and branches, whereby the idea finds its foundations in its roots, grows vertically (linearly) through its crown and is mirrored in its branches, is what they call "tracing or reproduction" (p.12). Sellers explains this tracing as "continuous repetitions of structural patterns already present (roots and branches), and reproduction is the continuous reconstitution of the closed structure or fixed entity (as the tree grows)" (2013, p.10). Rather they suggest that we think with the rhizome. The rhizome and how it works, offers a landscape of new concepts and language which will assist in mapping the becoming of curriculum in lower secondary education in Ireland. A rhizome has no tree-like vertical roots instead, it must be considered as a root system of underground stems.

Figure 6 Rhizome multidimensional and a-centred (drawing by Warren Sellers)

Just as Complexity Theory braids and entwines, the rhizome combines together all its diverse elements, growing and expanding horizontally in all directions. Unlike trees and branches, in a rhizome anything can be connected to anything else (Deleuze and Guattari, 2003, p.7). As it grows it changes in nature. A rhizome

> ……has neither subject nor object, only determinations, magnitudes, and dimensions that cannot increase in number without the multiplicity changing in nature (the laws of combination therefore increase in number as the multiplicity grows) (Deleuze and Guattari, 2003, p.8).

A rhizome is all about life-lines, horizontal lines that are non-hierarchical. Deleuze and Guattari explain that there are no points or positions in a rhizome just molar lines, molecular lines and lines of flight (2003, p.21).

1.2.5.1.1 The Molar Lines

Molar lines are also called the rigid lines of segmentarity[8] and maintain the structures of life. They are the lines that concern themselves with the survival of the assemblage and

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[8] We are segmented from all around and in every direction. The human being is a segmentary animal. Segmentarity is inherent to all the strata composing us. Dwelling, getting around, working, playing: life is spatially and socially segmented. The house is segmented according to its rooms' assigned purposes;

therefore it is about generating codes, rules, order, duty, prioritisation and binaries. These are the social and political lines and they place people and things into segments, making sure everything is compartmentalised and has its ordered space. Deleuze and Guattari call this "striated space" (2003). Striated space encourages the process of making things the same and is about equilibrium and the state of being rather than becoming. These spaces may be made up of binaries or false oppositions:

> There are binary machines of social classes, of sexes (man–woman), of ages (child–adult), of races (black–white), of sectors (public–private), of subjectivations (ours–not ours) ... These binary machines are all the more complex for cutting across each other, or colliding against each other, confronting each other and they cut us up in all senses (Deleuze and Parnet, 2007, p.128).

These confrontations do not liberate but rather create more compartments and segments. Molar lines reduce life's complexity and try to bring it under control. This line offers little freedom as it reduces, simplifies and narrows.

In this research, there are many segments – the design of the Junior Cycle Framework, the development of it and its enactment. Within these segments lie the life and progression of a student which is divided into further segments – terms, years, primary, post-primary etc. The roles within the system are segments – students, teachers, principals, inspectors, males, females, transgender, family, community etc. Curriculum frameworks, specifications, lessons, books are segmented. Alongside these are the molar segments of the state, school, Department

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streets, according to the order of the city; the factory, according to the nature of the work and operations performed in it. We are segmented in a binary fashion, following the great major dualist oppositions: social classes, but also men-women, adults-children, and so on. We are segmented in a circular fashion, in ever larger circles, ever wider disks or coronas, like Joyce's "letter": my affairs, my neighbourhood's affairs, my city's, my country's, the world's .. . We are segmented in a linear fashion, along a straight line or a number of straight lines, of which each segment represents an episode or "proceeding": as soon as we finish one proceeding we begin another, forever proceduring or procedured, in the family, in school, in the army, on the job. School tells us, "You're not at home anymore"; the army tells us, "You're not in school anymore" . .. Sometimes the various segments belong to different individuals or groups, and sometimes the same individual or group passes from one segment to another. But these figures of segmentarity, the binary, circular, and linear, are bound up with one another, even cross over into each other, changing according to the point of view DELEUZE, G. & GUATTARI, F. 2003. *A Thousand Plateaus,* Minneapolis, University of Minneapolis Press. (p230).

of Education etc., but also, there are the rigid lines of molar mindsets and assumptions. These are the rigid segment lines that define us by clear, "well-determined and well-planned territories" (Deleuze and Guattari, 2003, p.195). In the open complex system of lower secondary education, what these rigid segment lines are and how they connect and work will be explored in this research.

1.2.5.1.2   The Line of Flight

The line of flight crosses through these molar segments, ruptures them and brings chaos to the order, control and reduction. This is the line of the frontier, the line that moves beyond survival and is willing to take risks and chances. It moves into the domain of the unpredictable and works on impulse as it bursts out of the confinement of the molar segments. 'This line is simple, abstract and yet is the most complex of all, the most tortuous' (Deleuze and Parnet, 2007, p.125). The line of flight is not just about escape from the segments and boundaries of the molar and molecular lines but it is about the act of flight – it considers the soaring and motion of the flight. It is part of the rhizome and always ties back to each other. Lines of flight are 'becomings', 'tiny connections' and 'movements' which are operative at the minute or molecular level, and which need to be mapped (Deleuze and Guattari, 2003). Tamboukou (2008, p.360) states that 'we constantly move between deterritorialization—freeing ourselves from the restrictions and boundaries of controlled, striated spaces [9] —and reterritorialization—repositioning ourselves within new regimes of striated spaces'. It is important to remember that lines of flight have the capacity to be creative but also destructive and have the potential to "always risk abandoning their creative potentialities and turning into… a line of destruction" (Deleuze and Guattari, 2003, p.506). These can open up new possibilities or pull the assemblage apart (Thornton, 2018). The mapping of lines of flight and ruptures within the rhizome allows

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[9] Deleuze and Guattari talk about two types of spaces: smooth and striated. Striated space is the space of boundaries and limits whereas smooth space is the space of the incalculable, possibility and the line of flight.

for the unpredictability of a complex system. The discovery of lines of flight will help map the becoming of lower secondary through the enactment of the Junior Cycle curriculum. The assemblage of lower secondary education is defined not only by its internal contradictions but by what escapes it through the lines of flight.

1.2.5.1.3   The Molecular Line

The molecular lines are the lines that lies between order (molar) and chaos (line of flight) and result from the tension of the other two. They allow the structure to adapt and change to the environment. This is the "crack" line and whilst they are also lines of segmentarity, they are far more supple. Molecular lines lie on the level of the micropolitics, whereas the molar lines lie at the level of macropolitics. It is here that supple tiny cracks or what Deleuze and Guattari call the "quanta of deterritorialization" may occur (p.196). Whilst all might be apparently ordered and compartmentalised at the molar level, beneath this order there is a dawning realisation or crack in that order. These lines allow small cracks to emerge that might lead to fuller transformation and bring the system to the edge of chaos. These molecular lines might help the thinking around where the enactment of the Junior Cycle began to disrupt the system and question the educational experience that was being offered to students in lower secondary education. These might be found in the bifurcation points that offered choices to the levels in the system, choices such as to engage or not engage with the framework. They can also be found in the professional judgement of a teacher as they become curriculum maker of the Junior Cycle and decide on the type of encounter and experience they wish to offer their students.

The rhizome pertains to a map that must be produced and constructed, a map that is always detachable, connectable, reversible, modifiable, and has multiple entranceways and exits and its own lines of flight (2003, p.21). This mapping is constantly in flux, never final or finished, but engages and grapples in the changes, evolution and emerging messiness of

possibilities. These are lines of segmentation according to which the rhizome is stratified[10], territorialized, organised, signified, attributed etc. but it also contains lines of deterritorialization along which it endlessly flees (p.18). Thinking with the rhizomic imaginary encourages a thinking through connectivity and working from the middle. There is no beginning or end but always a middle (milieu) from which the rhizome grows and expands: "it is always in the middle, between things, interbeing, *intermezzo.* The tree is filiation but the rhizome is alliance, uniquely alliance (2003, p.25). Applied to the complex system of education, it offers an awareness of the multiple flows and connectivities. Deleuze and Guattari believe that the fabric of the rhizome is the conjunction and…and…and (2003, p.25). Using the rhizome was of significant importance to this research as it provided the opportunity to work from the middle, researching how curriculum develops from all the interactions within it.

Deleuze and Guattari (2003) define the main characteristics of the rhizome as: connectivity; heterogeneity; multiplicity; asignifying rupture and mapping. The following **Table 4** offers a definition of these characteristics:

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[10] Stratification is the process of how the rhizome is given form and how phenomena are connected, unified and create a structure.

Table 4 Characteristics of the Rhizome

Principle of connection	The rhizome is anti-hierarchical in its structure. Any node of a rhizome network can be connected to any other node. All elements are equally important.
Principle of heterogeneity	Rhizomes are ever-growing horizontal networks of connections among heterogeneous nodes of discursive and material force.
Multiplicity	Is made up of multiple lines and connections which are flat not hierarchical called the plane of consistency. There are: Molar lines – rigid lines of segmentarity Molecular lines -the "crack" lines Lines of Flight – Reach out beyond the structure and frees itself from the boundaries of segmented and striated space.
Principle of asignifying rupture	The rhizome may be 'shattered at a given spot but will start up again, on one of its old lines, or on new lines. Severed connections regenerate themselves and continue to grow, forming lines, flows and pathways.
Mapping	Open and connectable in all of its dimensions - Mapping -disrupts a linearly ordered and rational approach. It charts open systems that are contingent, unpredictable and productive. It discloses potential organizations of reality rather than reproducing some prior organisation of it.

It is not enough to define the characteristics of the rhizome but it is in the application of these definitions to education and curriculum that the incompressible connectivity of the rhizome becomes apparent. The plateaus that follows will endeavour to apply these concepts in its understanding of curriculum reform.

1.3.2 The Assemblage

The rhizome imaginary is further supported by the concept of assemblage, which is a dynamic multiplicity - any number or pieces of "things" gathered into a single context. The context that concerns this thesis is lower secondary education in Ireland and this context will be referred to as 'the assemblage'. An assemblage can bring about any number of "effects"—

aesthetic, machinic[11], productive, destructive, consumptive, informatic, etc. It is not an entity or thing but a *process* of arranging, organizing and fitting together, a process of knowledge making. It acts on semiotic flows, material flows and social flows simultaneously[12] (Deleuze and Guattari, 2003, p.22). An assemblage is made up of content (the interrelationship between human and non-human bodies), expression (collective language and discourse) and de and re-territorialisation. Deterritorialization understands the process of transformation that takes place in the assemblage and how it reterritorializes to create a different design or assemblage.

The lower secondary education system in Ireland as an assemblage is made up of multitudinous elements in which the whole is greater than the sum of its parts: the student, teacher, leader, parent, agencies, unions, representative bodies, government departments and their interrelationship. For this research, the assemblage of lower secondary is divided into four domains (**Figure 7 below**): **Macro space** (national educational policy actors of lower secondary education, business partners etc), **meso space** (leadership/principals of post-primary schools), **micro space** (teachers) and the **nano space** (students). These four domains are nested within the supra space which includes international educational agencies but also is influenced by economic desires for Ireland, the EU and the world.

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[11] The term machinic for Deleuze and Guattari in *A Thousand Plateaus* denotes the type of working relationship among the heterogeneous elements and relations defined by an assemblage, or *agencement.*

[12] An assemblage is concerned with flow and movement, with dynamism rather than linearity, fixed end points and stable conclusions. The assemblage is interested not just in matter such as bodies but also in concepts and language and how these all flow through their connectedness and in-betweenness (SELLERS, M. A. 2009. *Re(con)ceiving Children in Curriculum -Mapping (a) mileau(s) of becoming.* Doctor of Philosophy, University of Queensland.
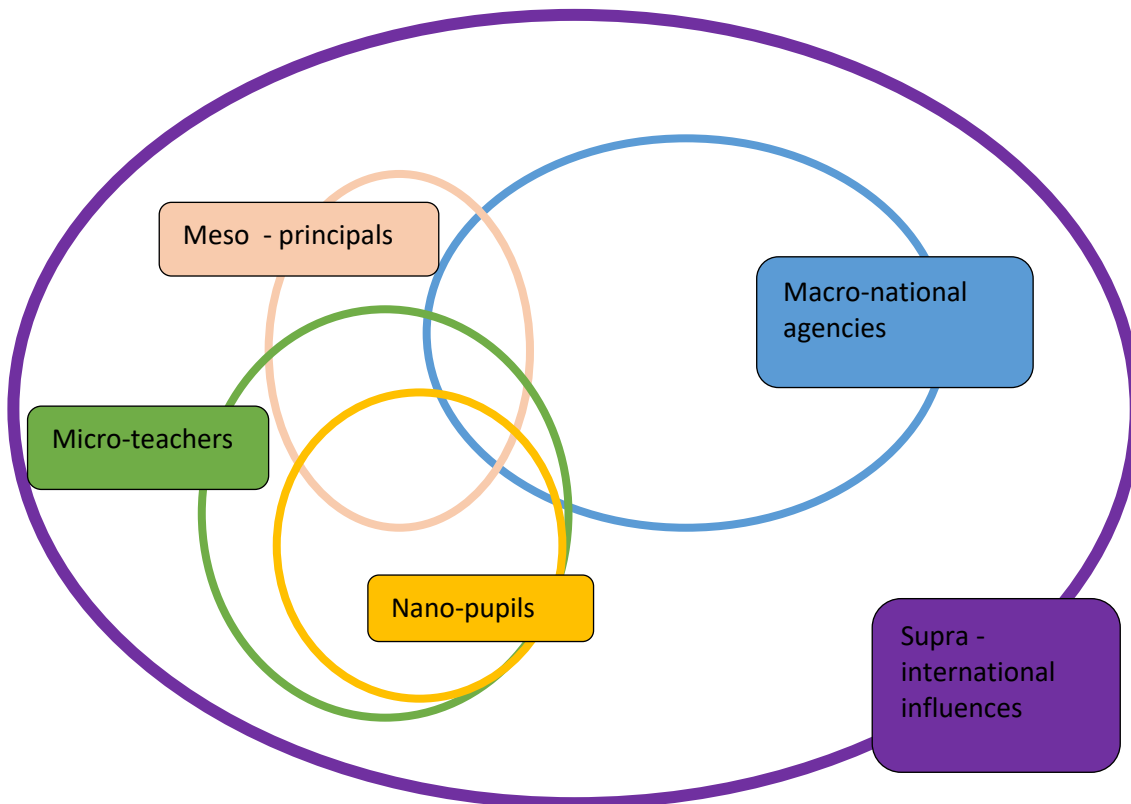
Figure 7 The dynamic intersection of the four domains

These domains expand and contract as they connect and exchange matter in dynamic interaction. This assemblage of lower secondary has manifold histories, traditions, values and cultures. It uses its own language about education, has highly evolved concepts about what education is about and the assemblage is charged with emotion [13]. One of the important characteristics of an assemblage is its relations of exteriority – it exists only through the outside and on the outside (Deleuze and Guattari, 2003). This implies constant awareness that an assemblage is connected to a larger rhizomatic structure. DeLanda explains that assemblages are self-subsistent and articulated by relations of exteriority, so that a part may be detached and made a component of another assemblage (2006, p.18). Interdependencies therefore move

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[13] This emotion was visible in the heated industrial action over a period of five years from 2012-201

beyond the system that is being studied. The lower secondary education system in Ireland is an open adaptive system and therefore there are connections and relationships beyond its boundaries that exchange information and energy. It engages with other assemblages within and without the education system of Ireland – the primary school assemblage, the senior level assemblage, Transition Year assemblage and university. Global assemblages such as PISA, TALIS, the OECD, UNESCO etc. have powerful connections, relations and influences on lower secondary in Ireland[14] and as such may offer rich insights to understanding the working of the system.

The Deleuzian concept of desire or wish is central to the assemblage and flows through and between humans and non-humans. It is not an outcome of relationships and interconnections but emerges together with it.

> Assemblages are passional, they are compositions of desire…..The rationality, the efficiency, of an assemblage does not exist without the passions the assemblage brings into play, without the desires that constitute it as much as it constitutes them (Deleuze and Guattari, 2003, p.399).

The question to ask is not what does this desire signify or mean but rather what affects its assemblages produce and what flows of desire they cut off (Malins, 2004, p.85). This idea of desire is important in the research as curriculum reform embodies the purpose and desire of the assemblage. The mapping of diverse desires or purposes that flow through the assemblage and the conflict that the interconnection and interrelationship between the assemblage and reform created, made for interesting research and was a threshold into understanding the complexity of the present state of curriculum reform which will be explored in subsequent plateaus.

1.3.3 Becoming

Complexity Theory has offered the understanding about how the assemblage changes through the process of self-organisation and emergence. The concept of becoming as suggested

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[14] The 2006 PISA results would be viewed as a major jolt to the Irish system of education and as a result the initiatives of Literacy and Numeracy were established to improve future PISA results.

throughout the work of Deleuze and Guattari[15] is here mobilised to help in the ontological rethinking of the educational and curricular vision of the assemblage. The concept of becoming is a threshold, a middle, where things accelerate (Deleuze and Guattari, 2003, p.25). Becoming offers additional concepts to help comprehend the process of change and emergence within the assemblage of lower secondary education. Colebrook explains:

> Deleuze insists that all life is a plane of becoming, and that the perception of fixed beings—such as man—is an effect of becoming. In order to really think and encounter life we need to no longer see life in fixed and immobile terms (Colebrook, 2002, p.xx).

The concept of becoming offers many components that are important for this research that disrupt thinking in fixed and immobile terms. The components utilised here as tools for understanding becoming and emergence are:

- Multiplicity

- Difference

- Time/duration

- Affirmation

Becoming is a central concept that flows through all Deleuze and Guattari's philosophical writing and we must be cognisant that there is no beginning with becoming, only middles and muddles (St. Pierre, 2013). It is a process in which any given multiplicity "changes nature as it expands its connections" (Deleuze and Guattari, 2003)[16]. Becoming is about change, nomadic movement, flight through the connections and interrelationships of the elements of the assemblage. It is not a phase between two states, rather "becoming is the very dynamism of change, situated between heterogeneous terms and tending towards no particular goal or

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[15] MAY, T. 2003. When is a Deleuzian becoming? *Continental Philosophy Review,* 36.suggests that the deep concept of becoming runs in Deleuze's corpus and resonates from the beginning to the end of his work.

[16] In another plateau we will explore the nature of curriculum as multiplicity, as process, and how it expands in interrelationship in the assemblage.

end- state" (Stagoll, 2010, p.25). Becoming is not a serial progression or regression towards any anticipated state of being or future condition: it is and always is rhizome (Deleuze and Guattari, 2003, p.238-239). Sellers clarifies that becoming involves a dynamic process, through/with/in which an assemblage is constantly changing through connections it is making (Sellers, 2013, p.14).

This understanding undercuts the importance of identity and being and disrupts the thinking of a human as stable and rational, who experiences change but remains the same person. It also undercuts the search for an "identity" for lower secondary education and points rather to process, movement, expansion and confluence. Stagoll suggests "one's self must be conceived as a constantly changing assemblage of forces, an epiphenomenon arising from chance confluences of languages, organisms, societies, expectations, laws and so on" (2010, p.27). The assemblage of lower secondary is also a changing assemblage of forces, transforming according to the confluence of languages, organisms, society and culture, desires and expectations, rules and laws etc. This challenges the social constructivist stance that has underpinned much of the curriculum reform in recent years which rests on the binary opposition between the given and the constructed. The educator is forced to rethink and re-imagine alternative knowledge, values, skills, behaviours and dispositions. The question whether the Junior Cycle has succeeded in generating such a challenge is the motivation of this thesis. The following components of becoming will act as supports for the theoretical framework of becoming.

1.3.3.1.Multiplicity

A multiplicity is neither subject nor object (Deleuze and Guattari, 2003, p.8), and is not a multiple entity of discrete parts nor is it an unchanging collection of units (Colebrook, 2002). Rather in the simplest terms it can be defined as a connection of parts. Deleuze states that "in a multiplicity what counts are not the elements, but what there is between, the between, a site

of relations which are not separable from each other. Every multiplicity grows in the middle" (Deleuze, 2002, p.viii). A multiplicity is only determinations, magnitudes and dimensions that cannot increase in number without the multiplicity changing in nature. All multiplicities are made up of lines and are flat not hierarchical. Deleuze and Guattari speak of this as the "plane of consistency". They are defined by the outside: by the abstract line, the line of flight or deterritorialization according to which they change in nature and connect with other multiplicities. If curriculum is considered as a complex multiplicity, for example, , it is not an object or thing, it is never *the* curriculum. There are many elements within the curriculum multiplicity: learning outcomes, content, materials, pedagogy, time, groupings, roles etc. What makes curriculum is the interconnection of all elements and what becomes inbetween these interconnections and interrelations. This creates curriculum territory. However, curriculum must connect with the outside, with life and other multiplicities. It is here that lines of flight and deterritiorialization occur which changes the nature of curriculum. It may become what it is not (Colebrook, 2002, p.xxii) and opens to the possible and the unimagined. The multiplicity of curriculum may reterritorialize. This reterritorialization may reconnect into the original territory of the multiplicity or expand and connect into a new becoming-curriculum.

1.3.3.2 Difference

Deleuze in his book Difference and Repetition (1994a) proposes the idea of difference to help expand the concept of multiplicity. He proposes that difference, ***how things change over time***, precedes identity, a stance which contradicted previously held views in the philosophical world (May, 2003). He insists that identity does not come from comparing difference but difference is the foundation of identity. He turns to the influences of Spinoza (2002) and Nietzsche, and insists on ontological difference in itself, the source of all difference. His understanding of the primary position of difference came from the idea that everything in this world is not only in flux and motion but connected to everything else and is in a constant process of change and becoming. Everything that exists only seems to remain the same and

beneath the façade of static identity, everything is changing and evolving. He was highly critical of Western philosophers who saw the world as stable and fixed over movement and flux. He offers two flows to understanding what difference is about. He talks about difference in **degree** and difference in **kind**. Difference in degree is about comparing and juxtaposing one thing in relation to another and thus something is defined through what it is not (Colebrook, 2002, p.6). Deleuze believes this is difference based on negation insofar as it compares one thing with another by noting their 'not-sameness'. Difference in *degree* is about "exteriority, simultaneity, juxtaposition, quantitative differentiation and difference in degree which is spatial, numerical, discontinuous and actual" (Linstead and Tharem, 2007, p.1485).

However, Deleuze sees difference as more than just 'not sameness' and wishes to account for difference itself, the singularity and uniqueness that is implicit within a thing, moment, perception or conception. The genealogy of an individual lies not in generality or commonality, but in a process of individuation determined by actual and specific differences, multitudinous influences and chance interactions (Colebrook, 2002, Parr, 2010). Deleuze wishes to account for the change that has occurred over time. He suggests that whilst species repeat themselves within the world, each repetition brings something new and novel in space and time and it is the very difference in every repetition that accounts for change and newness. When the species repeats itself, difference in kind is what is new and novel that now arises from whence it came. To explain this flow, Deleuze offers the concept of the **virtual**. The world offers all sorts of combinations of elements which are real and actual but the virtual, which is also very real, offers all the possibilities and potentialities that these combinations and synergies could become in bringing something new into the world. The virtual reorders, re-imagines and renews, offering change and freedom. Deleuze thus suggests the positivity of difference because difference is not ground on anything but itself. Difference is difference in itself, groundless, anarchic, constantly creating and never the same as itself (Colebrook, 2002, p.xxx). Moreover, we can consider the virtual as a yet-to-come. It opens spaces to explore ideas, potentialities,

possibilities that might come to fruition in the future. It offers stimulating challenges for education and curriculum. The virtual is the mode of reality implicated in the emergence of new potentialities. In other words, its reality is the reality of change, what Massumi refers to as the *event* (1998, p.14). The virtual is not contained in any actual form because it runs in the transitions from one form to another.

How does an understanding of difference in kind work in this thesis on education and curriculum-becoming? It highlights that everything in lower secondary education is in flux and movement – all our physical, mental, social, emotional, spiritual dimensions are in a continuous process of connectivity. They are all changing in space and time and have potential to become something new. It creates the space for disturbing the acceptance of the actual as if that was the only way things could be for a student or the assemblage. It opens a dimension of possibility, mystery and unpredictability. Let us consider the following: what is the currently accepted image of a student in relation to their education? Difference in degree would offer an ideal identity of a student. A student who got thirteen A's in their Junior Certificate was held as an ideal student. However, whose ideal is this student identity? Does it 'belong' to the Department of Education, the school, the parents, media, students themselves? What premise is this ideal based? Difference in kind requires teachers, leaders, parents and curriculum designers and developers ask what virtual possibilities lie waiting for each student in Ireland not just the actual possibilities.

Deleuze offers the challenge for the educator to move from thinking of difference as something 'between' and to see difference as a concept within itself. It challenges the assemblage to create a curriculum capable of transforming life beyond what it actually *is* to what it might *become*. This distinction in difference will encourage the exploration not only of extensive difference of degree as it currently operates in the assemblage of lower secondary education but intensive difference of kind to capture what Clarke and Parsons call "the elusive

singularity" (2013, p.41) of all elements in the assemblage. How this understanding works for answering the question posed by this research, is exploring the interpenetration of both differences in the assemblage. It will be about thinking difference in terms of its multiplicity. The unfolding of multiplicity and difference in time and as time is his understanding of becoming.

> Being as difference is a virtually existent pure duration whose unfolding we can call becoming, but only on the understanding that the difference which becomes is not specific something or set of somethings, but the chaos which brings all somethings (May, 2003, p.147).

1.3.3.3 Time/Duration

The concept of time is very significant in understanding the concept of becoming because difference in *kind* is virtual, continuous and irreducible to numbers and also because it appears in pure duration (time as experienced rather than measured) (Linstead and Tharem, 2007, p.1485), 'Becoming' for Deleuze and Guattari (2003)is not about sequential development towards an anticipated future state of being or condition rather it is the becoming itself that matters and "not the supposedly fixed terms through which that which becomes passes" (p.238). In this understanding time is a process whereby past, present and future are integrated. Time takes on a cyclical element rather than a linear. Future, past and present become one so that there is a concentration on the becoming and emergence rather than on clocks, minutes and hours.

This understanding of time is essential in the concept of becoming and Deleuze (1991) draws on Bergson's work which sees time as a whole, pure duration, whereby every instant has its place. All instants are connected to each other -the past to the present and the present to the future. Western thought often privileges what is actual, concrete existence over the potential or virtual powers of life. Both actual and virtual are 'real'. The idea in my head is real even if it only exists in my head. When I watch the T.V., what I see, and experience is real even

if it is not actual. Colebrook explains that "only if we consider those virtual or unfulfilled potentialities can we transform the present into a truly new future" (Colebrook, 2002, p.xxx).

These ideas of time as integrated, virtual/actual disrupt the linear thinking of time, and place it within the temporal experience of the real world, which is unpredictable, dynamic and uncontrollable. The world of the school and classroom is dynamic, chaotic and unpredictable. This is a huge shift in perspective for traditional views where actors are encouraged to view time as segmented, to manage their time and improve their use of time. Teachers can also think that they 'own' time – the 240 hours they have over three years to complete a course, divided into four forty-minute periods a week, over thirty-three weeks in a year. Thus, the purpose of education cannot be transposed into aims, goals and learning outcomes which are predetermined. Rather, education becomes a multiplicity: a complex, multidimensional, kaleidoscopic, relational, interdisciplinary and metaphoric system (Slattery, 1995, p.622). This understanding acknowledges that time as understood in education emergence and becoming is expanding and non-linear. This shift will not be about changing timetables and offering extra resource time. Rather, it is about connecting the assemblage to an interdependent past, present and future. Time becomes duration; not fragmented, linear or segmented.

1.3.3.4 Affirmation

Deleuze and Guattari (2003) offer in the process of becoming a possibility of re-imagining the world beyond identity, moving from a world that has and does oppress. Rather they offer a lighter and freer approach. In Deleuze's discussion of Nietzsche, he writes that "to affirm is not to take responsibility for, to take on the burden of what is but to release, to set free what lives (1983, p.185). This affirmation to unburden poses colossal challenges for the educator to rethink the fixed and static identities of student, teacher, principal etc. Rather, it requires an exploration of becoming-student, becoming-teacher, becoming-principal. It confronts head on, the solace of equilibrium, order, linearity and complexity reduction that

lower secondary education has traditionally embraced. Braidotti, in writing about the politics of affirmation, suggests the possibility of meaning within the chaos of change:

> Like all people living in an age of transition, we are not always lucid or clear about where we are going, or even capable of explaining what exactly is happening to and around us. Some of these events strike us in awe and fear, while others startle us with delight. It is as if our current context kept on throwing open the doors of our collective perception, forcing us to hear the roar of cosmic energy that lies on the other side of silence and to stretch the measure of what has become possible (2013, p.196).

Becoming which affirms the multiplicity, not as the individual elements but what is growing in-between, which affirms difference not sameness, which affirms time as duration and non-linear, opens doors to our collective perception. This is the 'cosmic roar' that we are hearing, and it brings a new positivity to approaching curriculum-designing, curriculum-developing and curriculum-making. It asks that we create new approaches that are of life, in life and for life (Deleuze, 1983).

1.4 (Be)going Thoughts

The theoretical framework offers not a fixed structure for analysis but rather likens itself to a biological ecosystem. Complexity Theory offered the holistic landscape to understand change and emergence in lower secondary education in Ireland. Deleuze and Guattari's concepts encouraged a journey to the middle of the landscape. These two theories and the concepts they proffer, have disrupted my thinking and have offered an imaginary that has challenging implications for lower secondary education. The insights of Complexity Theory and the concepts from Deleuze and Guattari have opened challenges for education and the curriculum. They insist that curriculum reform is re-imagined through a different lens. They seek a new language and discourse about the structure and relations of lower secondary education, the desire that flows through the interconnections and the type of framework and practices that encourage all in this assemblage to become and emerge. They call into question "the rigid dichotomies modernity has created between objective reality and subjective experience, fact

and imagination, secular and sacred, public and private" (Waters, 1986, p.113). They offer

instead, connectivity and what becomes between the inter and intra-connections. With their

help, this thesis will seek "indicators" of change and not causes because "the trajectories of

complex systems will always be directed by complex and contingent cause. History will matter.

There will be path dependency. Context will matter. Agency will matter" (Byrne, 2005, p.105).

In complexity terms, the theoretical framework has helped question what type of concepts fill

the dimensions of curricular reform in the assemblage of lower secondary education in Ireland.

Complexity Theory assists in understanding how these concepts as multiplicities may expand,

self-organise and emerge. Davis and Sumara (2010, p.85) helpfully outline three areas that

Complexity Theory rejects in education:

- Linear curriculum, trans-missive pedagogies, developmental hierarchies and rectangular learning spaces etc.

- Descriptions of teaching strategies and efforts towards quality control, achievement of planned outcomes, cost effectiveness and resource management in education.

- Radical separations – mind v's body, selves v's others, students v's teachers, individuals v's society, disciplines v's one another etc.

These are important tenets of critique when approaching the Junior Cycle curriculum.

The concepts offered by Deleuze and Guattari work by taking us into the very middle of change

and emergence through the rhizome. It assists with understanding the structure and flight of

the assemblage and how it might become through multiplicity, difference, time/duration and

affirmation. In a world that posits standardisation and measure as the driving force of learning,

Deleuze's understanding of difference in degree (actual) and kind (virtual), offers opportunities

to think heterogeneously so that education occurs through multiple perspectives and

possibilities. Difference in degree is the 'lowest' type of difference (Deleuze, 1991, p.93) and

requires us to take another look at the curriculum and note where it works on this lowest

dimension. It suggests a new understanding of roles and relationships between teacher and student, one based on difference in kind and not just degree. With the concept of becoming and emergence, what does the Junior Cycle offer in teaching and learning? The blending of concepts throughout the theoretical framework provokes a new ontological, epistemological and an axiological scrutiny of the Junior Cycle curriculum. Whilst there is substantial overlap in the thinking between the two theories, what has helped this thesis are the added concepts that are different, interesting and engender lines of flight in the process of writing and exploring this question. As nomad, I work through the middle of this theoretical framework, utilizing concepts and processes when as researcher I believe they are the right tool to use to navigate the different plateaus. It will now act as a lens to support the following 7 main nested and interlinked plateaus:

- Plateau 2 – Methodology

- Plateau 3 - The Assemblage of Lower Secondary Education in Ireland

- Plateau 4 - Education as becoming and emergence

- Plateau 5 - The educational purpose and desire of the Assemblage

- Plateau 6 - Curriculum as rhizome

- Plateau7 - Curriculum Making in the Assemblage

- Plateau 8 – Education as Becoming and Curriculum as Rhizome

Plateau 2 METHODOLOGY

2.1 (BE)COMING THOUGHTS....

The purpose of this plateau is to offer an understanding of the decisions, considerations and actions taken in designing, planning and enacting the research. The rationale for its location as the second plateau in this thesis is to outline the research question and explain how I will navigate mapping the becoming and disposition of the ecosystem of lower secondary education in Ireland. Also, this plateau begins to put the theoretical framework into practice and the methodological approach used in this research mirrors that outlined in Plateau One, namely the combination of Complexity Theory with Deleuze and Guattari's (2003) concepts of rhizome, becoming and assemblage. The following mind map (**Figure 8**) highlights the theoretical concepts integrated into the methodology:
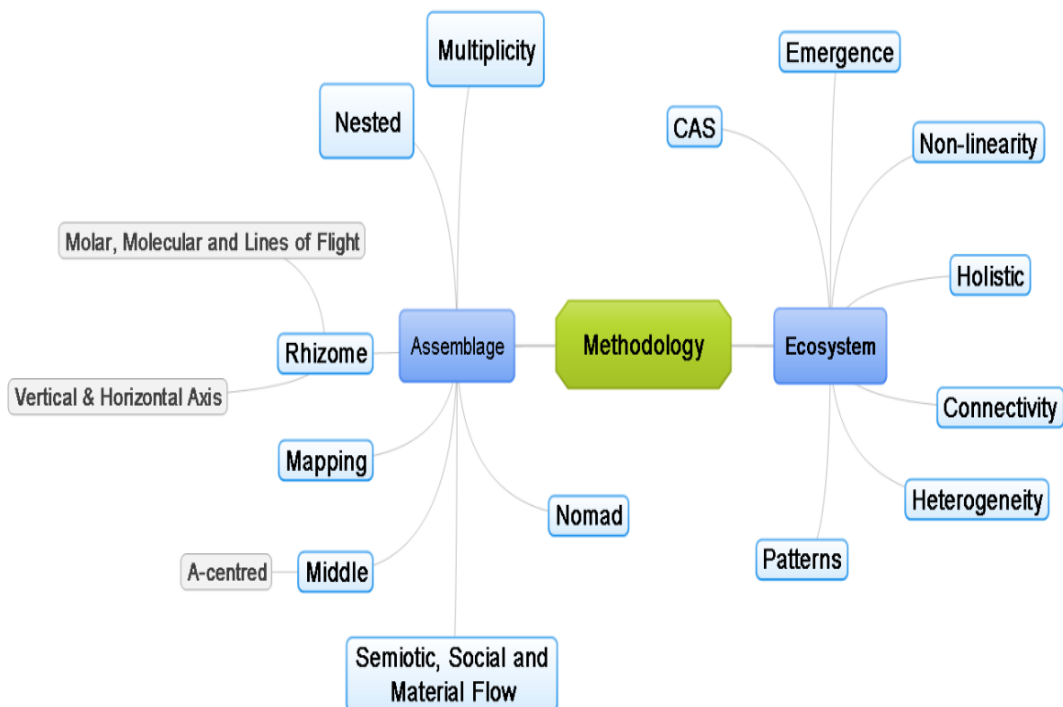
Figure 8 Concepts from the Theoretical Framework employed in the Methodology

To understand how the reformed curriculum in Ireland disturbed the system and brought about a shift in the purposes, processes and practices of the assemblage, the methodology must assist in focussing on the "how" of the process of educational reform rather than the "what". This offers an openness to possibility and does not restrict or close down the multiple ways of understanding and knowing (Yin, 1989). However, this created a tension for me as a researcher because traditional approaches to methodology were inappropriate for this research as they could not scale with the challenging landscape of curriculum enactment. However, exploring some traditional approaches such as collecting data through an interview process, proffered a richness and quality that could not be ignored. This plateau travels the difficulties in designing a methodology to study a complex, adaptive assemblage. Part of the journey was the coming and going as to whether the study was qualitative or (post)qualitative and this will be outlined in the following plateau. The subject of research, namely the assemblage, also introduced additional levels of complexity and as such demanded an adapted, cross-disciplinary methodology and manner of thinking for approaching the design, data collection and analysis. In order to provide context for the reader in terms of the development of this methodology, the following structure is applied to this plateau:

1. The Research Question

2. Methodological Design

3. Development of the Methodology and Research Methods Applied

4. Considerations and Process for Data Collection

5. Considerations and Process for Data Analysis

6. Validity, Rigour and Reliability

7. Ethical Concerns

2.2 BACKGROUND AND INFLUENCING PARAMETERS

Research requires scaffolding by previous scholarship and current literature. Reflectiveness and a "deeply critical and evaluative" approach is often advised (Kohn, 2008, p.181). These considerations in conjunction with the ability to seamlessly integrate the theoretical framework, led to four tenets that were central to developing a methodology for this research.

- The existing philosophical ideas of the researcher must be questioned including their epistemological, ontological and axiological positions. These positions must be deconstructed and subsequently rebuilt in a recursive process (Davis and Sumara, 2008, p.134).

- The field of education is riven with disputes, not least about the veracity of different research approaches. These are usually conducted at the level of method and strategy with little attention paid to epistemology and ontology (Byrne, 2005, p.11).

- The research must supplement and enhance the current educational knowledge and theory base (Hammersley, 2007, Nardi, 2003).

- Educational research must also connect with the pragmatic problems faced in the education system and the classroom.

Each of these tenets will be applied to the methodological design and methods. In relation to tenet four, Schwab (1978) is very clear when he says: "The curriculum field has reached this unhappy state by inveterate, unexamined and mistaken reliance on theory" (p.287), and insists that "theoretical constructions are, in the main, ill-fitted and inappropriate to problems of actual teaching and learning" (p.287). It is Doll (1993) who rescues and balances the need for both theory and practice in educational research. He argues:

> This shift in emphasis in the relationship between theory and practice, where theory no longer precedes practice and where practice is no longer the handmaiden to theory, is not to negate theory or to drive an inseparable wedge between the two.

Nor is it "practicalize" theory. Rather, it is to ground theory in and develop it from practice (1993, p.162).

The theoretical framework as proffered in plateau one will inspire the methodological practices during this thesis. There is an awareness also that invariably, the research is also subject to the perspective of the researcher. To minimise the influence of this factor, the perspective taken for this body of work is that the world is viewed in a holistic way, as a web or ecosystem in which everything is connected and linked, human and non-human alike (Capra, 1996, p.301). Priestley (2017) offers a reminder not to overlook any of the levels of curriculum and this research will focus on all domains and their connections as an ecosystem of curriculum enactment. Part of this researcher's perspective is also the rejection of strategies in which the education system is reducible to separate elements and parts. Contrarily, this study takes as it point of departure, the idea that it is more than the sum of its parts. This holistic way of thinking has implications for how the design of the research proceeded, the selection of participants, data collection and analysis. The lower secondary education system in Ireland, as the boundary and frame chosen for this research, must be approached not only as open but as global (Alhadeff-Jones, 2013). From the outset, there is a clear acknowledgement that the lower secondary education system lies in the nested system of a bigger complex system of education and is influenced by it.

2.3   THE RESEARCH QUESTION

I took excellent advice from Agee (2009, p.432) who suggests that it is helpful to think of research questions as navigational tools that can help a researcher map possible directions but also to inquire about the unexpected. Adding to this understanding, Creswell (2007) noted that "Our questions change during the process of research to reflect an increased understanding of the problem" (p.43). He also insists that the research question should lead to exploration and discovery. This discovery is not just related to the research question but as Richardson (1997)

suggests, it is the discovery of the subject and discovery of the self. Choosing Complexity Theory and particularly the insights from Deleuze and Guattari as my theoretical framework, placed me in the frame of thinking about landscapes (Deleuze, 1994b). The adventure within this research lay in plugging into, not the roots, but to the rhizomes (Deleuze and Guattari, 2003), the system of interconnected stems that "grows by the dispersal of nodes across a flat surface, and links aspects of the social, cultural, political and personal in complex and shifting ways that deny the reality of discrete levels, domains, disciplines etc" (MacLure, 1995, p. 110). It lay in not settling, not settling for the easy route which might close pathways but rather ones that would generate new and different thinking. What does a methodology look like through the frame of complexity thinking? How can I tell the story of curriculum reform through a methodology that is open, dynamic and emerging? What do I mean by participants, subjects etc? How can I analyse the data gathered to ensure it is open and emerging? What are data? How can I be comfortable as I question previous methodology approaches and await, for the evolution of an emerging one?

As a researcher, I had to become comfortable with the fluidity and evolution of my questions as I traversed an understanding of thinking complexly. If I was not to get totally lost in this new territory, one essential focus that I needed was the research question. The main research question that this study wishes to explore and use as a navigational tool is:

How is curriculum becoming in the assemblage of lower secondary education in Ireland?

This question will be interrogated and explored in the following ways:

1. A focus and exploration of the assemblage of secondary education in Ireland through the narrative of the actors -**Plateau 3.**

2. An intense literature review of two areas that are essential in answering the main research question:

a. How is the purpose of education becoming? – **Plateau 4**

b. How is curriculum as rhizome becoming? – **Plateau 6**

3. The narrative of the actors on the educational purpose and desires they have for lower secondary in Ireland – **Plateau 5**

4. The narrative of the actors on their response to the Junior Cycle curriculum reform over the first six years of the changes – **Plateau 7**

The underpinning cohesive connection to these objectives is the pursuit of the emerging story of how the reformed curriculum in Ireland disturbed the system and brought about a shift in relationships, thinking and practice. The focus is on asking the "how" questions of the process of educational reform rather than the "what". This offers an openness to possibility and does not restrict or close down the multiple ways of understanding and knowing (Yin, 1989). The methodology chosen attempts to view curriculum enactment and its transformational potential from a complexity thinking perspective. This has real implications for how I see myself as researcher, the paradigm in which I place myself, the methods I choose to gather data and how I analyse that data. I am reminded by Hostetler that our ultimate aim as researchers and practitioners is to serve people's well- being-the well-being of students, teachers, communities, and others (2005, p.17). This research project is concerned with knowing, understanding and critiquing how curriculum reform in Ireland is emerging so that I can serve the wellbeing of all in the education system. These insights into the theoretical and practical knowledge of how education systems may work in bringing about curriculum reform, seeks to inform and transform future policy decisions and curriculum making judgements. It aspires to speak to policy makers, to the leaders in the schools but also to the student and teacher in the classroom. The narration of the story of curricular reform in lower secondary education, may allow the reader the space to reimagine a future for education in Ireland.

2.4 THE RESEARCH SUBJECT: THE ASSEMBLAGE:

The subject under consideration is the assemblage of lower secondary education in Ireland. The concept of assemblage offers an understanding of complexity at two levels, both of which are reoccurring themes throughout this research:

- Diversity of perspectives in the lower secondary education system in Ireland.

- Processes of interrelationships, self-organisation and emergence within the lower secondary system due to the enactment of curriculum reform.

This diversity is not limited to role and function but inclusive of different purposes, mindsets and practices. The assemblage thus offers an intensive exploration of the richness of the quality and quantity of the relationships, the connectivity that is present in the system. The assemblage also allows examination of change at its point of emergence. For this study, points of change are points of interest. They allowed the researcher to search for non-linearities, locating small events that led to large outcomes and large events that led to small outcomes. The location of patterns within the assemblage are also of interest. This position acknowledges the dynamics and emergence of the system of lower secondary education in Ireland and recognises its uniqueness of context, history and tradition. Although each assemblage is unique, this does not prevent the insights learned to be of general interest and relevance (Chadderton and Torrance, 2011). Hetherington (2013) suggests that:

> ….since the exploration of the emerging present of a system through time can help us think about the processes within the case, with a view not to gaining answers about how this case will proceed, or indeed about how all such similar cases may proceed, but instead with a perspective of openness to possibility for the creation of new knowledge, rethinking cases, and taking ideas in new directions (2013, p.77).

The challenge of a thesis is to use the theoretical frame as a lens to disrupt thinking and allow the flow of lines of flight which may open up the landscape to new knowledge and new trajectories.

Within the assemblage there are various types of post primary schools further adding to the complexity of different mindsets and practices. **Table 5** offers the variations of post-primary school types in Ireland:

Table 5 Variations of Post-primary school types in Ireland

Type of School	Owned	Union
Secondary Schools	Privately owned and managed but partially funded by the state.	ASTI – Association of Secondary School Teachers of Ireland
Vocational & Community Colleges	State established and run by the Education and Training Boards (ETBs)	TUI – Teachers Union of Ireland
Comprehensive and Community Schools	Financed by the state, run by Boards of Management and the Association of Comprehensive and Community Schools (ACCS)	Mixed union schools of ASTI and TUI

During the course of the research period, schools were diversified due to an industrial dispute preventing teachers from engaging with lower secondary education curriculum reform. Secondary school teachers' are affiliated to the Association of Secondary School Teachers of Ireland (ASTI). Vocational and ETB schools are served by the Teachers' Union of Ireland (TUI). The complexity of the Irish system is demonstrated in the fact that many teachers in the Community and Comprehensive schools were of mixed union affiliation and thus these schools had some teachers engaged and some not. There is also a significant number of teachers in all school types that are not union members. As demonstrated from **Table 6** below, well over half of the country's schools could not fully engage with the new curriculum.

Table 6 Department of Education and Skills, Key Statistics

Second Level Students 2015/2016	**339,207**
Secondary schools	375
Vocational schools	262
Community & Comprehensive schools	95

The collection of data took place over a period of a year -June 2017-May 2018[17]. In May 2017, the ASTI withdrew their industrial protest and gave the secondary teachers the agency to engage with the new curriculum. A methodology capable of accurately representing multiple perspectives across all levels of the assemblage was needed to successfully collect and analyse the data required to answer the research question. This methodology must also sufficiently satisfy the researchers ability to be within the system under research, minimise the influence of pre-existing perspectives of the researcher and ensure that the framework was assimilated without impacting the integrity of the research. The development of the methods used is outlined below.

2.5 Development of the Methodology and Research Methods Applied

2.5.1 The Design of a Post-Qualitative Assemblage study

The design of the methodology sought to map the disposition of the ecosystem of lower secondary education (the assemblage) through its dynamic interrelations and connections that are the core of the system. My epistemological, ontological and axiological positioning might indicate that the direction of the research would take a (post)qualitative approach. Different authors talking about the methodological design of the thesis suggested insights into the number of the areas of the structure of qualitative research which had been deconstructed: (*validity* (Lather, 1993b); *interview* (Scheurich, 1995); *data* (Adams St Pierre, 1997); *voice* (Jackson and Mazzei, 2009). I have followed the inspiring work of Lather (1993b), Massei (2010) and Deleuze and Guattari's "Body Without Organs" (2003), which offers a concept to enact thinking without a subject and to liberate "thought from its organizing images" (Colebrook, 2006, p. 121). The concept of a "Body without Organs" (BwO's) encourages thinking about possibility and the virtual. However, as researcher I faced an anomaly and tension to following this route in totality. The tension I experienced lay in the request of Complexity Theory not to centre anything within the open, adaptive system, alongside the call from Deleuze and Guattari to see the assemblage of actors as "Bodies without Organs". The problem I saw was that I needed to map the actual and the virtual within the assemblage in order to build a process of

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[17] Whilst the interviews took place between May and November 2017, the transcripts were returned for viewing and acceptance up to May 2018

knowledge making about this highly complex, curriculum reform. I had carried out a desk-top study of the many documents that explained the reform but these did not answer the main question as to how this reform was working for each of the domains and between the domains. I believed I needed to hear as many human perspectives as possible in order to map an understanding of the assemblage. I felt caught in a binary, between qualitative and (post)qualitative, the centring of the human or the a-centring of the human, and so as nomad I decided to work from the middle. My decision therefore was to interview the actors but approach them as complex, adaptive systems, nested within the complex, adaptive system of the assemblage. The questions and the interview would assist in the mapping of the actual and the virtual experience of the human actors during the reform. The interview was approached not as a narrative that offered meaning but rather assisted in mapping the connections and dynamic interrelations during the process of change and reform. Each interview offered me an invitation into what Husserl called "lifeworld" (1954, p.132) or what we call the "lived experience" of the people to be interviewed. The interview is not just about gathering knowledge on what is happening in the assemblage but ontologically it opened the possibility for me as researcher to connect, relate and dialogue with the many actors who were engaged in the process. Each of these lifeworlds are connected to and rhizomatically (Deleuze and Guattari, 2003) relate to other lifeworlds in the open system of education. My role as researcher and nomad was to connect all these individual voices into a synergy of voices and a process of knowledge-making. In order to do that I would use a (post)qualitative approach to the analysis of the data that emerged in the interviews. Rhizoanalysis offered the concepts of connectivity, multiplicity, heterogeneity, asignifying rupture and mapping. The method of connecting with the actors within the assemblage through interview, encouraged my axiological commitment to the wellbeing of the assemblage and inspired my responsible response to understanding my complicity in the process of reform. Therefore, in response to the needs of this study, the design of this methodology is qualitative in the method of interview but (post)qualitative in analysis. This will be portrayed by the following term - post~qualitative - offering the connection of two approaches to the methodology and my journey as nomad will be to work from the middle of this approach, the intermezzo. The rationale for using this approach was due to:

- The ability of the post~qualitative approach to map the multi-perspectives of the actors across the four domains of the assemblage.

- The capacity to capture the complexity of curriculum change as it was happening through these multiplicity of voices.

- The opportunity to interrogate concepts and perspectives at different levels

- The facility to see patterns and connections emerge that were unexpected

- The capacity to be open to new possibilities and landscapes that were un-imagined at the time of the design.

- At the time of writing, no one had captured the range of voices across the assemblage of lower secondary in Ireland and this would be an opportunity for new knowledge.

The choice of a post ~qualitative approach through the frame of Complexity Theory and the concepts of Deleuze and Guattari challenged me as a researcher to grapple and struggle with my major biases, perceptions and assumptions about the world, humans and education (Kohn, 2008, p.181). When I began this process of research, I was highly uncritical and caught in a way of thinking that did not really question or trouble the accepted way of the world. On reflection, I was institutionalized, imprisoned in a striated space, accepting its norms and assuming reality was what I saw from this stance. Butler's question "how is it that we become available to transformation of who we are, a contestation which compels us to rethink ourselves, a reconfiguration of our 'place' and our 'ground'? (1995, p.132) prompted me to begin to reimagine my place and ground. Now I feel like Red in the Shawshank Redemption just before he has achieved his freedom when he explained:

> I find I'm so excited that I can barely sit still or hold a thought in my head. I think it's the excitement only a free man can feel. A free man at a start of a long journey whose conclusion is uncertain. I hope I can make it across the border. I hope to see my friend and shake his hand. I hope the Pacific is as blue as it has been in my dreams. I hope (Shawshank Redemption).

I am excited to take this approach to the methodology and believe I can work with the tensions of the position I have chosen. I have taken on board the suggestion from Complexity Thinking about the need for participatory forms of research, which look through the eyes of as many of

the diverse stakeholders in the system as possible and this enables multiple causality, multiple perspectives and multiple effects to be mapped and understood (Cohen et al., 2011). I have heeded the advice of Richardson, Cilliers and Lissack (2001) who suggest that no one perspective can capture the inherent intricacies of complex systems and therefore the investigation into complex systems require an exploration from a number of perspectives. Cohen (2011) insists that "heterogeneity is the watchword" (2011, p.34) when approaching a complex system. Taking all this wisdom on board, the design of the research encouraged entry into the ecosystem under investigation which demanded a creative approach to critical thinking and the ability to retreat from old habits of thinking, evaluating and assessing. Whilst I might be taking the traditional interview route, my work as researcher was to ensure that that my role was to map the lines of the assemblage and their interconnections and not just centre the humans within the assemblage. It helped me distinguish between the narratives of what is happening in the systems of education and not what ought to be happening. In essence, the individual's point of view needed to be heard and it helped focus on the descriptive rather than prescriptive. Symbiotically, Complexity Theory allowed me to zoom in and zoom out of the system and thus to understand not only the individual element itself at its local level but the patterns that emerge within the whole system. The exploration for these patterns will take the form of a search for similarities and differences, the regular and the irregular, the expected and the unexpected, the odd, the strange, the peculiar and the surprising. Deleuze and Guattari's (2003) molar, molecular and lines of flight assisted in understanding the different mindset of the assemblage and how these lines have connected to create the fragmented system of lower secondary education in Ireland. Chapmen (2004) suggests that complexity can be simplified not reduced by going up a level of abstraction and it is here that the loss of detail or what is referred to here as zooming out, provides simplification. The insight of Ramalingam and Jones (2008) clarifies this point:

> Some of the greatest mistakes are made when dealing with a complex mess, by not seeing its dimensions in its entirety, carving off a part, and dealing with this part as if it were a complicated problem, and then solving it as if it were a simple puzzle, all the while ignoring the linkages and connections to other dimensions of the mess" (p.22).

Post~qualitative research offers the best approach to discover the "how" of my research and answer the question posed by the research. However, I am expecting the unexpected, hoping for the unimagined and taking a risk because as Biesta insists "any engagement in education …always entails a risk" (Biesta, 2013, p.x).

2.5.2   Considerations and Processes for Data Collection

Combining Complexity Theory and a post ~qualitative approach for collecting data demanded a holistic understanding of the emerging process of curriculum becoming in the system of second level education in Ireland. The process of organising the interviews began in May 2017 with a writing of a list of possible candidates for interview and the agencies that are part of the macro domain of the assemblage. The list of those who sat on the NCCA consultation board were very informative for ensuring I had an inclusive list. I researched contact details on the web and located private emails through contacts that I knew through my role as principal. I will admit that my role as principal and as JCT associate had built up my connections with many of these agencies and this helped the initial introductions. However, I have learnt that the researcher must be patient but also persistent when confronted by silence from some of the possible actors, I was encouraged to be creative and imaginative. Twenty-one policy stakeholders as detailed below, agreed to participate. Interviewing the majority of the actors in their place of work offered me a context and insight into the environment in which these actors worked. Many of the places were the educational institutions that I have never had a chance to visit and the pattern that I saw emerging was often of striated space – codes for doors, sign in sheets, visitor badges, multiple rooms, busy people with time restraints, secretaries, schedules etc. The majority of interviews took place in a boardroom or some such space and not the working space of the actor. However, the encounter and interview always moved beyond those boundaries and in all interviews the passion of the actor about their work on the Junior Cycle reform emerged and together we moved to smooth spaces. I always left the interviews, energised and excited by the emerging connections that were beginning to be mapped. The context of the encounter helped also my gratitude for the time and space I was given as a researcher. A general example of the questions for policy stakeholders is provided in **Appendix 1**. The nested approach of the interviewer enabled the understanding of roles, experiences, attitudes and concerns with the new curriculum reform to emerge. As I set off on the train for

each interview, I felt like a nomad, constantly coming and going. It was a time of great pleasure and of growing knowledge making.

Initially, the common processes utilised for each of the domains (macro, meso, micro, nano) for carrying out the semi-structured interviews will be presented and subsequently, any bespoke developments based on these domains are then outlined in detail.

1. The questions were sent to the interviewee at least two weeks in advance along with the consent and information sheets.

2. A pre-meeting was then carried out (either by phone/face to face) to:

    a. Outline the purpose of the research.

    b. Address any concerns of the interviewee.

    c. Ensure that the interviewee was participating of their own free will.

    d. Provide the opportunity to opt out.

    e. Sign the consent forms.

3. The interview was recorded on a pin-protected, encrypted mobile device with the participants' permission.

4. At the end of the interview, a short de-briefing session was carried out to thank the interviewee(s) for their time and explanations of how their data will be utilised and their anonymity in the process.

5. Each interview was transferred from the mobile device onto an encrypted laptop and transcribed. The interview was anonymised by giving each interview a Research Study Identity Number which was also part of the initial conversation and part of the consent form.

6. Once transcription was complete, the transcribed interview was returned to the interviewee for reading and consideration of agreement to use the content. Amendments could also be provided at this stage by the stakeholder.

Semi-structured interviews were chosen as the primary mechanism for data collection. Sampling was influenced by selecting actors from each domain of the assemblage and by choosing actors who were in some way involved in the design, development and enactment of curriculum reform. The assemblage domains were represented as follows:

A. **MACRO LEVEL**: Semi-structured interviews with policy stakeholders across the lower secondary education system in Ireland as captured in **Table 7** below:

Table 7 List of Policy Stakeholder Interviewed

Name of Agency	Acronym	Context interview took place	Date
National Curriculum Council and Assessment	NCCA	NCCA Head Office Dublin City University	30th June 2017 25th July 2017 4th September 2017
Department of Education and Science	DES	DES, Marlboro St, Dublin.	31st August 2017 22nd September 2017
Junior Cycle for Teachers	JCT	Skylon Hotel, Drumcondra Croke Park, Dublin	4th July 2017 5th July 2017
State Examinations Commission	SEC	DES, Marlboro St. Dublin	
Teaching Council		Teaching Council office, Maynooth.	19th September 2017
Minister for Education		Trinity College, Dublin	16th October 2017

National Association for Principals & Deputies	NAPD	NAPD office, Dublin	5th September 2017
Joint Managerial Body	JMB	JMB Office, Dundrum	16th August 2017
Association of Secondary School Teachers	ASTI	Maynooth University	7th September 2017
Teachers' Union of Ireland	TUI	TUI office, Dublin	12th July 2017
Government spokesperson		Leinster House, Dublin	26th September 2017
Irish Business & Employers Confederation	IBEC	IBEC office, Dublin	19th August 2017
Educational Training Board	ETB	Piper's Hill, Naas	11th August 2017
Mental Health		Starbucks, Blanchardstown	11th July 2017
Universities	NUIM NUI Galway	Maynooth University Maynooth University	25th July 2017 12th July 2017

Each of the above agencies were chosen for their knowledge, understanding, engagement and experience of aspects of the Junior Cycle reform. Initially, as explained above, I listed the important agencies that sat on the NCCA Junior Cycle committee **(Appendix 5)** for interview and the main actor involved from that agency. However, during the process of interviewing, different actors recommended further actors, whom they thought would offer different and rich insights from their own department or other agencies: IBEC, Universities, Teaching Council and

NAPD. The sampling became an evolving process and each interview contributed to my growing understanding but also the building of an awareness of the complexity involved in curriculum reform at the scale of the Junior Cycle changes

B. MESO LEVEL: Semi-structured interviews with 4 principals/leaders.

Table 8 Principals/Leaders and type of second level school

Principal 21	Voluntary Secondary School A	Interview held on site of school	26th May 2017
Principal 34	Voluntary Secondary School B	Interview held on site of school	14th November 2017
Principal 28	Educational Training Board C		9th November 2017
Principal 25	Community College D		20th October 2017

The schools identified to partake in this research were specifically chosen to capture the complexity of a very problematic curriculum enactment. The following four schools were selected:

- School A & B – two secondary schools who had tried to bring in changes to teaching and learning in 2012, but due to the industrial dispute, had not made any inroads to curriculum change until 2017.

- School C – a vocational school who welcomed the change early in the reform and had continued to encourage and embed Junior Cycle curriculum reform.

- School D – a community school who had worked well in the initial stages of curriculum reform to adapt teaching and learning, but due to it being a mixed union school, it encountered interesting challenges and problems.

The schools in the research were chosen as they were firstly appropriate to the 'type' of post primary school outlined in **Table 8** above. The participating schools mirror the three different sectors and their experiences of curriculum reform:

- 2 Secondary Schools

- 1 ETB School

- 1 Community School.

The researcher, in opting for this selection, understands that there are many other variations of school experiences in implementing the Junior Cycle. The schools were also selected to offer a geographical range to the study: city centre, two urban satellite towns, one on the south and one on the west side of Dublin and a rural school. This offered a richness to the variety of cultural, social, political and educational perspectives offered in the interviews. However, an added aspect to the selection of the principal or leader of the school was the fact that all four had been leading their schools for at least three years and were aware of leading teaching and learning under the previous curriculum. Two of the principals had been involved as associates of the Junior Cycle for Teachers[18] and therefore had a deep understanding of the reformed curriculum. The other two principals had no connection with any agency promoting the Junior Cycle framework.

The interviews with the principals were all held in their offices in the school. This was a context in which I was very comfortable and was at ease with the constant interruptions, the bells ringing, the noise, the hustle and bustle, the folders and the files. These offices were spaces that were dynamic, connected and in constant disruption. I was very aware as researcher that time was of the essence and whilst there was a relaxed conversation and dialogue, underpinning it was the reality that there was a flow of humanity awaiting for the principal's attention. Whilst the argument might be raised as to interviewing a principal outside of school so that there would

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[18] The Junior Cycle for Teachers (JCT) is the agency in charge of preparing teachers and leaders for the changes to the Junior Cycle curriculum and specifications.

be no disruptions, it was the reminder of the context in which a leader works, that helped me connect with the difficulty and complexity of bringing about curriculum reform in a school that has so many other considerations. I always left the interview, reflecting on my own experience of principalship and the role and type of leader that Junior Cycle curriculum reform imagines. I noted that this work experience of a principal needs to be voiced and understood so that the capacity of bringing about the process of change is achievable.

C. MICRO LEVEL: Semi-structured interviews with 6 teachers.

Table 9 List of teachers and type of school

Teacher 35	Voluntary Secondary School	On site at the school	14th November 2017
Teacher 26	Community College	On site at the school	20th November 2017
Teacher 27	Community College	On site at the school	20th November 2017
Teacher 30 (Two teachers)	Educational Training Board	On site at the school	9th November 2017
Teacher 33	Educational Training Board	On site at the school	9th November 2017

The teachers were selected because they were belonging to either English, Business or Science – the three subjects that had begun engagement with their new specifications[19]. English teachers had completed the three-year cycle of the Junior Cycle and had prepared their pupils

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[19] Subjects were offered specifications rather than syllabi. These were based on Learning Outcomes and offered the teacher the agency to make choices about content and pedagogy that previous syllabi did not encourage.

for the state examination. The business and science departments had one year completed of their new specifications. Three of the teachers had engaged fully in training and in-service and three teachers had only one session of in-service completed at the time of the interview. Teacher 33 represent two teachers as they choose to be interviewed together . Their reason was due to a certain nervousness being interviewed about the Junior Cycle. You will note also that I interviewed only one teacher from a voluntary secondary school. On the day the other teacher was out ill. However, one teacher in the Community College was also an ASTI member and I felt that the experience of a teacher unable to engage with the framework was well represented.

I met each teacher in a special room set aside for the interview by the principal. Neither myself of the teachers were comfortable in this space as it was a space that was not our territory. Again, the sense of time was important as nearly all teachers had left their classrooms to meet with me and would be returning when the interview was over. We sat facing each other with a table in between which offered a space to place the copied questions and the recording device but also to lean on when we became comfortable. It was a support rather than a barrier and once the interview settled into a flow, the environment seemed to fade and the concentration was on each other. I took cues from facial and body signals or from hesitancies or expressed emotions. Whilst the method of interview was semi-structured, as researcher I allowed it to flow and followed the actual and the virtual of curriculum reform wherever that took us.

In addition to the standard process outlined above, the questions (*Appendix 2 & 3*) were trialled prior to the summer and developed accordingly. The questions were to facilitate the participants ability to provide their own agency, purpose and perspective and concentrated on the Framework for Junior Cycle and how this has impacted on their role. They also sought understanding of the agency of the leader/principal and teacher in the education system and the reform and the types of interconnections and interrelations that occurred due to the Framework. The adopted approach was open and conversational, with some prompts to unpack

the experience further. I left these interviews in excitement and awe as I began to hesitantly

see emerge, lines of flight that I could not have foreseen before our conversation.

D. NANO LEVEL: Focus group interviews with 30 students.

Table 10 List of Focus Groups and type of school

Focus Group 1	Voluntary Secondary School	On site at the school	14th November 2017
Focus Group 2	Voluntary Secondary School	On site at the school	14th November 2017
Focus Group 3	Community College	On site at the school	20th November 2017
Focus Group 4	Community College	On site at the school	20th November 2017
Focus Group 5	Educational Training Board	On site at the school	9th November 2017
Focus Group 6	Educational Training Board	On site at the school	9th November 2017

Focus group interviews were chosen not just for efficiency but rather to ensure the ethical

considerations for the students (discussed in further detail at the end of this plateau). The ten

students from each of the schools were divided into groups of five and this helped offer a

balance of power for the students and help to de-centre the researcher (Eder and Fingerson,

2003). In addition to their own consent, consent was obtained from their parents and a full

discussion on what anonymisation and confidentiality meant was carried out. The focus group

questions are available in **Appendix 3.** Students involved in the Focus Group interviews were

either second or third-year students as they had more engagement with English, science and business under the new curriculum. There was an equal mixture of male and female students and I carried out two focus groups in each school.

I met with each group in each school in the same room as I met the teachers. I had spent the day in the school, starting with the interview with the principal, then the teachers and then with the two focus groups. In each focus group interview, there was an energy and openness to the process. All students were in uniform and had come from their classrooms. Whilst some pupils were a little shy initially, they became comfortable very quickly and spoke confidently and with assurance. The opening questions about their school day were helpful in getting the conversation going and it was clear that the students had very particular ideas and views about their education and the Junior Cycle. Although the allocated time was forty-five minutes, all focus interviews went over time and both myself and the students were amazed how quickly the time had gone. I left these interviews recharged with energy and enthusiasm not only for learning and the Junior cycle but also for life. Students had reminded me in very subtle ways that what was important was our relationships with others and they had noted that this was their priority.

To conduct semi-structured interviews with Complexity Theory embedded into the approach, additional considerations were required. If interviews were to be a method in this research they could not be "a rhetorical reduction of complexity to simplicity, of differential relations to firm identities of diffusely textured situations to tightly bounded containers or webs of feeling to numbing objectifications" (Ryan, 1995, p.63). Scheurich (1995, p. 74) suggests that the interviewer and interviewee bring considerable conscious and unconscious baggage to the interaction in the interview. By conducting the interviews with full consideration of this 'baggage' introduced by both parties, it was possible to minimise the impact of this on the data capture. The interview encounter, the language, meaning and communication within the

interview and transcribed data, was considered open and indeterminate. Each interview was cognisant of the following:

- Approach the interviewees as complex systems, each nested in the open, complex system of lower secondary education.
- Explore the vast network of interrelationships and interconnections within this system rather than concentrating on stand-alone interviewees.
- Form the questions from the concepts of Complexity Theory to enable an emerging understanding of the system.

The interviews in this research did not privilege individual voices but rather the interrelations and interconnections of the multi-vocal stories across the open complex system of education. According to Woods (1996), an interview is "not just a device for gathering information but as a process of reality construction to which both parties contribute and who are affected by it" (p.53). This led to the approach that I was not an objective observer or collector of data but situated right in the middle. The fundamental purpose as the interviewer was to listen to the stories of how each stakeholder experienced the design, development and enactment of the new curriculum.

Using focus groups enabled the multi-perspective and inter-relational nature of the research to emerge. The choice of the focus group interview offers the circulation of power and agency to construct a narrative which interlaces individual responses with that of the group which could not be achieved in individual interviews (Kamberelis and Dimitriadis, 2011). The focus group offered a multi-functionality which tried to map the complexity of the lives of the research participants through generating dialogue and critical thinking, to produce rich, complex, nuanced and even contradictory accounts of how people ascribe meaning to and interpret their lived experience (Kamberelis and Dimitriadis, 2011, p.546). It was important not to take the interview for granted and approach it as if it was a natural encounter.

I transcribed each of the interviews using Google oTranscribe, software that slows the voices of the actors. These transcriptions were anonymised and each actor was given a coded number that would be used throughout data use and for identifying them when used in the plateaus. After transcription, each copy of the interview was returned to the actor for verification and acceptance. Some actors added additional material and others corrected names or dates. All actors gave their permission to use the data. I set up further meetings with students and returned their scripts for them to read. During an hour session, the students read and added to their transcripts. All were happy to reassert their permission for use of the interview.

2.6 CONSIDERATIONS AND PROCESSES FOR ANALYSIS

Deleuze suggests that a theory is a toolbox: "It has to be used, it has to work" (2004, p.208). In what way do I need to use and work these concepts not only from Complexity Theory but also unpack the multitudinous concepts from curriculum and educational theory? Braidotti suggests that the "challenge lies in thinking about processes, rather than concepts" (2002, p.1). How can I construct a process of analysis that will allow these concepts to "cross pollinate during a process of becoming other" (Masny, 2016, p.2)? How can I put these concepts as processes to work to offer something new and to offer a space that my concepts need to occupy so that they may become processes? In this analysis this is the territory of smooth space – "desert, steppe, sea and ice" (Deleuze and Guattari, 2003). Deleuze and Guattari portray these spaces with the following understanding:

> …no line separating earth and sky; there is no intermediate distance, no perspective or contour; visibility is limited; and yet there is an extraordinary fine topology that relies not on points or objects but rather on haecceities[20], on sets of relations (winds, undulations of snow or sand, the song of the sand or the creaking of ice, the tactile qualities of visual space (2003, p.382).

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[20] The status of being an individual or a particular
nature : INDIVIDUALITY, SPECIFICITY, THISNESS;*specifically* : what makes something to be an ultimate reality different from any other. (Merriam-Webster dictionary)

These are open spaces that grow in all directions, un-coded and boundless and this is where

the nomad (the researcher) moves "while seated" (Deleuze and Guattari, 2003, p.382). It is

the "feat of balance" that a nomad realizes, "the Bedouin galloping, knees on the saddle,

sitting on the soles of his upturned feet" (Deleuze and Guattari, 2003, p.381). Researcher,

travelling as nomad, require that thought and concepts open up to multidimensional readings

of texts and data and the interrelations between them. Richardson suggests a working

with/through interrelationships of text, topic and writer and presents the idea of "entering

pleats, and folding one text on/to another (Richardson, 2001). Nomadic thought in smooth

spaces, rides difference (Massumi, 1987a). Difference is difference, without measures of

sameness. It holds that smooth space with patience – "he knows how to wait, he has infinite

patience" (Deleuze and Guattari, 2003, p.381). The concepts that I have yet encountered and

the ones that will bubble up (Jackson and Mazzei, 2013) from with/in/between the data, will

help me move with different speeds, a vortical or swirling movement (p.381), to wander and

roam the territories offered by the data. Concepts in these smooth spaces are interested in:

How does it work? What new thoughts become possible to think (Massumi, 1992).

The analytic process I will use to engage in thinking complexly and thinking differently

about the data is a synergy of ideas from complexity theory and concepts from Deleuze and

Guattari from their book "A Thousand Plateaus". This synergy is made up of possibilities that

allow multiple entryways and multidimensional spaces of exploration and discovery in the

open complex system of lower secondary education in Ireland. The following analytical

process will function in a threshold space that offers this synergy of complexity and Deleuzian

and Guattarian theory, passageways of sense-making about curriculum reform.

Analysing in a rhizomatical way, offers the possibility of thinking in all sort of different

directions, making multitudinous complex connections through using a diversity of data, texts,

reading and theory. The rhizome potentially connects any point to any other point. There is

no beginning or end but always a middle from which it grows and expands: "it is always in the

middle, between things, interbeing, intermezzo. The tree is filiation but the rhizome is

alliance, uniquely alliance (Deleuze and Guattari, 2003, p.25). Analysing data in a rhizomatic

way, avoids top-down, bottom-up approaches typically associated with analysing curriculum

enactment. The following analytical process will function in a threshold space that offers this

synergy of complexity and Deleuzian and Guattarian theory, passageways of sense-making

about curriculum reform. The process utilised in this research will be provided below.

2.6.1   The Rhizomatic Analytic Process

Four key approaches were used to carry out the analysis:

1. To begin, I carried out an open and deep reading of all the transcripts which allowed concepts

to "bubble up" (Sellers, 2013) to the surface and assisted in my beginning to map a holistic view

of the lower secondary education system in Ireland. The disposition of the researcher was that

of nomad[21] which disturbed the linear rationale and logic of thought and opened up to

multidimensional readings of texts and data. The reading of all the interviews initially took over

two weeks and as I moved through each transcript, beginning with the macro and ending with

the nano[22], I noted recurring themes, emerging patterns, connections and influences. The

following questions flowed from some of the concepts that "bubbled up" from this first

reading:

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[21] A nomad according to Deleuze and Guattari moves between striated space and smooth space. Striated space is space that is bounded, coded and limited. Smooth spaces are open spaces throughout which 'things-flows are distributed' (2003, p, 361). The nomad operates within smooth spaces and is oriented to an understanding of speed and movement rather than being confined in coded (striated) spaces. The nomad is always already in the middle, in-between, with points passed through constituting a relay or trajectory- a line of flight (p.380). It is about speeding and slowing through spaces of shifting points.
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[22] This reading reflected the way the interviews were conducted during the period from May to November 2017.

A. What are the purposes for education offered from the macro to the nano levels of

the lower secondary system in Ireland and how have these purposes translated into the

Junior Cycle curriculum? I noted that there were a litany of purposes:

- Educational purposes
- Political purposes
- Social purposes
- Cultural purposes — Multiplicity, diversity, multivalency
- Religious purposes
- Psychological purposes
- Historical purposes

B. How did the system enact the curriculum and how did these processes connect the

system through a series of interrelationships and interdependencies?

- Consultation
- Engagement
- Feedback loops — Non-linearity, multiple causality
- Learning opportunities and sense making

C. What new practices did the Junior Cycle curriculum propose and how did all the

elements in the system self-organise to accommodate these new practices?

- New curriculum – 8 Principles, 24 Statements of Learning, 8 Key Skills –
  Subjects, Short Courses, Level Two Learning Programmes, Wellbeing and Other
  Areas of Learning.
- Assessment – dualistic approach -Formative and Summative
- Learning Literacy
- Agency and autonomy
- Becoming, identity

D. From the interaction of these three elements – purpose, process and practice- what

is emerging?

- Jumps and bifurcation points

- Transformation
- Emergence

E. At this point, I asked the question: Does the Process Model of Curriculum have the capacity to transform? The themes of emancipation and democracy were very palpable in the data and I highlighted their importance for further investigation.

I began a second, intensive reading to move data under three main plateaus of intensity which I believed were amassing in the data: processes, purposes and practices. These intensities offered further themes and patterns and within each I made further divisions. As I worked through data, I moved quotations from the interviews into these divisions and sub-divisions. However, what was clear was that much of the data in one plateau, connected with the data of another and I began to map these connections by putting up white sheets on the walls of my study and write up the connections. As I continued to read, I often looked up at the walls to see further connections and links with data. This process was very helpful because I was constantly aware of the concepts and the intensities moving through the interviews. By the end of the second reading, not only were the walls filled with connections but the three intensities of processes, purposes and practices had amassed a monstrous amount of themes, patterns, insights and connections. As a researcher, I was overwhelmed by data and was sinking into the sands of the three plateaus. A meeting with my supervisors in which we discussed the emerging data encouraged me to return again and to plug into the theory to see if it could help with the process of capturing the important intensities and connections and reducing others. The reminder from my supervisor that this was not a European project but a Ph.D. helped me understand how unwieldy the study had become.

2. It became clear that I needed to make an in-depth study of data to map the territory of the assemblage in which the design, development and enactment of the Junior Cycle was taking

place. Returning to the theoretical framework helped me begin to move through data with a focus on its content and expression. The analysis at this point sought to:

 a. Explain how the assemblage of lower secondary education in Ireland, is an open, complex and nested system.

 b. Understand how the assemblage moves through its semiotic, material and social flows.

 c. Map the interrelationships and connections between stakeholders in the system.

 d. Explore the different desires and purposes of the assemblage.

This provided a horizontal axis which is the first division of the assemblage. Deleuze and Guattari (2003) explain that this is the territory where you find the states of things, bodies, various combinations of bodies but you also find utterances, modes of expression, and whole regimes of signs. The content and expression of the assemblage or open complex systems are inseparable. *Appendix 4* offers a breakdown of the components of this horizontal axis to be explored in the data. This initial process viewed the system of education as an organic living system (Capra, 2005), an integrated whole. It comprised multiple elements, layers and time scales. The process encouraged me to follow these elements, find the layers and decipher the time scales. A complex system is not constituted merely by the sum of its components, but also by the intricate relationships between these components. In 'cutting up' a system, the analytical method destroys what it seeks to understand (Cilliers, 1998, p.2). By the end of this analysis, I had a holistic view of the horizontal axis of the assemblage and what became very clear was that to answer the question posed by the thesis, I had to negotiate three major plateaus of intensities, plateaus which had their own tone, timbre and becoming; the assemblage of lower secondary education; the purposes for education for lower secondary education; the curriculum becoming in lower secondary education. As plateaus they were multiplicities, connected to each other.

3. In the third phase, the analysis specifically concentrated on what Deleuze and Guattari call the "vertical axis". The vertical axis has both 'territorial sides, or reterritorialized sides, which stabilize it, and cutting edges of deterritorialization, which carry it away'(Deleuze and Guattari, 2003, p.88). The analysis searched for how the assemblage was self-organising, for where it was beginning to find the best fit for itself within the reform. It sought the molecular lines[23] or cracks and fluctuations in the behaviour of the system. These were found in the thresholds that opened up for the actors in the data, spaces whereby they took agency and felt empowered to move from the striated space of the previous curriculum and examination approach. These thresholds enabled them to move from deliverers of curriculum to curriculum makers. The analysis studied the local levels of the assemblage to find where the system abandoned its original trajectory or path and took an alternative path as its path of development (Harvey and Reed, 1994, p.385). It explored what in the system gained momentum, what became locked-in and like the snowball, gained a trajectory. These are Deleuze and Guattari's lines of flight. A line of flight is a line of becoming that brings the system to yet another level of complexity by virtue of the new knowledge, new concepts, new meanings which need to be mapped (Semetsky, 2005, p.25). These were identified in the data along with their emerging trajectories tying back into the system. For myself as researcher, coming and going within this analysis was very exciting terrain and folding and pleating data offered imaginaries that opened such possibilities and smooth spaces.

4. While mapping lines of flight can provide substantial insight and new territory, I was aware of the potentiality of lines of flight ending up in "black holes", spaces that

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[23] The molecular line lies on the level of the micropolitics, whereas the molar lines lie at the level of macropolitics. It is here that supple tiny cracks or what Deleuze and Guattari call the "quanta of deterritorialization" may occur (p.196).

cannot be escaped from once entered (Deleuze and Guattari, 2003, p.334). I was aware that it was early days within the reform and any line of flight could explode into a black hole, but I studied data to see whether there were tentative possibilities.

Rhizomatic analysis provokes thinking in the 'middle' space or the space of the threshold. The threshold is the space between the data and theory where both these constitute each other so that the thinking becomes deterritorialized and the "divisions among and definitions of theory and data collapse" (p.6) enabling the emergence of new understanding. Within the data chapters, I offer the voices of the multiplicity of actors and have made decisions about quotations that help map the becoming of curriculum in the assemblage. Whilst I gave all domains of the assemblage the space to voice their stories, each quotation acts as a conduit to many similar modes of expressions and various utterances. Each quotation is part of a rhizome of the assemblage of lower secondary education in Ireland. **Table 11** below is offered as a summary of the rhizo-analysis captured above. What the table does not capture is the overlap and intertwining of each of these phases. As the different axis emerged, there was a constant "coming and going" between theory and data, recursive loops of developing understanding. I began to ride theory and data with confidence, enjoying the process and allowing the connections to map my journey.

Table 11 List of concepts used from Complexity Theory and Deleuze and Guattari during the different phases of analysis

	Complexity Theory	Data	Deleuze and Guattari
Phase 1	Open complex system Holistic View	Reading of all transcripts Making notes & connections Bird's eye view of assemblage Plugging in to theory Bubbling up of concepts	Researcher as nomad Mapping Smooth spaces
Phase 2	Diversity Connectivity Feedback loops Non-linearity	Who are the players? How are they nested? Context/history/mindsets What are their relationships? How do they network and communicate? Who are the outliers? How does the system flow? What are their purposes? How do they function?	Horizontal axis Rhizomes Molar lines
Phase 3	Equilibrium/chaos Strange attractors Bifurcation Points Momentum Path dependence Self-organisation	What processes did they use to enact curriculum change? How did these processes impact the system? What was the capacity of the system? Was there agency in the system? Is there change happening in practice teaching, learning, assessment? At what level of the system is this occurring? How is this change being accommodated? Are there any inhibitors?	Vertical Axis Molecular lines Lines of flight Deterritorialisation Black holes

2.7 VALIDITY AND RIGOUR

Validity, rigour and reliability of research are fundamental concerns for any body of research. The application of the rhizomatic process of analysis in this case invoked additional engagement with these topics. Hetherington (2012) clarifies the meaning of validity and reliability when she states that "validity addresses questions of whether the research can provide an accurate representation of its object of study, and reliability relates to whether the same findings would be found if the research were repeated" (2012, p.118). From the discussion on the theoretical framework it is clear that complex systems are incompressible (Cilliers, 1998, p.4). It is impossible to offer a representation of a complex system because "to model a complex system accurately, we would have to model life, the universe, and everything" (Cilliers, 2001b, p.9). The boundaries of a complex system constantly evolve and there is always something outside the system under study that will affect the system. Also, the dynamism, non-linearity, path dependence and self-organisation of the system would make the repetition of the research which would offer the same findings, practically impossible. Consequently, how can rigour, validity and reliability be maintained?

2.7.1 The Authenticity of Method and Interpretation

Some researchers would ensure that they deploy a variety of different methods to "validate" their findings. The exclusive use of one method could bias or distort the researcher's understanding of what is occurring in the field of reality. The use of triangulation is a technique of physical measurement (Cohen et al., 2011, p. 141). In qualitative research, the use of triangulation tries to explain the complexity of human life and relations, by studying it from more than one standpoint. However, this technique assumes that there is a "fixed point" or "object" that can be triangulated. It also assumes that there is a researcher who stands outside this reality under study. From the previous sections, it is immediately obvious that there is no fixed point for this research. If the usual forms of validation do not suffice in this research, it is wise

to heed Lather's advice that "to not revert to the dominant foundational, formulaic and readily available codes of validity requires the invention of counter discourse/practices of legitimation" (1993a, p. 676).

Instead of triangulation and in keeping with the methods of analysis chosen for this research, validation and rigour will be accounted for through the rhizomatic approach. This research offers multiple types of interviews offering a multidimensional choice of possibilities for analysis. This rhizomatic approach keeps to the rigour of the discipline, thinking about collective dynamics without reducing their complexity and diversity. It insists on following not only the molar and molecular lines but the offshoots, the lines that are hard to untangle and not immediately obvious. The validity arises from the multiple perspectives under study and is authenticated through adopting the non-linear method and interpretation of both data collection and analysis. These practices "enable us to follow an anarchistic growth, not to survey the smooth unfolding of an orderly structure" (Lercerle, 1990, p.134).

The authenticity of interpretation of data in this research comes from a rigorous application of the theoretical framework. The concepts from this theoretical framework will be used as processes to plug into the data and to help assist in mapping the complexity of lower secondary education in Ireland. The evolving knowledge and understanding of how the reform of the Junior Cycle impacted on the education system in lower secondary, with its emerging patterns, dispositions and complexities, although provisional and time-bound, may offer insights as to the complexities inherent in the reform of an education system. Authenticity is achieved in the recognition that all knowledge is context based and belongs to the evolving interrelationships among the elements of the system and at all levels.

2.8 ETHICAL CONCERNS

The ethical dimension of this post~qualitative research lies in being responsible and responsive to the challenges that researching in a complex, open and adaptive education system offers. Ethical understanding in this research arises from a nested position within the system and not a separated objective observer. This nestedness encourages the awareness of the interrelatedness and connectivity of all the actors within the assemblage and this underlines my ethical responsibility by and to these relationships. All intra-actions were governed by the principle of respect and do no harm. Strict adherence to the BERA Revised Ethical Guidelines for Educational Research (BERA, 2011) was upheld, as well as the Maynooth University Research Ethics Policy. The principles of honesty, respect, openness, integrity and responsibility underpinned each encounter with the people and data. All legal rules and laws relating to child protection, dignity in the workplace and data protection were understood and obeyed. The protection of the human dignity, privacy and autonomy of each subject involved in the research was of paramount importance. The core values as outlined in the "Guidance for developing Ethical Research for Children" (Fitzgerald, 2012) were followed:

- Minimising risk of harm

- Informed consent and assent

- Confidentiality and anonymity

- Child protection and well-being

- Legal requirements and policy commitments

- Children's participation in the research process

The possibility of anonymity was offered to all interviewees. However, for some policy makers, anonymising was not sufficient in terms of someone being able to identify them due to their very public role in the enactment of the Junior Cycle. A full discussion took place with each individual and consent was given to the use of the name of their department and title e.g. the

Minister of Education accepted that it was impossible to anonymise his interview and gave permission to use his name and title.

As a researcher, I sought to be clear and transparent in all communication with the actors. All macro, meso and micro participants received an initial phone call from me and were subsequentially sent the information about the project and had the option to refuse or back out whenever they wished. A pre-meeting was held with all principals, teachers and students in which the research and the researchers role was explained. Throughout the interview process there were exchanges of information and answers to any questions that arose. My ethical responsibility was to ensure the utmost respect and dignity for all actors and to use the data for the purpose to which it was offered. All decisions were made with the underpinning knowledge that I did not act alone but was nested in connectivity and relationship with all these actors within the assemblage of lower secondary in Ireland. I was influenced in my approach to the interviews and the actors by the poetic words of W.B. Yeats in 'The Cloths of Heaven':

I have spread my dreams under your feet;

Tread softly because you tread on my dreams.

2.9 (BE)GOING THOUGHTS.....

The insights from the theoretical framework offered the conceptual processes that guided the decisions in the design, data collection, data analysis, the search for validity, rigour and ethical considerations. Through their application to the methodology, they encourage a reimagining of my own epistemological, ontological and axiological position. My disposition as researcher was to remain open to possibility and to engage in thinking concepts as processes. The guidance of Morin's insight about the refusal to simplify was a catalyst for thinking complexly about becoming in the assemblage of lower secondary in Ireland:

What teaches us to learn, that is the method. I am not furnishing the method; I am starting out on the search for the method. I am not starting out with a method; I am

starting out with the refusal to simplify, taken fully consciously (Morin, 1977/1990, p.16).

With this advice in mind, the next plateau will bring us into the middle of the assemblage of lower secondary education in Ireland. Data from the interviews will be employed to narrate the complex story of its horizontal and vertical axis; its molar, molecular and lines of flight; it semiotic, material and social flows.

Plateau 3 THE ASSEMBLAGE

3.1 (BE)COMING THOUGHTS……..

This plateau mobilises the voices of the actors in this study to offer multi-perspectives and insights into the narrative of the complexity of curriculum reform in the assemblage of lower secondary in Ireland. Their stories 'bubbled up' (Jackson and Mazzei, 2013) within the research and became an intensity that helped me make sense of and begin to understand the web of events, responses and relationships that occurred in the process of bringing about the design, development and enactment of the Junior Cycle curriculum reform. This plateau finds its location here to offer the reader a holistic view of the diversity of the intra-relations and dynamic inter-connections within the assemblage as it engages in a process of change. I entered this plateau with some preconceived ideas as to why the enactment of the Junior Cycle did not initially make traction but these were quickly laid aside as I began to discover a web of complexity not only in the interrelationships of the assemblage but the complex landscape of education and curriculum. This plateau will begin to map the landscape of the assemblage through the exploration of the following:

> a. The context, history, structure and culture of the assemblage of lower secondary education in Ireland.
>
> b. The Junior Cycle curriculum and the phases of reform
>
> c. The liminal space in the assemblage.

These areas will be assisted by utilizing the following concepts from the theoretical framework in the analysis:
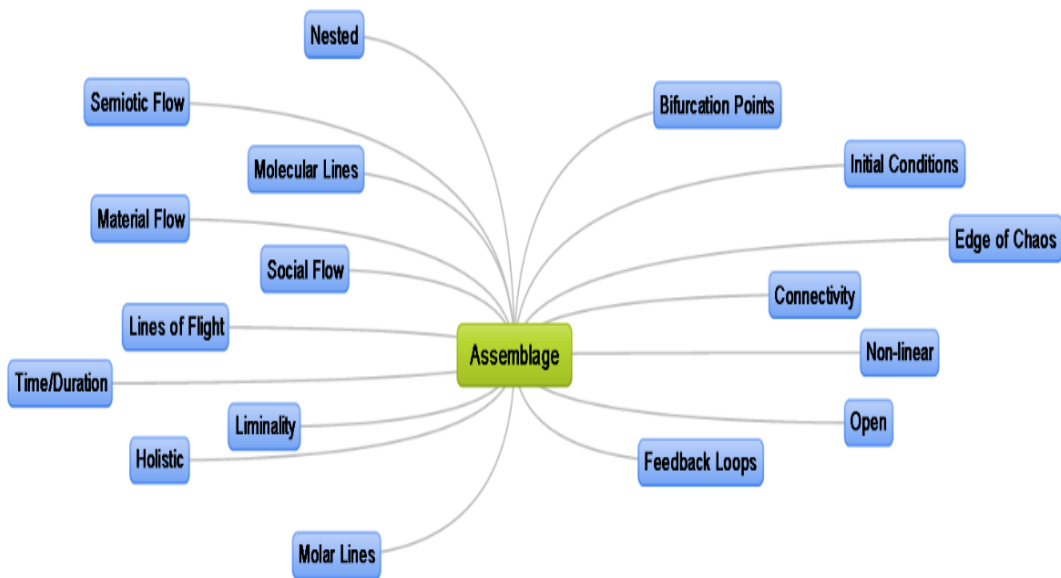
Figure 9 Concepts from the Theoretical Framework employed in the Assemblage

3.2 THE CONTEXT, HISTORY, STRUCTURE AND CULTURE OF THE ASSEMBLAGE

3.2.1 Context and History

In the (Be)coming Thoughts, I outlined the context and landscape of lower secondary education in Ireland. To expand on those initial thoughts, it is important to acknowledge the complex history that flows within the assemblage. This history cannot be fully detailed in this thesis[24] except to highlight some important areas of note for this study. The secondary system of education in Ireland holds international renown for offering a high quality education (Bruton,

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[24] It has been written by educational historians such as Coolahan COOLAHAN, J. 1981. *Irish education: its history and structure,* Dublin, Institute of Public Administration, COOLAHAN, J., DRUDY, S., HOGAN, P., HYLAND, A. & MCGUINNESS, S. 2017. *Towards a better future: A Review of the Irish School System,* Ireland, IPPN & NAPD., Gleeson GLEESON, J. 2010. *Curriculum in Context,* Oxford, Peter Lang., Hogan COOLAHAN, J., DRUDY, S., HOGAN, P., HYLAND, A. & MCGUINNESS, S. 2017. *Towards a better future: A Review of the Irish School System,* Ireland, IPPN & NAPD. Walsh WALSH, T. 2016. The National System of Education 1831-2000. *In:* MACMILLAN, P. (ed.) *Essays in the History of Irish Education.* UK. and Drudy DRUDY, S. 2009. *Education in Ireland: challenge and change,* Dublin, Gill and Macmillian..

2016, p.5). It carries the respect of the citizens of Ireland (Coolahan et al., 2017, p.vii) and a belief in the efficacy of its system. However, this perception of the offer of a high-quality education has not been the experience for all students:

I remember going to a thirty-year reunion of my own school. We were all chatting and then somebody said you know what, it's all the A, B and C class here[25]. There is nobody from the other classes and we were shocked when we realised it. That all of the people who had come to the reunion, were people who felt that school was a good place to be. Where they had achieved. Where they were valued. I remember coming home that night and thinking, my God, that's a lifetime of thinking that you weren't good enough.

(Principal Actor 27)

The above quote captures the growing concerns that were becoming evident in the assemblage. In 2010 the NCCA outlined eight main reasons as to why the Junior Certificate needed to be reformed. The following are the eight drivers for change that lie at the very heart of the Junior Cycle Framework:

- The dominating effect of the Junior Certificate examination on teaching and learning practice and on school organisation and structures

- The absence of any significant curriculum flexibility which would allow for engagement with other areas of interest to teachers and students and areas of local interest or need

- A curriculum that is seen as inflexible and overcrowded

- The disengagement of many students at an early stage in the cycle

- The inadequate time available for learners to engage with deeper learning

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[25] Students were divided into classes according to their intellectual ability based on entrance testing. The students with the highest ability were placed in the 'A' stream and it descended through the alphabet right to those who scored the lowest. Streaming could go right down to G or H depending on the number of students enrolling in first year.

- The narrow range of assessment activity, both in terms of examinations and in general teaching and learning

- The limited access to a single qualification.

These conclusions had been drawn from a growing knowledge and understanding supplied by two intersecting trajectories that began to emerge demanding rectification of the experience of lower secondary and the hope of opening possibility of new becomings for each and every student. The first trajectory was emerging from the 1990's onwards and presented as a mounting realisation that the education on offer was not aligning with the needs of students in Ireland, in the present and for the future (NCCA, 2010). The momentum feeding this understanding came from the Department of Education's school inspections (Hislop, 2010-2012), national evaluation reports (Gilleece et al., 2008, NCCA, 2008), research from the Economic and Social Research Institute (Smyth, 2009), discussions within the NCCA (2008) and on the ground experience and conversations from teachers in second and third level institutions[26]. There was an emerging narrative, (**Appendix 8**) outlines the changing thought on curriculum through the documents published by the NCCA), underpinned by very compelling and striking evidence and data, of what the educational experience for students in the first three years of secondary school looked like and felt like.

There was a lot of evidence to suggest that lower secondary education was not as we would want it to be. It wasn't in line with best international practice. And while there was a lot of diligent and hard work going on in schools and nobody underestimated that, at the same time, there was a recognition that if it wasn't righted now, it was likely to get more and more out of sync with what children would need for future learning needs, future work needs, future life needs.

(Policy Actor 2)

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[26] These conversations have been part of the field work carried out by the researcher in their role as JCT associate during 2012 to 2018.

What was 'out of sync' was the high stakes nature of assessment for Junior Cycle but also how this was driven by the importance the assemblage gave to the Leaving Certificate examination as the only portal to third level education. This impacted on teaching, learning and assessment. It translated into the life experience of the classroom and school.

So, children came from this very broad exploratory experiential primary school education into a system…. where it stopped being about education and was more about training for examinations.
(Policy Actor 13)

The narrative about the terminal examination unfolds in the data as an experience of training students for a race by placing them in a trial run (Policy Actor 7). There was constant reference to the 'backwash' effect of this terminal examination. This is echoed in the vocabulary by calling the Junior Certificate examination a 'mini leaving' or 'leaving lite'. The macro actors expressed the lack of value in such an assessment at lower secondary, particularly with the growing retention rate at senior cycle level. From the cohort of students entering first year post-primary in 2010, in 2016, 91.2% sat their Leaving Certificate (DES, 2017, p.3). The Junior Certificate was no longer an exit examination, yet it was held as 'high stakes' by the system (Policy Actor 14).

The second trajectory came from the discussion on the international stage around educational policy frameworks and the Europeanisation of education (Dale and Roberton, 2009) through standards and outcomes: The Lisbon Declaration (2000); the Europe 2020 Strategy (2010); the Programme for International Student Assessment (PISA); and the Trends in International Mathematics on Science Strategy (TIMSS). The publication of the PISA results in 2009 (Shiel et al., 2010) was a catalyst for concern that the education on offer to students in lower secondary in Ireland was not in line with best international practice.

I mean the EU 2020 agenda; we can't just take bits of it. We're tied into it, but that drove part of the reform. The OECD drove it. I mean PISA, the international benchmarking which began when the PISA first started off in 2000. Don't want to be left behind. (Policy Actor 16)

These converging trajectories, national and global, assembled a critical mass of thinking and data on the type of educational experience that was been offered to students in lower secondary. The momentum created a bifurcation point for curriculum reform in Ireland.

Two extremes were offered: Leave it as it is or scrap the whole lot, with everything in the middle.
(Policy Actor 3)

The response of the assemblage was to undertake not a 'patch-up job' (Policy Actor 9) on curriculum but rather a totally new approach. This new curriculum approach was not to be dictated by an examination, the Junior Certificate, but rather it was to be a process called the new Junior Cycle.

3.2.2 Structure and Culture

The assemblage that I researched was constituted by this decision. It takes its shape through the inter-relationship and connectivity of four main spaces or domains: macro, meso, micro and nano. The four spaces of our assemblage under study do not nest neatly within each other. They intersect through their connections with actors in the different spaces. Students have least connections with the macro space of the assemblage. They mainly engage with teachers and principals, and on occasion the NCCA and the inspectors from the Department of Education and Skills (DES). The reality of the connections in the assemblage of lower secondary is about intersections not subsets, whereby the degree of freedom is multiple before they can communicate to the next layer or space. This distances access to knowledge and understanding within curriculum reform, and it is easy for actors to become marginalised. Students and teachers often feel left out of communication and feedback loops are tenuous.

The boundaries of each space are open and they are influenced not only by local events but also national and international. This makes it impossible to map the cause and effects within the assemblage. Connecting cause and effect are like finding grains of sand in the vast ocean.

In negotiating the boundaries of this assemblage, Cilliers (2001b)advises that: "we frame the system by describing it in a certain way (for a certain reason) but we are constrained where the frame can be drawn. The boundary of the system is therefore neither purely a function of our description, nor is it purely a natural thing (p.141). Whilst this thesis opts to position lower secondary education into four interpenetrating spaces or domains, it acknowledges that there are many more within this space such as parents, agencies that have not been listed and educational spaces such as museums, heritage sites etc. The structural landscape of lower secondary is a complex map.

The structure of the system of lower secondary was centralised and bureaucratic, a throw-back from a colonial past, an historical influence which did not change much over the decades (Gleeson, 2010). The structure of the Department of Education and Skills[27] operates as a hierarchical model, with many individual departments. Many of these departments are connected and contribute to bringing about curriculum reform: Central Policy Unit; Curriculum and Assessment Unit; Teacher Education; Special Needs; Teacher Allocation; Planning and Building Unit; Finance etc. At a glance it seems that the majority of these departments would be involved in some aspects of curriculum reform due to the extent of the proposed change. However, the DES functions as a hierarchical structure and this top-down system " fostered a culture of dependency with an over-reliance placed by institutions on the Departments role, which may have resulted in sapping of self-reliance and innovative approaches at local level" (Coolahan, 1994, p.15). The actors in the system looked to the Department of Education to dictate and mandate how they should behave. They are highly dependent. The 'circular letter' determined the behaviour of the system:

In the Irish system, particularly given such a small island nation, but of a heavily centralised system, everyone looks on high. Teachers and parents will both look, where is the Department. We want a circular on this. We want a mandate of programmes with CPD. We want a new

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[27] https://www.education.ie/en/The-Department/Management-Organisation/

syllabus with subject specification, but we want the Department of Education to sort out this

mess.

(Policy Actor 11)

Overall, it is not just teachers who developed reliance and dependence on experts in the assemblage. The macro actors themselves also operated a dependent culture by looking to the supra space experts and constantly importing academics from other countries: Andy Hargreaves, Mark Priestley, Louise Hayworth, Jannette Elwood[28]. Whilst expert help and looking outwards is highly important in education, it is also desirable to generate curriculum designers, makers and enactors at all the local levels of the assemblage too. This dependency was fostered by a technocratic and bureaucratic approach by the DES (Gleeson, 2010, p.279), and the system was managed by dividing it into parts and segments, promoting the fragmentation of the system:

I think we have got our structures wrong. I think when it comes to reforming education for

example, we have got so many silos that deal with different bits.

(Policy Actor 10)

One of the concerns with this division was the lack of continuum and transition between each level, primary, post-primary and third level.   The fragmentation was furthered by the segmentation of schools in the post-primary sector into different types: secondary, community schools and colleges, ETB's, despite a call in the Education Green Paper (DES, 1992) for all Irish post-primary schools to be called secondary schools in line with international practice. Schools subsequently are also divided into subject silos. "I teach French, and that's what I do" (Policy Actor 7). The Cromien Report (2000) which reviewed the DES operations, systems and staffing needs, recommended that the Department devolve certain responsibilities to specialised agencies (p.5). This was accomplished through the establishment of the Teaching Council,

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[28] The NCCA organised many conferences over the years of the Junior Cycle Reform and they engaged the above academics as keynote speakers at these conferences.

National Council for Special Education, Junior Cycle for Teachers, State Examination Commission etc. In the effort to engage the DES in more strategic vision, this recommendation had serious implications for the process of curriculum reform. Curriculum is a process concerned with pedagogy, methodology and assessment and in Ireland there are multiple agencies which deal with these curriculum elements and this enhances the fragmentation. The specific brief of each agency is confined to a particular area. However, the education plan from the Department of Education and Skills has highlighted the importance of building more collaborative and collective practices at a national and macro level and the need for connectivity amongst all agencies is highlighted as part of an improved and inclusive educational experience for students (Bruton and Ó Foghlù, 2018). An example of the lack of cohesion between agencies lies in accessing information on-line about the Junior Cycle. There is no central website where leaders and teachers can access information.

I didn't think the JCT or the NCCA website were good. It wasn't that it wasn't good, it just wasn't meeting my needs. You know when I was looking for answers to my questions. I wasn't finding them.
(Policy Actor 10)

The Cromien Report stated that "the problem for the Department has been that it is so centralised that this leads to a degree of dependence by its clients which is quite exceptional" (p.2). This centralisation has limited the agency of the actors in the assemblage and has also created an expectation that curriculum is a product not a process, it is a complete document, syllabus or specification which outlines everything a teacher needs to know, teach and assess. This structure creates a particular curriculum culture. The teacher is a curriculum deliverer and not a curriculum maker. The student has little agency in their own learning and education. Overall, the actors in the assemblage of lower secondary have little agency or autonomy over the educational experience they can offer.

The data highlights that the main molar line[29] within the assemblage is dominated by the Leaving Certificate examination. What was surprising in the data was how everything was driven or tied back into this molar line. It is highly political as it connects with tertiary education, the work world and offers a certain educational status to Ireland. Beyond the Leaving Certificate offering a highly educated population which assists in the growth of the economy, it has generated a whole economy within itself around grinds and grind schools. It has developed its own educational culture and particular social interactions and behaviour which will unfold throughout this thesis, not only at senior level but also at lower secondary level. The Junior Certificate examination fed into this molar line and thus the identity of lower secondary was determined by it. These rigid segments of assessment, Leaving and Junior, produced molecular lines and segments called: subjects, standards and streaming. Subjects were normative and hierarchical in nature and were seen as the sole source of knowledge. Teacher preparation begins the process of subject division and STEM subjects were favoured as top of the subject hierarchy. Subjects at Junior Certificate were viewed as preparation for subjects at Leaving Certificate. There were clear indications of curriculum overload and the volume of content being taught was unable to instigate a depth of understanding of knowledge.

From the ESRI research the range of subjects people were doing was far too broad or too wide.
(Policy Actor 2)

Subjects were silos which determined the status and identity of a teacher within a school. They inspired an independent existence for the teacher as the main transmitter of knowledge. This molecular line of subjects encouraged a culture whereby teachers did not engage with curriculum change unless it had to do with their subject.

They're really struggling, and they are saying things like, tell me what to teach. In that, I don't know if they're hearing but you had hoped that eventually you would hear, actually I shouldn't

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[29] Lines of segmentation, coding, rules and compartmentalisation.

be asking that question. My articulating that question is me articulating, I don't know how to be a teacher. I know how to be a deliverer of a curriculum.

(Policy Actor 13)

This subject mindset was one of the most challenging for curriculum reform in the assemblage and encouraged the retention of the role of curriculum deliverer. A worry for teachers in the Junior Cycle framework was that they would lose the identity that their subject offered. This is captured in the following statement by teacher actor 27 who insisted that: "I don't want to be a Cinderella teacher ". When asked what she meant by this, she replied that she didn't want to be a teacher that has to pick up the pieces of other subjects like CSPE, SPHE, Wellbeing etc. Subjects within the curriculum reform is a highly complex and contested terrain.

Another molecular line forged in the assemblage was related to the major concern by the actors about ensuring that 'standards' were maintained. They constantly spoke about maintaining their results to the national standards and these national standards were aligned only with the Junior Certificate and Leaving Certificate results. There are no other standardised tests offered in lower secondary in Ireland. Discussion about these standards took very little account of the diversity of the contexts of individual schools or how the teachers contributed to improving these standards. Changes to subject syllabi were often accompanied by a rhetoric about 'dumbing down' knowledge, a lessening of standards. However, there was little acknowledgement of how the molar segment of the Leaving Certificate was itself generating a restriction and closure of knowledge. There was an acceptance that the knowledge base provided by the Leaving Certificate provided all that was needed for the student. Another standard of the assemblage culture was the division of examination papers into higher, ordinary and foundation which encouraged the streaming of students into classes based on entrance tests at the age of twelve, with little hope of moving from this classification.

So, what we were finding as a system, was that students were being pigeonholed into particular streams and then finding it hard to break out of that. Even if they were actually

beginning to show the skills and the aptitudes and attitude and so on that you would look for,

that would allow them progress .

(Policy Actor 19)

Standards were also driven by global benchmarking such as PISA and TALIS testing and there was the awareness that achievement in these tests had an economic impact for Ireland:

The Secretary General gave the opening remarks on the PISA 2009 before the Education Research Centers took us through it. She said this will be bad news in Manhattan. Isn't that amazing. The Secretary General of one of the biggest spending departments, lands her first response to our fall in the international ranking. And for me then it was like a moment of epiphany. I saw exactly what global ranking in education, how significant it is to FDI (Foreign Direct Investment).

(Policy Actor 16)

The maintaining of standards was highly political and any change to these standards was therefore of interest not only to politicians in Ireland but across the world. These molecular lines of subject, standards and streaming were also encouraged by a mindset that opposed theory and philosophy in favour of practice only. One layer of the mindset rests on a pervading anti-intellectual attitude by many actors in the system:

There was a mindset in the teaching profession that you did your Dip[30] and then you didn't necessarily need to do anything else for the next thirty odd years. You just went in and you taught your class and you had your notes and you were teaching to the tests. So, there was reluctance for people to change, because they liked the textbook. They liked going into the class. And if you had a reasonable class that were willing to work with you, it was a very satisfactory way of getting good results for them and feeling good about yourself. The issues were arising in classes that weren't motivated, and you know teachers that were getting burnt out.

(Policy Actor 22)

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[30] Dip refers to the Higher Diploma in Education that was undertaken after a degree and which prepared the third level student to become a teacher.

This mindset opposed any new lexicon in education or engagement with educational literature. One of the questions that was asked to all teachers and leaders during the interviews was whether they had read the Junior Cycle Framework documents? All teachers replied that they hadn't read the whole framework.

I wouldn't have read it in full now. I have definitely touched on bits of it or whatever, but I wouldn't have read it in full, you know. I know we got it there at some stage and obviously you know as I've been trying to figure out bits for myself, I have been looking into key areas and little things like that as well.
(Principal Actor 34)

Most of the leaders had read the framework and documentation. The data also suggested that there was little dialogue amongst teachers about educational assessment and learning theory.

Staff room conversations are around craft and around strategies, tips, tricks, survival. How am I going to get that crowd in to actually listen and shut up?
(Policy Actor 7)

The assemblage takes its position, not as a totally new space, but rather situates itself as part of the trajectory of the previous system, inheriting it's epistemological, ontological and axiological frame. Therefore, the assemblage under study has a genetic memory which it embodies through its structures and culture. How it has thought and acted as a system in the past offers insights to the initial conditions of the Junior Cycle Reform. It helps to understand the thinking, feelings, desires and the aspirations of the assemblage. The history brought to the assemblage offers a flavour of its disposition, its values and its agency.

3.3   THE JUNIOR CYCLE CURRICULUM AND THE PHASES OF REFORM

The introduction of the Junior Cycle curriculum occurred over three main phases between 2009 and 2017. From our discussion above, we have indicated some of the initial

conditions such as context, history, structures and culture that we need to be sensitive to in discussing the reform:

Phase One: The constitution of the assemblage in 2009 to design and develop a new curriculum for lower secondary.

Phase Two: The announcement in 2012 of 'The Framework for Junior Cycle' (NCCA, 2012, DES, October 2012) and the beginning of the process of enactment.

Phase Three: The announcement of 'Framework for Junior Cycle 2015' (DES, 2015) and the continued struggle of enactment in the assemblage.

Unfortunately, in-depth explanation about the complexity of each of these phases would be impossible as each phase houses a thesis within itself. What is offered are some of the important elements of each phase that will assist with the question under study: **How is curriculum becoming in the assemblage of lower secondary education in Ireland?**

3.3.1 Phase One

In 2009, the Minister of Education and Skills, Mr Bat O'Keefe, initiated the process for the NCCA, to consult on a new lower secondary curriculum framework. The role of the NCCA is to work as a representative body on curriculum and assessment design and development in Ireland. To carry out this brief, there is a council of 25 members which is made up of actors from all levels of lower secondary[31]. These members were the representative body and occupy the first space, the Macro space of the assemblage. A list of the twenty-five actors/agencies in this space is offered in *Appendix 6.* These actors in the macro space and the voices that we hear consist of a diversity of representatives from: Department of Education and Skills; State Examinations Commission; unions; agencies representing primary, post-primary and tertiary

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[31] Students do not sit on the NCCA council, but their voice is heard at various forums organised by the NCCA.

education; parents; business; and representatives from the ministries of 'Children and Youth Affairs' and 'Education and Skills'. Within the NCCA, a Junior Cycle Review Committee from this macro group was set up and this committee fed into the council of twenty-five members and vice versa. The function of both groups was consultation for the possibilities of reform for lower secondary. All actors in the macro space were involved in this consultation.

The NCCA in fairness to them is a very consultative body. So, you've got all the major stakeholders around the table, the management bodies, the trade unions etc. So, there are repeated levels of consultation there, both in terms of the individual subject development group, in terms of then the Junior or Senior Cycle Board. Now that doesn't necessarily mean that any individual organisation always gets the outcome that it's happy with. Sometimes, that's not what happens, but in fairness there is quite a lot of consultation that goes on.

(Third Level Actor 8)

Phase One of the reform was a time of blue skies thinking for lower secondary education in Ireland and opened up spaces of re-imagining rather than just reviewing (NCCA, 2010). This involved a spectrum of thinking around pedagogy, assessment, the needs of 21st century young people and the requirements of civic society (Kelly, 2010). A unique document "Innovation and Identity: Ideas for a new Junior Cycle" (NCCA, 2010) was presented by the NCCA at the end of this period of consultation with the macro group. This document "linked two demands emerging from the work during the preceding decade in its title: a focus on innovation in learning and teaching and a need to be explicit about what the system values in the educational experience of 12-15 year olds (MacPhail et al., 2018, p.10).

What they didn't want to do and quite rightly is, go out with a blank canvas and ask the country. What would you like? What would be good? What should our purposes be and so on? So, what they did was come up with a consultation document and that consultation document was circulated widely and people were asked to respond to it. So, it was kind of like a background paper that you would see in a subject development phase only this was more macro and higher-level thinking, but it had no real frameworks within it. It had no real advocacy for a particular position on it. It did surface questions and raise philosophies and in

particular, it really wanted to know about people's view of the purposes of education as opposed to the micro-level, nitty-gritty of the method. It was high level, but it was a really accessible document and an exciting one to read
(Management agency Actor 7)

I am going to pause at this quote for a moment. This decision by the NCCA not to begin with a blank canvas was a major bifurcation point in the assemblage. The road less travelled -taking a blank canvas out to the country – as evidenced from the data might have been an initial condition that would have brought Junior Cycle Reform on a different trajectory. The type of curriculum reform that was being suggested was not at the level of the improvement of a subject syllabus but rather a 'seismic shift' (Policy Actor 13) across the whole curriculum. It was ideological change, epistemologically and ontologically. This seismic change needed to engage all actors in dialogue about what their desires were for lower secondary education. All actors needed to be heard, including the students who had little voice in the assemblage. This would have taken time but from this dialogue a central message about creating a new becoming for education at lower secondary might have emerged. Instead, the central message of Junior Cycle Reform was not communicated to all levels of the assemblage and only the mantra was heard - if we don't change assessment nothing will change - but that in itself was unhelpful and did not offer an understanding of the new territory being proposed. Consultation across the whole assemblage was necessary and although all bodies were represented at the NCCA table[32], what has become very clear in the data is that teachers felt they were not consulted in the curriculum design or development. They did not feel part of the process and definitely did not feel included. Data highlights that any study of the assemblage would have shown that many teachers do not read the documentation as discussed above and despite the document "Innovation and Identity" being exciting for many of the macro actors, this document did not filter down into the

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[32] An anomaly in Ireland is that most representatives at the NCCA table were actually once teachers.

meso, micro or nano levels. The assemblage's feedback and recursive loops were not functioning smoothly and thus whilst the macro actors consulted, the rest of the assemblage remained in distant territory. Whilst there was much data collection about the experience of students in the assemblage, the experience and mindsets of teachers needed to be gathered and studied. This might have offered a better sensitivity to initial conditions for the reform.

All macro stakeholders recognised the need for fundamental change in lower secondary curriculum. They all initially accepted that the educational experience of the students in lower secondary was more akin to drudgery rather than emancipation.

They were not being challenged or being offered opportunities to reach their full potential. It was the same kind of hum drum, daily, day in, day out, in bag, bell, classes, take notes, homework, home, back in, doing the same. It wasn't very exciting for a lot of youngsters.
(Policy Actor 22)

They realised that lower secondary must offer a different experience for students and teachers:

The core purpose was to give a renewed vigour and life to the experience of learning in the classroom and as a result to build better on the engagement of all students in their own learning, to take that set of independence ownership, direction choice and to build on that, to make sense of it for themselves so the balance was moving from a little bit more externally dictated to the student being in control of their learning.
(Policy Actor 3)

However, despite all the consultation that went on with the macro space, the NCCA were unable to achieve consensus on the new framework. The two unions, TUI and ASTI, would not agree to the proposals to change assessment practices[33]. This caused a considerable problem as assessment became the main narrative that occupied the assemblage. The usual practice was that an agreed curriculum was designed and developed by the NCCA and would then be handed

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[33] The reasons for this non-agreement will be discussed later in the plateau.

down to the Minister and the Department of Education and Skills for enactment and sign off. The policy was handed down to the Minister, but it had not achieved agreement.

Having had those levels of engagement the hope is that you'd have headed off at the pass, any major obstacles. So typically, that transfer from the NCAA over to the Minister to consider for sign off should be a painless, seamless transition. That's what it is in the vast majority of instances so that all of the major issues have been ironed out.
(Policy Actor 13)

The stage of blue skies design and development was over but there were serious signals that the future of the reform would not be smooth.

3.3.2   Phase Two

Policy enactment is the remit of the Minister and Department of Education and Skills. Minister of Education and Skills, Ruairi Quinn, brought political drive and initiative to the reform.

Ruari Quin had all the evidence built up. He had the PISA Report. He wasn't looking to make friends. So, when you've got all those things together, you're going to get a different kind of dynamic going on.
(Business Actor 4)

As Minister of Education and Skills, Ruari Quinn engaged with all partners and developed an understanding of where the reform was at:

He was clearly keen to get something decisive accomplished on the curriculum and assessment front. With the benefit of hindsight, it's easy to see what he didn't foresee: the necessity to dismantle or disarm the mindset , particularly in the ASTI, that said "We will not assess our own students." He discovered how daunting a task this was, especially as that mindset is itself deeply embedded in an occupational culture for many decades.
(Third Level Actor 8)

On the 4th October 2012 in the Clocktower, Dublin, he announced the introduction of 'The Framework for Junior Cycle' (DES, October 2012), which encompassed the work of the

collaborative macro actors. He had accepted the proposal from the NCCA without union agreement but surprised all actors and took it a step further than expected. He explained during the interview:

I was aware of how long this process had taken. That, many efforts had been made to move it along and as far as I was concerned on what I signed off with was, that the ship had left the harbour. That there was no more discussion. It was out to sea and I hoped that it would be so far out to sea that none of my successors could call it back in again.
(Minister Quinn)

Minister Quinn announced the proposals as put forward by the NCCA and highlighted that going forward, students, not the examination, will be at the centre of curriculum reform. What Minister Quinn had decided was to signal an end to the terminal examination and focus on developing a school-based model of assessment with an emphasis on the quality of students' learning experience. He knew the reform hinged on the question of assessment and thus took the radical choice to take away the terminal examination. This high-stakes examination which directed the education system of lower secondary was to be no more. This was to be the beginning of a challenging process for all in the assemblage. The extreme nature of his decision was understood by some:

Unless he was radical in the view that he took, then there was absolutely no possibility of any change at all.
(Policy Actor 2)

However, his decision also brought with it other varying responses from the assemblage.

I think generally speaking the scale of what he was looking at, the speed at which he was thinking of it and also to a large extent unilateral way in which he was going about it, certainly wasn't in keeping with the Irish model of collaboration. And it got an awful lot of peoples backs up. It also didn't help, the timing of it probably wasn't ideal.
(Policy Actor 18)

The Minister's pronouncement laid out clearly for all actors that the assemblage could not continue on the curriculum setting it had previously enjoyed. Significant change had been heralded from the government. The announcement brought the beginning of the second phase of the Junior Cycle – the boat had sailed.

The DES took up the process of enacting the Junior Cycle Reform. The 'Policy and Curriculum Unit' in the DES work closely with the Inspectorate, State Examinations Commission and the NCCA to break down the policy into a workable curriculum. Agency silos worked in a collaborative team. It involved overseeing resources from finance, administration, ICT resources such as the broadening development of P-pod, (Post-Primary Online Database) which acts as a host for student and some school data.

I would have been responsible for taking what the NCCA were advising the Department, to turning it into some sort of project that you could implement. Dealing with the stakeholders around that. Ensuring that in-service teams were provided for with the resources we had, and resources were narrow at the time if you remember. Also, then making sure that there is a dialogue between the NCCA and the State Exams Commission about how stuff could work because you need to be very mindful of the practicalities of the State Exams Commission. It's a real high wire act.
(Policy Actor 14)

The DES set up the Junior Cycle for Teachers (JCT) which functions as a 'special task force to help teachers and support schools in the reform process'.
(Policy Actor 22)

It was public knowledge that this was a big piece of work, and it would require a dedicated support service, to show, I suppose, how serious the Department were about Junior Cycle Reform. They had to put their money where their mouth was and decided to establish a new support service, dedicated to this.
(Policy Actor 3)

The JCT built their team from leaders and teachers within practice, and fostered connections with the NCCA , DES and SEC. They understood that their role was to bring reform not just into classrooms but whole school curriculum reform and this depended on building the capacity of leaders in those schools.

I suppose there was a recognition that in previous efforts of reform, that the leadership piece got tagged in at the end and the idea was it was a dedicated focus on school leadership within JCT so that principals, deputy principals, curriculum leaders, would be aware, informed, have some sort of capacity to be in control and manage and lead, particularly lead, the changes that were inevitable as a result of the new framework for Junior Cycle, back in 2012.

(Policy Actor 3)

The initial years of the JCT encountered many setbacks as they began on a very positive note of enthusiasm but the ongoing IR difficulties created a very fraught space. This is captured in the voice of the following policy actor as he describes the changing landscape for the JCT:

I remember doing a large session in Cork the day the split[34] was announced. It was really a very positive session, but I think as soon as that split, then people reverted to type, a sense among the voluntary secondary schools and schools which were ASTI dominant, that school leaders said, we don't want to talk about junior cycle, we were supporting it still, but it's not to be talked about and a sense of frustration built over a period of time….. There was downright hostility including the picketing of centres where we were offering CPD at one time.

(Policy Actor 3)

This sense of frustration was also felt at the micro level and the teachers found attending at in-service brought all sorts of conflict and confrontation:

I get really frustrated when you go to an in-service and then there's people sitting their kind of going, why are we here? Or, they're not willing to kind of learn what's on the table on the day. Now, I was lucky with the one I had but I've heard horror stories.

(Teacher Actor 26)

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[34] The split this actor is alluding to is the split between the unions approach to the Junior Cycle Framework.

The JCT also navigated the frustration of those who were engaging in the reform as the constant changes to the framework created a shifting landscape. They worked hard to understand the concepts and the changes. On analysis, greater connections with the universities would have assisted in understanding and critiquing the concepts and processes proposed. Data offered the suggestion that "the universities themselves need to take more action to make sure that they are heard or tried to be heard" (Third Level Actor 8).

Decisions had to be made as to how this curriculum policy would be implemented. The macro actors all understood that the lower education system was conservative and slow to change. Many voiced their frustration with the snail's pace of change and the reset ability of the system. One actor suggested that "the Irish system is characterised by high levels of inertia, for all kinds of reasons we do things very slowly"*(Policy Actor 3)*. The DES had reached another bifurcation point and had to make a critical judgement. Should they take a risk and go 'big bang' and shake the equilibrium of the system, rocking the system to the edge of chaos. Or, should they take things slowly given the extent of change in the reform framework and go 'big build'?

The Junior Cycle was being developed in a kind of iterative process. Do we go big bang, or do we phase it? The decision was taken at one of the groups I chaired that we should phase it. Again, it's arguable. Some people wanted us to go big bang. My feeling now and then was, given the kind of cultural change not only in the classroom and the school but beyond for society, we needed to kindly disappoint people at the rate they could absorb. We couldn't just go banging overnight change. This is my sense.

(Policy Actor 14)

When questioned as to why the Junior Cycle changes might disappoint people, this actor explained that the Junior Certificate examination was a "stalwarts of Irish society, the exams were clearly fair, reasonably transparent in the sense that you know they worked" as opposed to all other institutions breaking down in Irish society. He believed that people wanted to hang

on to whatever was stable in a society that was clearly disappointing people in these years. However, the process of enactment was seriously stalled by the decision of the two unions, ASTI and TUI to operate a policy of non-cooperation with the Junior Cycle Reform. The two main reasons proposed in the data were assessment issues and resources.

We were adamant that the assessment thing had to be resolved and the resources thing had to be resolved.
(Policy Actor 18)

The biggest resource issue was time, time to allow teachers to meet to discuss and critically review the changes that were being requested:

There were various media outlets or media interviewers where we were asked is this about money? And we are saying if you mean money in terms of salary, no. Is it about money in terms of providing time for teachers to meet? Then yes, it's absolutely about money. If the Department want to bring in a change on this scale, then training has to be provided. Time has to be provided and that doesn't come free. But if you mean are we looking for a pay rise out of this. No, we're not. And we never were.
(Policy Actor 18)

The other issue was the issue of assessment. The suggestion that teachers mark and report the State Examinations for their own students was anathema for the unions.

I think there was a genuine recognition that if you start playing around with the area of a teacher deciding the grades the student gets in a State certified exam, you end up in a very different space. You do to some extent what's the word I'm looking for? You know it's that boundary as to what the job of the teacher is.
(Policy Actor 18)

This quote highlights the main issue which was the question and understanding of the role and identity of the teacher. The TUI advocated for changing teaching and learning methodology but teachers assessing their own students was something that could not be imagined now or in the

future. The reason offered by the TUI was the absolute respect the whole of society has for the

State Examinations Commission and the way they perform their role:

The State Examinations Commission is probably the only agency in the State that hasn't had its

credibility questioned in the last twenty years. And I think that really gets to the nub of it.

There is enormous respect for the SEC.

(Policy Actor 18)

This respect must be placed into the context of a society in which respect for most institutions

had evaporated, however, is respect the sole reason to offer for teachers not assessing their

own students for state examinations? The Junior Cycle Framework 2012 had suggested that

teachers could be the ones to take this role. The state trusted in the professional capacity of

teachers to assess. However, the teachers and their union insisted this undermined their role

as advocates for their students. One of the actors in the macro space suggested that this was a

misunderstanding of the role of teacher and a misdiagnosis:

The misdiagnosis can be clearly seen when one places under scrutiny the repeated insistence on

the point: "We will not assess our own students." Where assessment properly addresses its

tasks, teachers are not called on to assess their own students; i.e., their values, their attitudes,

their personalities and things like that. Rather, assessment, whether carried out by the

students' own teachers or by others, has the responsibility to assess the work of the students.

The distinction is a crucial one, but it is routinely overlooked.

(Third Level Actor 8)

Many teachers in the TUI were already used to marking their own students work:

'members routinely in the ETB sector would have marked practical papers, practical exams and

so on. So, for them that wasn't something that was completely set in stone' (Principal Actor 22).

The ASTI union offered similar arguments as the TUI union but it became what one actor

suggested 'the voice of reaction' (Policy Actor 16) -reaction for political reasons rather than

educational.

So why did the ASTI resist? The political class had a political football. That's one reason why they resisted.

(Policy Actor 16)

Perhaps the clearest understanding of the problem with assessment came from one of the actors. They explain the incomprehensibility of thinking about assessment for teachers as something broader than examination:

It's like somebody telling you there is an 8th colour in the rainbow and you only know seven. In fact, everybody you speak to only knows seven. So, I have a hidden agenda in telling you there is 8. Why wouldn't you be entirely suspicious?

(Policy Actor 13)

The data supports the idea that there is an assessment literacy problem within the assemblage which needs to be confronted by all actors. Continuing with the above metaphor about assessment as a new colour of the rainbow, the actor continued by suggesting that even if the teacher/leader believed in a different way of assessment, they would still have concerns:

Right now, I believe you but I can't factor it into the way I go about my business because I just accepted that it's there. But I actually don't understand where it begins and ends. What its possibilities are? What the depths of it are, etc".

(Policy Actor 13)

The assessment narrative from the union perspective gained momentum within the assemblage due to the closure of feedback loops which communicated the central message and understanding of the Junior Cycle. The micro space gatekeepers ensured that the system did not learn.

In-house problems within the ASTI leadership, the mixing of Industrial Relations issues with curriculum issues, the context of the economic recession and broader issues of a political nature engulfed the ASTI dispute with the Junior Cycle with a complexity that was extremely difficult to negotiate. This complexity and exasperation is expressed by the various actors

through concepts of the loss of moral agency, lack of vision, Thatcherite tendencies and overall stubbornness to confront change:

Teachers were told don't get involved in consultation. Don't read the website. Don't do anything. Don't think Don't talk. Don't even mention Junior Cycle or assessment in your school, or somebody there will rat you out to the local branch and that will become a problem. To a degree a level of coercion of, certainly intellectual coercion going on there. That cannot be allowed to happen again.
(Management Agency Actor 7)

There is another thesis to be written on the actions of the unions during phase 2 and 3 of the Junior Cycle Reform. The area of assessment was just one of the many complex issues that made up this space. The TUI in the end became what one actor called 'a refuge' for members of the ASTI whom he called 'refugees'. The metaphors actors used to describe this phase were about war and battle and the fallout created a landscape of emotional and professional wounds that have a significant impact on the assemblage.

We haven't enhanced our status. We haven't empowered them. We haven't enhanced their capacity and in a way, I feel sorry about that because you know teachers need unions. They really need good unions for working conditions and all of that. And yet we have done our members such a poor service and we have done society such a poor service. We really have.
(Policy Actor 16)

3.3.3   Phase Three

On the 17th January 2014, the DES offered a further outline of the amended implementation. The roll out of subject specifications was revised and working groups on other specifications were set up. The creation of a toolkit for assessment and moderation was undertaken and continued CPD for leaders and teachers proposed. Phase 3 began with the introduction of the "Framework for Junior Cycle 2015" (DES, 2015). This 2015 framework depends on the **2012 Framework** to outline in detail its main educational philosophy. Again, the

student lies at the very heart of the philosophy of the Framework and the vision and mission asserts this student central role in the three main domains of the curriculum: ***8 principles, Twenty-Four Statements of Learning and Eight Key Skills***. It seeks to engage each student in their own learning so that they can become creative, resourceful and skilled participants not only in the world of the future but to partake in the world communities in which they live in the present[35]. It proposes that all actors in the assemblage should ensure the best learning experience for each student in their own context. Whether a student lives in Donegal or Dublin, the learning they experience should be relevant to them in their setting. In order to achieve this philosophy, the following points were to be addressed by the school:

- The importance of school autonomy in order to present a flexible programme which would offer the choice of a wide range of learning experiences for each student.

- Integrated teaching, learning and assessment practices, along with the development of 24 Statements of Learning, Eight Key Skills and subject specifications based on Learning Outcomes, which would ensure an excellent quality education for all students.

- Assessment practices, both Formative and Summative, must be integral to teaching and learning and quality assured.

- The concentration on the holistic development of the student and a focus on Wellbeing as an important aspect of the students' growth.

- Equality and inclusivity in ensuring fairness and openness of educational access.

- The learning experience relevant to the world of the 21st Century which engages and motivates the student to participate.

- The three years of the Junior Cycle should offer the student the opportunity to be creative and innovative.

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[35] These choices will be discussed in detail in Plateau 8, the discussion plateau.

The 24 statements of Learning underpin all learning that a school offers to students and are provided in *Appendix 6.* Each school is encouraged to build, through discussion and collaboration with the Board of Management, Principal, teachers, parents and students, a timetable, curriculum and choice of subjects or short courses that best meets these 24 Statements of Learning. These 24 Statements of Learning take the place of what was previously called the "syllabus". The move to Learning Outcomes has generated lots of discussion in the literature: see (Kelly, 2004, Priestley and Biesta, 2013) with the main concern around:

a. Whether it is ethical in a democracy to predefine what people should learn, and even how they should be (Kelly, 2009).

b. Defining how much detail should be offered in the Learning Outcomes (Priestley, 2015).

c. The gap of enactment and how teachers understand the policy and bring it to reality in their classrooms (Looney, 2001).

These concerns will be approached later in the thesis, however, the NCCA had learned from the Scottish "Curriculum for Excellence" (2008), to keep the Learning Outcomes succinct and refrain from engaging in long lists of expectations(Priestley, 2014). This was a difficult decision as teachers were used to a syllabus outlining in detail what content and knowledge was to be taught.

Framework 2015 has adopted Eight Key skills instead of the six in the 2012 Framework: Managing Myself; Staying Well; Managing Information and Thinking; Being Creative; Working with Others; Communicating. They have aligned the Numeracy and Literacy skills with the other six, as essential skills that a student needs for the 21st Century living. These Eight Key Skills are seen to be the keys to unlocking learning for the student and are embedded in all Learning Outcomes. The whole introduction in 2017 of the area of Wellbeing (NCCA, 2016), demonstrates

the Department of Education's commitment to the development of the key skills. They highlight the clear move away from learning as providing a body of knowledge to the understanding that learning is also about developing skills and must be collaborative, innovative and self-directed.
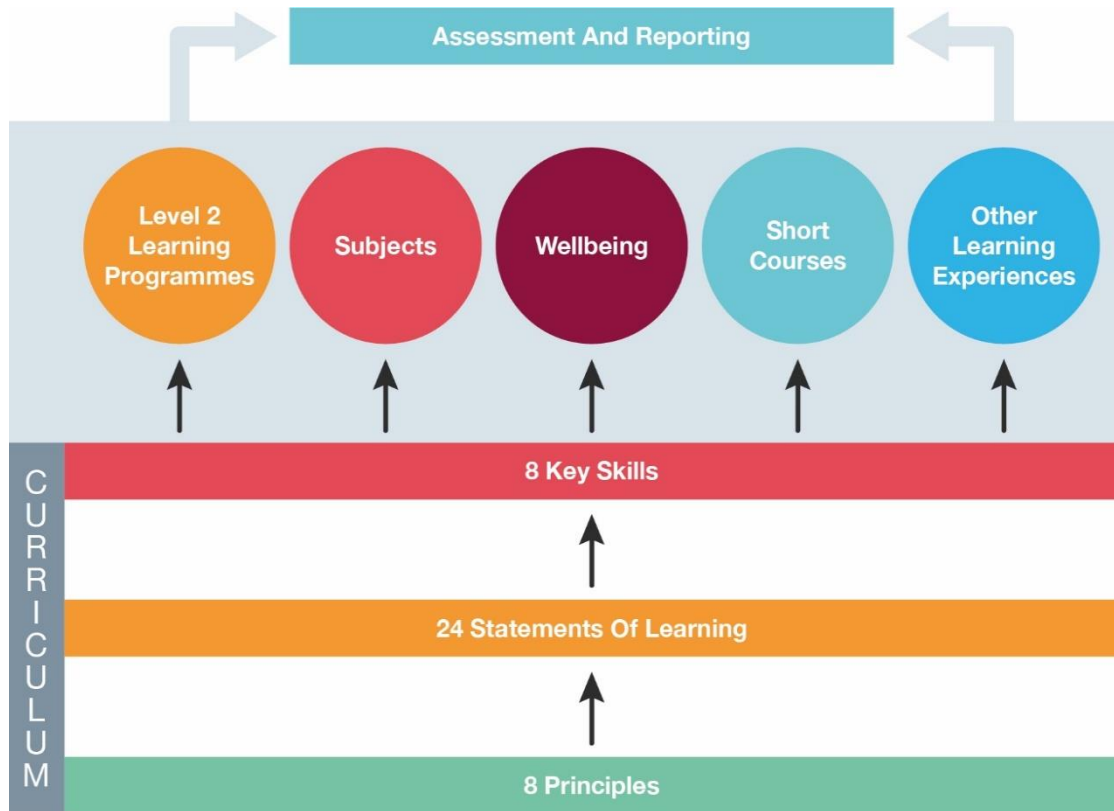
Figure 10 Structure of Framework for Junior Cycle 2015

A student would learn through a selection of a maximum of ten subjects or a combination of subjects and short courses which are aligned with Level 3 of the National Framework of Qualifications. These subjects and short courses would be phased in over a period of time. Each of the twenty-one subjects available would have a specification in which the key skills are embedded in the learning outcomes. All subjects and short courses are taken at a common level with the exception of English, Irish and Maths. English, Irish and Maths are the Core subjects in the Junior Cycle. They are offered a minimum of 240 hours over three years, whereas all other subjects are offered 200 hours. The reason offered for this continuation of a

hierarchy of subjects was literacy and numeracy motives. A school also has the flexibility to make other subjects core as the need may be. Schools may also provide Level 2 Learning Programmes and Priority Learning Units (PLU) for a small handful of students with general learning disabilities in the higher functioning moderate and low functioning mild categories. Students will also be offered "Other Learning Experiences" and "Wellbeing" in order to develop their personal growth. **Appendix 7** outlines an explanation of short courses, Level 2 Learning Programmes, Wellbeing and Other Learning Experiences. Each of these changes brought tension and concern for all in the meso, micro and nano spaces as any diminishment of time given at Junior Cycle would affect the potential of Leaving Certificate success. The academic trust of previous curricula was being challenged by the area of learning called wellbeing. Repeatedly in the data whilst wellbeing was embraced by the assemblage, it constantly was questioned in how it related to the Leaving Certificate. This is portrayed in the following conversation between myself and student actor 29:when I asked what do you think is the purpose of the Junior Cycle?

> *I suppose a mixture of things. Not just academic certainly. I suppose the student*
> *to succeed all round. So, I know Wellbeing is big, but they need to be confident in what*
> *they come out of the Junior Cycle with. In terms I suppose of different subjects and*
> *how well they have done. And it's really, it's a link or a platform for Leaving Cert.*
> *(Focus Group Actor 29)*

The approach to assessment brings about the biggest transformation of all in the Framework. It puts assessment right in the very centre of teaching and learning not at the conclusion.

> *I think if you look at Ireland in its international context, we were one of the few countries still*
> *operating that kind of summative assessment model for so long. So, it was time that it went or*
> *got seriously reconfigured.*
> (Management Agency Actor 7)

The Framework offers a stronger focus on a dualistic approach to assessment – both Formative and Summative practices. Both practices support and report on learning. The challenge of marrying the two and integrating them into the practice of teachers and students is one of the many challenges that not only Irish schools but schools across the globe are facing at present[36]. The proposed change to assessment was manifold. In the terminal examination it was proposed that the questions would be based on Learning Outcomes and that this would take away some of the predictability that was a criticism of the previous examination. Teacher actor 30 highlighted that this was one of the challenges for teachers:

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[36] Within the dual approach to assessment, what is new:

    a.   Classroom Based Assessments

    b.   Assessment Task

    c.   A new State certified examination that takes place at the end of Third Year.

The classroom-based assessment and assessment task are formative in approach. In the new Junior Cycle, each subject will conduct two Classroom Based Assessments, one in the spring of Second Year and one in the autumn of Third Year. These will provide students with opportunities to demonstrate their learning, skills and understanding in a way that formal pen and paper examinations cannot. As the student works through the classroom-based assessment, he or she will be given developmental feedback that will help them move their learning forward so that they may achieve success whatever that may look like for each student. There is a reflection component at the end of the assessment where the student engages in self-evaluation on their learning. The Assessment Task takes place after the second Classroom Based Assessment in Third Year. It will be completed in class time to a national timetable. It facilitates the students to highlight and transfer the key learning experienced during the second Classroom Based Assessment. It is also a way to reflect on the key skills and competencies that they developed over that period and it encourages the student to act on the developmental feedback they have received over the process of the Classroom Based Assessment. It will act as a bridge between the Classroom Based Assessment and the state examination. This Assessment Task will be 10% of the subject's final marks in the state examination. It is set, marked and resulted by the State Examination Commission.

The idea that, you know before now we could predict a novel, a play, a poem. That the predictability is completely gone.
(Teacher actor 30)

This turn to the use of Learning Outcomes will be discussed in greater detail and analysis in the "Discussion Plateau". It seems that the Junior Cycle Framework is suggesting that assessment based on Learning Outcomes in itself removes predictability and we know it does not. Principal actor 25 explained that his teachers were already trying to "crack the code". The segmentation and coding of assessment restricts the move for teachers to more open and smooth spaces.

Nevertheless, the major change to the State Examination was that all assessment was to be based on Learning Outcomes to somewhat take away the predictability of the previous examination in an effort to have greater curriculum alignment with teaching, learning and assessment. All papers were set at a common level with the exception of English, Irish and Mathematics. The SEC were to take responsibility for setting and reporting 90% of the final exams. Both classroom-based assessments were to be marked by their teacher but would be reported by using different descriptors than that used in the state examinations. The other big change in the 2015 framework was how the school would report on assessment. In the autumn after 3rd year, the student would receive a 'Junior Cycle Profile of Achievement'. This would report not only the state examination results but 2 classroom-based assessment, short courses, wellbeing and other areas of learning. It would offer a snapshot of a student's learning over the three years of the Junior Cycle supporting the holistic element of the Junior Cycle philosophy[37].

The TUI engaged with this new framework but the ASTI voted again in a ballot to continue non-cooperation. It was not until May 2017 that they finally gave the signal for teachers to begin participation in the reform due to a push from within ASTI to change their

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[37] A critique on the approach taken in the Junior Cycle Framework will be proffered in the following plateaus.

trajectory. The three phases of enactment of the Junior Cycle Framework have been highly complex and steeped in controversy, suspicion and frustration. Although there has been major changes from the original Framework in 2012, the 2015 Framework still presents that 'seismic shift' in relation to curriculum epistemology, ontology and axiology. How the assemblage is becoming will be the central study of the next two plateaus but for many actors in assemblage the whole experience of enactment put them into a space of stagnation, whereby they felt stuck and could not grasp the agency that this new curriculum offered:

It was like we were in a car that was going somewhere that suddenly stopped. I was thinking last night that I was like I was part of a fleet of ships that were sailing to a particular destination at the beginning. And it was like some of them went on and others were just anchored and couldn't go anywhere. And I feel now that it is now as if we are no longer anchored and we can go ahead but we're scrambling to catch up with the others who have gone ahead.   It is that feeling that ....the engine is kinda overpowered nearly.

(Principal Actor 21)

The next section of this plateau will explore the landscape of liminality in the assemblage.

3.4   The Liminal Space of the Assemblage

One of the biggest challenges which the enactment of the Junior Cycle curriculum faced was the conflict between two mindsets. The first mindset was concerned with how knowledge, understanding, skills and values offered at Junior Cycle would feed into the rigid molar line of the Leaving Certificate. The second mindset desired a more open, holistic, non-linear, ecological and as not-yet-imagined educational experience for all in the assemblage. The first mindset favoured a continuation of previous practice which supported an instrumental, deterministic, linear and narrow educational experience for students because as far as these actors were concerned, the Leaving Certificate still needed this type of approach. The Leaving Certificate was not being reformed as yet and change would only be embraced if the Junior Cycle curriculum

supported the purpose of the Leaving Certificate. The growing unease of the actors holding to

this mindset is captured clearly by the following quote:

Teachers had been validated for their work, in working to subjects and working from textbooks,

 in producing A's, B's, C's and D's, in maximizing higher level uptake where they could. In all of

the work they been doing, they had been loudly affirmed by the system, by the civic society, by

politicians, by the Department of Education, by their school principals, loudly lauded for that.

And now suddenly there was this break, like driving along a highway on tarmac and suddenly

running into sand and not feeling safe. Not knowing your direction, no signs on the road. That

feeling of liminality was just too powerful, too psychologically powerful, particularly given the

collision of this initiative with a major national recession, with devastating consequences for

schools and for families and school communities.

(Management Agency Actor 7)

The assemblage for over a century had been encouraged in a particular process of

knowledge making and the Junior Cycle Framework had disrupted the equilibrium of the

assemblage, heralding a new type of landscape to navigate but one which seemed to have no

signs or directions. This new landscape was suggesting the following changes:

- Change in the purpose of education

- Change in knowledge-making

- Change in teaching, learning and assessment

- Change in values

- Change in relationships

The main component of liminality is transition, the importance of in-between periods in human

or social history. It is the experience of having little structure or the sudden foregrounding of

agency, and the sometimes-dramatic tying together of thought and experience.   Thomassen

(2009, p.5) suggests that "in liminality, there is no certainty concerning the outcome. Liminality

is a world of contingency where events and ideas, and "reality" itself, can be carried in different

directions". Human reactions to liminal experience may open up thresholds of high creativity as

each human makes the transition but for some it may also bring about stagnation. The Junior Cycle curriculum reform initiated a passage of change and there were different responses from the actors in the assemblage. Some actors negotiated this space with developed agency, creativity and imagination whilst other seemed caught in transition, creating an atmosphere of fear, panic and at times helplessness. Again, I am going to pause here for a moment and I am going to fold another quote into this narrative:

What annoys me intensely is you talk to teachers privately, of course they know the system is crap. You talk to them collectively, oh no, standards, exams. We have to have our Leaving Cert. There is an extraordinary disjunction between their experiential knowledge and lived realities. It's totally against what their lived reality is you know.

(Policy Actor 16)

I have added this fold into the text to highlight the complexity of the liminal space. It is not just about the whole assemblage in transition but also offers a glimpse of the transition of the teacher as an individual and as part of a collective whereby there is a dichotomy between the two. Transition to a threshold in the liminal space will require a merging and connectivity between the mindset of the individual and the collective, the private and the public. Ireland has managed huge cultural and social change in the past: smoking policies, plastic bag policies and seat belt polices. Why has the Framework for the new Junior Cycle caused actors to become so stagnated in this space of liminality? Deleuze and Guattari suggest that the assemblage flows on three things: semiotics, material and social flows. The assemblage was not in flow and all three of these elements were confronting impediments to their movement.

3.4.1.1 *Semiotic flow*

In Ireland, the curriculum culture is product orientated and the Junior Cycle Framework recommended a process model. What the new curriculum proposed for leaders, teachers and students was a different skill set, a different way of thinking, behaving and relating. If the purpose of education and thus the curriculum were no longer totally examination orientated

but concerned with the centrality of the student, then new concepts, ideas and a language had to be negotiated. There were new concepts and language around learning – learning outcomes and intentions. Around teaching there were new methodologies, skills and the use of technology. As described, assessment brought forth a new language and understanding. Alongside these elements, there were all the other components of the framework and a glossary of terms had to be constructed to help the assemblage acquire literacy around curriculum. What was essential for semiotic flow was:

……getting agreement on the key terms and phrases and the language of assessment. My sense was that people were talking a different language. The Inspectorate were using language, which was different from the NCCA, was different from JCT, the PDST etc. So, getting an agreement on a list of key terms. So, learning intentions, learning outcomes, success criteria and all the other associated language of assessment, we sat around a table over in the Department for an afternoon and we thrashed it out. We got agreement and it was agreed with the main partners, that this language would be used by all of us and there were some terms and phrases that they might not be happy with, but we're going to stick to it.

(Policy Actor 5)

Semiotic flow was hindered as the assemblage grappled to acquire the new language and thinking. Previously, a teacher knew the language of their subject and awaited engagement with any new language during the CPD for their subject when reviewed. What this meant for the Junior Cycle was that teachers might not engage in any curriculum thinking until that phased roll out of their subject occurred. They were still of the mindset that they did not have to engage in the craft of curriculum maker which they still assumed was the domain of macro actors. However, in the Junior Cycle Framework they were positioned as central agents and this moved beyond the borders of subjects. What also created the sense of confusion was that this role as curriculum maker was not communicated clearly to the meso or micro levels. It was evident from data that the process of communication about the central message of the framework failed from the beginning which generated a curriculum literacy dilemma.

We were not ready to communicate, to engage with communities, with teachers and with

parents, at a level and at a depth that was necessary to explain, to win the support and to

make sense of the changes and to get beyond the language of educationalists and of, I

suppose, the more complex language that we use in education and being able to mediate that

back down to practical language for a teacher, for a student, for a parent, even for our business

community who were very supportive. And also, maybe a lack of capacity to bring certain

groups with us on the journey".

(Business Actor 4)

The failure of the assemblage to communicate, the inability of many of the actors to understand the curriculum concepts and language of the framework, the mindset of non-engagement, reduced the semiotic flow in the assemblage and ensured that the space and duration of liminality extended way beyond what had been expected for this transition.

3.4.1.2 *Material Flow*

What mattered in the assemblage was the examinations: Junior and Leaving Certificate. If you take the exam away then why am I teaching? If it is a skills-based curriculum well then where does my subject fit in? Will I have a job next year?

If you move from a disciplined focused education curriculum notion to one that is skills focused,

is there a risk that my subject which is already struggling could get squeezed out? If you

squeeze me out, where do I go? So, it's not just that the level of the discipline anxiety but even

my personal sense. So, they were lesser concerns, but they were real.

(Policy Actor 13)

The personal threat of losing a job was accompanied by the professional threat of no longer being the sole source of knowledge in the classroom. The Junior Cycle Framework endorses the constructivist approach to learning and what this meant for the teacher was that knowledge is constructed not delivered. What matters in the assemblage is the classroom encounter and an educational experience for each student and not just about getting their examination grades, A, B or C.

3.4.1.3 *Social Flow*

One of the biggest changes proposed by the framework was a move to more collaborative practices within the assemblage. As discussed above, the structure of lower secondary was fragmented and agencies worked as silos within the system. We noted also above that the Junior Cycle Framework encouraged teachers to move from autonomous individual practice - 'teachers in Ireland have been working in their classrooms with their hands around their work so that nobody sees and won't even share resources with their colleagues' (Actor 10) – to professional learning communities founded on collaborative and reflective practices. Andy Hargreaves spoke at a NCCA conference in 2017 and he suggested that the problem in the assemblage was the lack of social capital (Video available at www.nacca.ie). To encourage social flow the structures of the Junior Cycle Framework in assessment, CPD, leadership and wellbeing all promoted collaborative practice. The pedagogical practice that it promotes in the specifications and other areas of learning demand inter and intra-action between teachers and teachers, students and teachers, students and students, parents and teachers and management with all the above. Dialogue about teaching, learning and assessment allows lower secondary a social flow that commingles practice, theory and philosophy. It engenders a system that is learning the craft of educational conversation that had not been normal practice. The move to this type of professional community is not an easy one and without engagement the assemblage remains in that state of stagnation.

In addition to the semiotic, material and social flows being obstructed and hindered, the lack of movement for curriculum in Ireland is also created by a lack of the capacity to deal with the changes. Whilst there was clear agreement as to the **why** of the curriculum reform, **how** it was brought about caused major controversy. The on-going union directive against non-engagement with the new curriculum and all the changes that came about due to these discussions (DES, 2015), caused even more confusion and the constant changing of the curriculum advice e.g. on assessment, the number of subjects for examination, short courses,

how many skills -6 or 8 – caused the degree of liminal space to broaden and extend. All departments in the assemblage found they were stretched beyond capacity to deal with the changes e.g. JCT could not see any secondary school for about three months after the strike ended as they had already allocated their days to the ETB sector and were overwhelmed.

Within a liminal space, thresholds needed to open up where agency could be pushed forward. The stagnation continued to grow due to a lack of advocacy from the main agents. The only voices that were heard were the negative voices of the unions which often distorted the message and of course fake news was also endorsed by the media. The assemblage lacked cohesive leadership that were willing to take the risk and make statements and answer questions to the country about the Junior Cycle. We lacked ceremony masters. There was too much silence.

The introduction of the Junior Cycle Framework brought great levels of complexity to the assemblage, disrupting layer after layer of assumptions, mindsets and perceptions. Each of the complexities combined to create a landscape within which the Junior Cycle Reform had little agency. The biggest challenge for the assemblage was to develop agency at all levels to allow the Junior Cycle to become. This was a very challenging task. The data offered real examples of confusion about what curriculum is about and offered an insight into how much scaffolding that was needed for leaders, teachers and students to allow lower secondary in Ireland a new becoming and emergence. The following quote captures the confusion about what might a curriculum realise:

Again, I would say one of the issues with our English programme is that there hasn't been an application of English to real life. You don't need a year doing Shakespeare or two years or three years to be able to communicate with people quite well. In fact, it can be very limiting because you are using up all your energy, engaging with something that really doesn't touch you in any way.
(Policy Actor 10)

Statements such as this give an insight about the real lack of understanding and restrictive mindset as to what a curriculum is about. Nevertheless, there were some actors who moved through the changing space with ease and these were the early adopters and who embraced the changes to the curriculum passionately. They join the history of the many actors who tried to drive change over the decades within the assemblage but did not have the structural changes to help them crack open the molecular lines so that new lines of flight could break free.

This is where it gets very interesting, because now you have the system and the state saying to the profession, we have confidence and trust in you to begin to develop not a free for all, not a blank space, off the templates developed by the NCAA, but certain at putting more responsibility and more confidence in the teaching profession to take curriculum to a space where it is as relevant and as meaningful as possible for the learner.

(Policy Actor 11)

The second mindset desired to open a broader and re-imagined educational experience for students through the new curriculum as described above. It is their story that we will explore in the next plateaus.

3.5 (BE)GOING THOUGHTS

The four spaces of the assemblage have their own context, history, structures and culture. The semiotic, material and social flows brought challenges as the assemblage began to engage in the process of making the Junior Cycle Framework a reality. The horizontal axis of the assemblage was shot through by vertical lines of flight and possibility. The combining complexities of previous curriculum reform history, the centralised and dependent structures of lower secondary and the culture driven by examination, all combined to create the movement through this transition and liminal state of the assemblage a challenging process. The multiplicity of voices have proffered their perspectives and together they connect to an assemblage that is diverse, dynamic and difficult to navigate. We turn our attention to how

agency was achieved to drive the Junior Cycle to thresholds whereby they could begin to self-organise and the curriculum could gather momentum. We are interested in what elements of the framework began to emerge and gain traction and assist to answer the question: How is the Junior Cycle Framework becoming in the assemblage of lower secondary in Ireland?

Plateau 4 EDUCATION AS BECOMING

4.1 (BE)COMING THOUGHTS

The primary question that this research is asking is: **How is curriculum becoming in the assemblage of lower secondary education in Ireland?** It became very clear from an early stage that it was impossible to answer this question about the emergence of curriculum in lower secondary without knowledge and understanding of the purposes for education that a particular curriculum might comprise. Curriculum nests itself in a multiplicity of educational purposes and in order to understand the becoming of curriculum in the assemblage, it was fundamental to explore the educational purposes that were also becoming. Curriculum and purpose of education are intricately intertwined and connected together. It is the purpose for education that flows through a curriculum, offering it its vision and mission. Therefore, this thesis offers two plateaus to navigate the landscape of the purposes for education.

Plateau 4 will offer a literature review, not to seek what does education *really mean*, but to unravel the concept of education in a way Massumi (1992) suggests by asking: "Does it work? What new thoughts does it make possible to think? What new emotions does it make possible to feel? What new sensations and perceptions does it open in the body (p.8). Deleuze and Guattari in "A Thousand Plateaus" tell us that a multiplicity is not an entity or thing but is a process of arranging, organising and fitting together, a process of knowledge making. Deleuze, Guattari, Osberg, Biesta, Davis and Sumara each offer a process of knowledge making as they apply in very pragmatic ways their theories for emergence in education. Each author proposes conditions that endorse a complexity approach to education and see it as an expanding, non-linear, centrifugal process. Whilst recognizing the importance of qualification and socialization, there is an evident turn to understanding education as more than learning but opening up the possibilities of bringing something new into the world -subjectification. The conditions offered

such as Biesta's 'pedagogy of interruption' (2006a), Guattari's ecosophical model (2000), and Osberg's 'space for emergence' (2008) will assist in exploring the purpose of education in the assemblage. Each will offer a frame to help map the synergy of relationships in the assemblage as they move to view education as an expanding non-linear process of emergence and becoming.

Plateau 5 will map the educational purposes and desires voiced by the actors in the assemblage of lower secondary education in Ireland.

From merging the concepts explored in both plateaus 4 & 5, I will answer the connected and underpinning question for this thesis: **How is the purpose of education becoming in the assemblage of lower secondary education in Ireland?** Through the lens of these educational purposes, we will be ready to explore curriculum and begin to answer the primary question of this thesis. The purpose of this plateau therefore is to offer a literature review on how educational purpose is becoming and emerging by exploring the following concepts:

- The concept of education as multiplicity

- Education as becoming and emergence

- The educational space of becoming and emergence

Negotiating this plateau will help weave a rhizome of concepts that are helpful in exploring and mapping how education is working in/through/for curriculum in Ireland. They will help to inform and highlight the trajectories of professional judgements about educational purposes gaining momentum in the assemblage of lower secondary in Ireland. These concepts may open up smooth spaces where something new and different might come into existence. Exploring

educational purpose opened an ecosystem of concepts for me as nomad. The following mind map captures the main concepts explored in this plateau[38]:
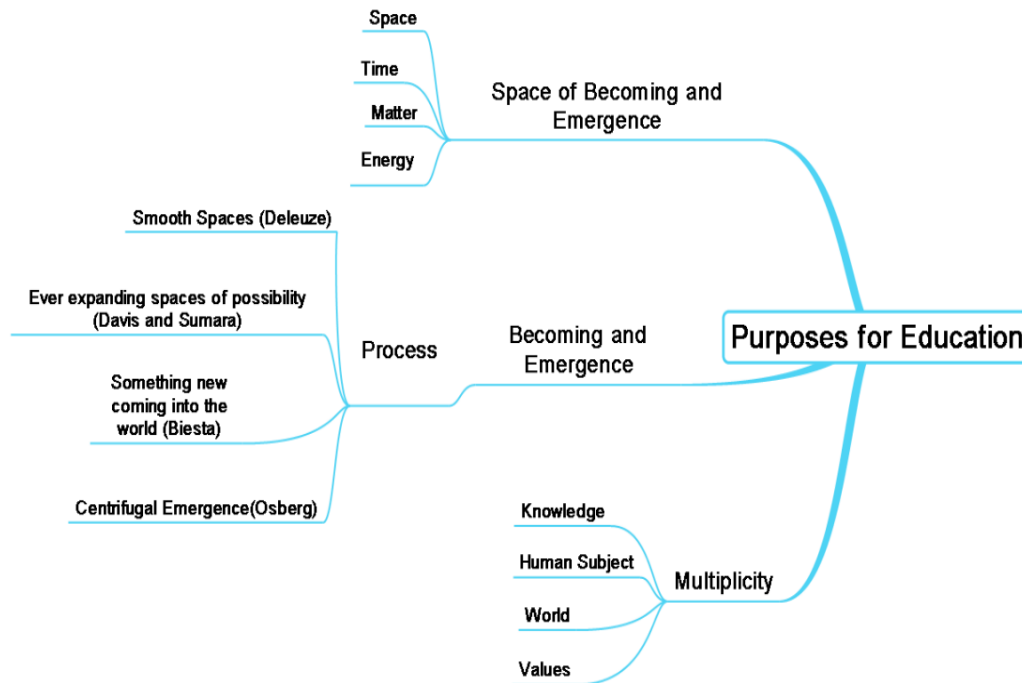
Figure 11 Mind map of the Purposes for Education

4.2   THE CONCEPT OF EDUCATION AS A MULTIPLICITY

An interesting concept that arose from many of the books and articles related to educational purpose was the idea of education as a multiplicity. Education is a discipline that draws on and connects a diversity of disciplines such as philosophy, history, sociology, psychology, anthropology etc., and this creates a highly complex and contested landscape for the educator (Davis and Sumara, 2008, p.130). Depending on your discipline and ideology,

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[38] "Of course, smooth spaces are not in themselves liberatory. But the struggle is changed or displaced in them, and life reconstitutes its stakes, confronts new obstacles, invents new paces, switches adversaries. Never believe that a smooth space will suffice to save us" (Deleuze & Guattari, "A Thousand Plateaus", 2003, P.500)

education can offer a heterogeneity of understandings, values and perspectives. Added to the diversity of disciplines are multiple ideas of what is knowledge, what or who is the human subject, what values should be foregrounded and how we should relate to our world. All converge to create the complex, expanding multiplicity of education. Adding to this complexity, education has also become the remit of interested parties on a global, national and local level due to the dynamic changes in economic, political, social and cultural domains. Today research calls us to reappraise the purpose of education and encourages us to shift the focus away from individualized acts of cognition to view education in terms of change, flows, mobilities, multiplicities, assemblages, materialities and processes (Taylor and Invinson, 2013, p.665). The biggest challenge for education is how it can respond to the needs and desires of the collectivity of human subjects within the assemblage that is our world. What is it that these subjects desire of the process of education? What are its purposes? Given that education has so many elements that converge together as a multiplicity, it is vital that we know what education is for and what it is we wish to achieve (Biesta, 2013).

John Dewey (1916) offers advice about the aim or desire of education when he remarks that "it is nonsense to talk about the aim of education - or any other undertaking - where conditions do not permit of foresight of results, and do not stimulate a person to look ahead to see what the outcome of a given activity is to be" (p.102). While Dewey is right in that we need to see what results and consequences our intentions and aims of education might bring about, the problem with education is that those aims can never be totally specified or contained. Education is an emerging, complex multiplicity whereby it is impossible to predetermine the future. It is unpredictable and incompressible (Cilliers, 1998, p.4). With this complexity in mind, Morin (1999) suggests a regrouping when approaching aims and purposes of education:

> Education for the future must make a concerted effort to regroup[humanity's] scattered knowledge-from the natural sciences, to situate the human condition in the world; from the social sciences, to shed light on human multidimensionality and complexity - and

integrate into this scientific knowledge the priceless contribution of the humanities, not only philosophy and history, but also literature, poetry, the arts (1999, p.21).

There is a deep complexity about the outlining of desires and purposes for education. However, the recurring themes that may help focus on understanding what education is for are:

   a. How is knowledge constituted (Davis and Sumara, 2008)

   b. What we mean by the human subject (Levinas, 1981)

   c. How we relate to the world (Braidotti, 2013)

   d. What values or principles are being foregrounded (Biesta, 2015a).

Each of these four themes will feature in our understanding of education as becoming and emergence. Each one offers a landscape of diverse and disputed concepts. Hardardson (2012) in his article suggests:

> The most plausible explanation of why we disagree about what education involves is we have less than perfect knowledge of what human characteristics are most worthy of being fostered. Our understanding of the purposes of education is underway because we are still searching for answers to the questions about human excellence and the good life posed by the ancient philosophers. An end to that search is not in sight (2012, p.234).

However, Biesta is very clear about the importance of knowing the purpose of education. He explains that without a sense of purpose, there may be learning but not education. This is why we might claim that education is not just a practice that is characterised by the presence of purposes, but that it is a practice constituted by purpose(s) (Biesta, 2008).

In exploring the multiplicity of desires and purposes for education, the question to ask is not what does this desire signify or mean but rather what affects its assemblages produce and what flows of desire they cut off (Malins, 2004, p.85). Education will open up pathways and opportunities but it will also at the same time reduce, narrow and close down possibilities (Osberg and Biesta, 2010, p.1). Educational purposes thus remind us of Deleuze and Guattari's (2003) smooth space or striated space. Education always involves choices and is therefore

highly political. The answer to the question of what is desirable for education and how it works thus involves making some real value judgements and this opens up a political space because they involve the politics of values and power (Osberg and Biesta, 2010). The assemblage of lower education through its dynamic interconnectivity, converges on numerous bifurcation points where decisions and judgements about what is the best for education in Ireland must be made. These value decisions reflect an ideology or world view. It is only when we are clear about purpose and we can justify that purpose, that judgement can be made about the actions we propose to bring this purpose to fruition. However, the question of power still remains as to who is exerting the power over the desires and purpose.

The real difficulty with this conversation about the desire and purpose of education today is seriously hampered from the beginning because according to Biesta (2010), educators insist that education is restricted to competitiveness and measurement (p.12). We noted in the Plateau 3 that education in lower secondary in Ireland is driven by the Leaving Certificate examination and all that is valued is measured according to this driver. Biesta offers three examples which measure how national educational systems perform compared to those of other countries and which have then shaped educational policy and practice: Trends in International Mathematics and Science Study (TIMSS); Progress in International Reading Literacy Study (PIRLS); Program for International Student Assessment (PISA) (2010, p.10). He argues that many feel that the purpose of education is just common sense and what educators and policy makers are forgetting is that these data and factual information needs to be considered alongside what is *desirable* for education - real value judgements need to be made about what is educationally *desirable* (Biesta, 2010, p.12). He questions the validity of these measurements and queries whether we are measuring what we value or just measuring what is easy to measure and thus ending up valuing what we (can) measure (2008, p.12).

The intertwining of Complexity Theory's concept of emergence and the Deleuzian and Guattarian (2003) concept of 'becoming', offer possible ways of re-imagining the purpose of education and move what matters in education beyond measurement. It offers a between, middle space or threshold where binaries and dualisms[39] that are so prevalent in education can find a different, more rhizomatic reworking.   There is a vast assemblage of literature which supports and critiques the use of Complexity Theory and the exploration of Deleuze and Guattarian concepts in relation to education. Journals, such as '*Complicity: An International Journal of Complexity and Education'* offer a platform for investigating not only the descriptive understanding of complexity but its philosophical, theoretical and empirical trajectories. Besides the multitude of books which offer insights into the philosophy of Deleuze and Guattari, the journal '*Educational Philosophy and Theory*', has supported a continuous stream of articles on the implications of this philosophy on education, (Semetsky, 2006, St. Pierre, 2004, Semetsky, 2008, Semetsky and Deely, 2017, Mulcahy and Morrison, 2017, Hanley, 2018). By plugging into these resources and readings, this research proposes that ***the purpose of education may be conceived as an expanding, non-linear process of strong emergence and becoming.*** To negotiate how this understanding of education works, I have chosen to intertwine the idea of the "logic of emergence" in the writing of Osberg and Biesta (2008, 2007, 2010), the pragmatic approach to complexity from Davis and Sumara (2008, 2010), and the domain of "subjectification" in the work of Biesta (2006b, 2013, 2006a). The Deleuzian and Guattarian idea of becoming and the concepts of multiplicity, difference, time/duration and affirmation, all add to offering indicators, conditions and criteria to help map how education is becoming and emerging. This orients the purpose of education to 'smooth spaces' (Deleuze and Guattari, 2003) where something different might happen, but also adds significant insights to alternative ways of engaging in how education works. Each of these approaches to education, mobilize the

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[39] Dualisms such as determinist vs emergentist, teleological vs open, process vs product, subject vs object

complexity idea of the importance of relationships, inter-connectivity and the idea of strong emergence and becoming. The importance of emergence for education is summed up by Davis and Sumara:

> Education – conceived in terms of expanding the space of the possible rather than perpetuating entrenched habits of interpretation, then, must be principally concerned with ensuring the conditions for the emergence of the as-yet-unimagined (2008, p.135).

The task lies in offering a robust, emerging educational theory that responds to the needs and the complexities of the human subjects of the twenty-first century. It must be one that answers questions about human subjectivity and their place and response in the social, political, cultural and ecological world, both actual and virtual that they inhabit. It must be cognizant of how they interrelate with other non-human and more-than human agents. Its orientation must invite the generation of new knowledge, skills, values and dispositions that encourage the becoming and emergence of something new into the world. The concepts and values of freedom and democracy that are often proposed as educationally desirable (Dewey, 1916, Kelly, 2004, Sastrom and Todd, 2008, Todd and Safstrom, 2008), need to find their place within the intra-action of the human, non-human and more-than-human world.
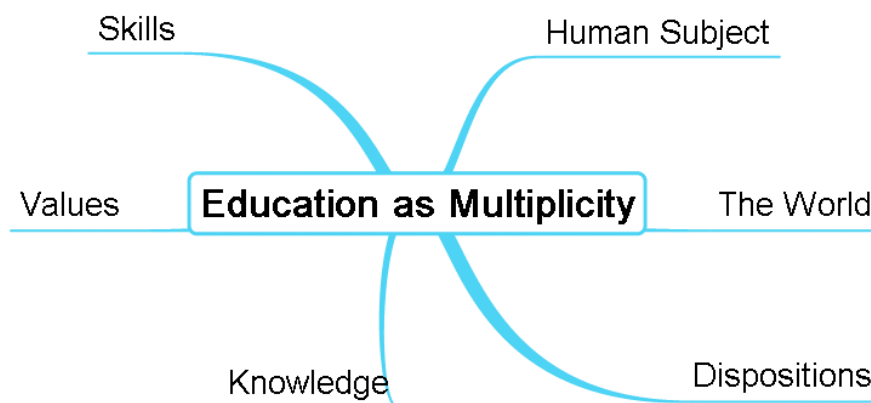
Figure 12 Education as Multiplicity

4.3 EDUCATION AS BECOMING AND EMERGENCE

Education as becoming and emergence moves away from viewing education in terms of a progress towards an end point, a telos, or the accumulation of knowledge. It also rejects models of educational purpose that are "concerned with setting out not what children are expected to know, but how they should be" (Watson, 2010). Rather, it is conceived in terms of expansiveness and of outward movement (Davis and Sumara, 2008, p.57). Osberg (2008) offers an alternative understanding of the process of education in the "logic of emergence" which she suggests "is an agenda in which the current theoretical "impasse" between modern and postmodern critics of the education project is dissolved" (p.154). Her argument begins in examining what is meant by the word *process.* She asks us to consider if a linear, deterministic, ends orientated theory of education is the only understanding possible. Rather she suggests:

> The idea of an alternative understanding of process, embodied in the "logic of emergence" is therefore a big step towards opening a different agenda for educational theorizing (2008, p. 154).

And further:

> To move into this alternative understanding, the idea of knowledge as "object-based" must be put aside. This type of knowledge understands causality and process in terms of a series of individual stages or states that are all logically derivable from each other (2008, 144).

Figure 13 A linear understanding of temporality in which history is immutable

(Osberg and Biesta, 2007, p.41)

Osberg explains that these objects are often viewed as if separate, distinct and discrete so that one can work out the rules or laws which explain the movement of the process from one state to another, either forward or backwards in time. This works very well in a closed system where knowledge is transferred and transmitted in a linear process.

> Since every stage of the process is in principle logically determinable, it is possible to understand the process itself as a discrete whole, an object, with a distinct beginning and end point and a fixed (determined) trajectory (2008, p.145).

Deleuze and Guattari (2003) describe this process as "the one becomes two" and state that it is the "oldest and weariest kind of thought" (p.5). However, if education is an open, adaptive assemblage which connects with and shares energy and information with other assemblages where causation is highly complex, then a non-linear understanding of process allows for chance and possibility, whereas a linear understanding of process does not.   When chance and possibility are added to the mix there cannot be an immutable logic driving the process as not everything can be accounted for.

> Emergent knowledge draws on what is there but not as a ground to think our way into that which follows on logically (deterministically) from this ground (and thereby to grasp or understand the way something is or could be) but rather to find new ground which in incalculable from the ground we are on (Osberg and Biesta, 2007, p.44).

The idea of knowledge that must be negotiated is a "centrifugal" understanding. Knowledge is expanded not in terms of adding on something to what was there already, but rather, a reordering and renewing in a way that expands and opens knowledge up to the incalculable.
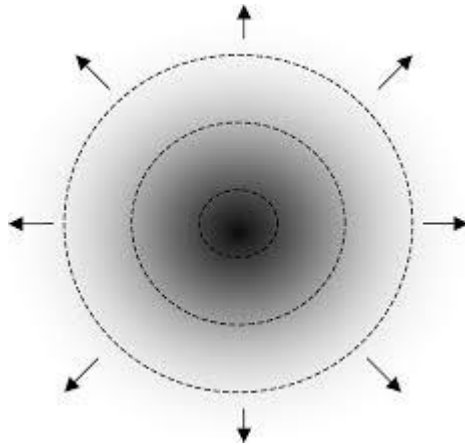
Figure 14 A complex or centrifugal process in which the "space of the possible" (Osberg, 2008)

Osberg (2008) explains that the spheres within the dotted lines in the illustration is continuously expanded into that which is incalculable through "renewal" of what came before (larger spheres subsume and transcend small spheres). The "future" of such processes does not in any rational (calculable) sense already exist (p. 150).

Davis and Sumara (2008) support this understanding of the "logic of emergence" and they suggest that knowledge "production" might be described as an ever-expanding space of possibility that is opened and enlarged simply by exploring the space of what is currently possible (p.134). Deleuze and Guattari's (2003) exhaustion with trees and arborescent imagery, acts as the catalyst for rhizomatic thinking with lines of flight. This expanding and vibrant root system of thought complements the centrifugal understanding of knowledge as a possible "conductivity that knows no bounds (Massumi, 1987b, p.xii). Osberg (2008) insists that what emerges is always radically new. Morgan (1923), an early emergentist from the last century, highlights the radical nature of strong emergence by stating that:

> Under what I call emergent evolution, stress is laid on the incoming of the new if nothing new emerges – if there be only regrouping of pre-existing events and nothing more – then there is no emergent evolution   (p.1-2).

Each of these writers have moved to viewing *process* not as deterministic and goals driven but rather emergentist. Davis and Sumara (2008) explain that "the associated image is something

more toward the ever-branching possibilities that appear as water flows outward over a surface" (p.57). They contend that the creation of knowledge is "progressive" not because it is moving in a given direction but because it is constantly "expanding the space of the possible by exploring the current space of possibility" (p.57) – expansive but not directional. Thus, unlike the previous approach to knowledge which sought to compartmentalise the world, scrutinise each part to gain total knowledge, the emergentist approach opens itself to infinite possibilities.

One of the possibilities is the emerging understanding of the human subject which is core for a robust understanding of education. Over the past centuries the understanding of the human being and their place within the world was very much tied up with the idea of knowledge and reason as the primary indicator of humanity. Reason and the intellect rule over the other human faculties and 'true' knowledge is gathered independent of the senses. Reason seems to transcend and exist independently of the contexts and the world in which we inhabit. Knowledge is "out there" to be discovered, objective, independent and transcending of persons, society and culture. Through the work of Spinoza (1632-1677), Leibniz (1646-1716) and particularly the work of Immanuel Kant (1724-1804), there has been a lively development in the understanding of the rationalist epistemology which Kelly (2004) summarizes as:

> …seeing knowledge as essentially independent of the observations of our senses, inevitably lead to a view of knowledge as reified, as in some sense (sometimes literally) God-given, 'out-there' and independent of the knower, having a status that is untouched by and owes nothing to the human condition of the beings who possess the knowledge they are concerned with (2004, p.26).

Newton's explanation of the predictability of the universe and the mathematical formulae that added simplicity and stability suggests that scientific reasoning provides accurate, objective and reliable foundations of knowledge and that science is the paradigm of all true knowledge. Modernity's faith in logical positivism reinforces the idea that objective reality is revealed by logical, scientific empiricism (Slattery, 2013). Men like Einstein aimed to demonstrate that human subjectivity was merely an illusion and that reality consisted of a transparent, intelligible

Universe, purged of everything that touches on the lives of man, of painful, nostalgic memory of the past, of fear or hope for the future" (Prigogine, 2014, p.6). Reason was the mark of what it means to be human. This human had a stable, inherent self that could be objectively known. Doll (1993) reminds us that this "is a conceit which underlies our modernist concept of curriculum -we allow only one type of knowing; a rational, definitional knowing" (p.33). Davis and Sumara (2008) argue that this approach is so embedded that we use phrases such as "getting things into your head", "soaking thinks up", and "taking things in".(p.27) when we are describing education and particularly teaching and learning. I will admit that when I arrived at the university, my own understanding of knowledge was grounded in this understanding of something that was out there to be discovered. The following drawing was made during a lecture on narrative enquiry during the first semester in 2015 in which I perceived the Ph.D. as a tunnel to finding truth and knowledge. This perception has long since changed.

Figure 15 The Tunnel to finding the truth

In educational terms this conception of there being only one type of human subject has created an elitist approach to education whereby certain types of knowledge are seen as

incorporating objective truth and from this understanding, the construction of a hierarchy of subjects has been developed. Subjects and knowledge based on science and mathematics were prized and we can see this influence in Richard Peter's (1965) understanding of curriculum as "initiation into intrinsically worthwhile activities". For many others, these intrinsically worthwhile activities were scientific and mathematics orientated. Subject selection therefore depended on your philosophical understanding of what kind of knowledge was worthwhile. Throughout history, this has led also to an understanding that only certain intelligent human beings can access and comprehend these subjects and knowledge. It did not visualise the inclusion of all human beings. The acceptance of the individual as a stable self, encouraged the use of I.Q. tests and assessments that boxed in an individual's intelligence and encouraged the educational idea of class streaming. Slattery (2013) sees these dialogues about rational thought as great metanarratives "grand explanations that seek to explain all of reality from a singular perspective" (p.40). They offer the image of the human being as rational, logical and stable which is very much contrary to the emergentist understanding of the human being and the world context in which they live. Slattery (2013) offers a clear shift from the human functioning as a separate and elite species to an understanding of an emerging ecological consciousness and planetary interdependence, where a diverse and pluralistic understanding of gender, race, ethnicity, culture, religion etc must now be negotiated. Knowledge-making is no longer the only remit of science and suggests a concept of the world where knowledge is contested and partial. Braidotti (2013) offers a new concept of the human being which "is materialist and vitalist, embodied and embedded, firmly located somewhere (p.51)[40]. The idea of a hierarchy of species

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[40] Braidotti advances a ***zoe-centred egalitarian*** approach. In this view the human subject seeks to create an affirmative bond between all living organisms, and in doing so it challenges the distinction that has been made between the male subject and his human and non-human counterparts. Her argument is that the great scientific advances of our age have taught us that matter, including human embodiment, is intelligent and self-organised (autopoietic). Monistic philosophy has added that matter is also structurally relational and hence connected to a variety of environments. She explains: "These insights combine in defining intelligent vitality or self-organising capacity as a force that is not confined within feedback loops internal to the individual human self, but is present in all living matter" Matter is driven and vital by its own informational codes and interacts in multiple ways with the social, psychic and ecological environments BRAIDOTTI, R. 2013. *The Post-Human,* United Kingdom, Polity..

in which 'man' is the measure of all things is now flattened. The human subject takes on a planetary dimension. 'Man' is de-centred, and Life takes the privileged position (Braidotti, 2013). It displaces the human male as the principal ground for knowledge and instead, embraces all manner of bodies, objects and things within a confederacy of meaning-making. This requires a radical repositioning on the part of the human subject - a deterritorialization in the words of Deleuze (2003), a redefinition of subjectivity. There is no room for individualism in which the subject dominates and controls nature; rather it is radical relationality that crosses borders with our globalized world of science and technology. Haraway (1985) insists that "we must find another relationship to nature besides reification, possession, appropriation and nostalgia" (p.158). She contends that we are "no longer able to sustain the fictions of being either subjects or objects" and that "all the partners in the potent conversations that constitute nature must find a new ground for making meanings together"(2004, p.126). This new subject must re-imagine new alliances, communities and belonging, with political and ethical accountability.

The insights about the emergent human subject, knowledge and the intra-actions of the human, non-human and more-than-human have huge implications for education. This is a flattening out and non-hierarchical understanding which effects the way we know, understand and perceive our world. Knowledge making is no longer separate to our world but created right in the middle of it, on the Deleuzian plane of immanence (Deleuze, 1994b). There is no longer a separation of ourselves as humans from the world but as Taylor and Invinson (2013) suggest "we have to take seriously our own messy, implicated, connected, embodied involvement in knowledge production" (p.4). This way of thinking about knowledge, the human being and the world requires an onto-epistemological shift to rethinking the purpose of education and curriculum. Onto-epistemology requires a new understanding of the world and it changes what is classed as subject and knowledge. W. B Yeats captures this onto-epistemological unity in his poem "Among School Children" (Yeats, 1933).

O chestnut tree, great rooted blossomer,
Are you the leaf, the blossom or the bole?
O body swayed to music, O brightening glance,
How can we know the dancer from the dance?

Knowledge, subject, being and the world are intrinsically linked – they are now the dancer and the dance. If Yeats was Deleuze and Guattari (2003), he would not have picked the tree[41] to portray this understanding but rather the rhizome, which offers multi-directionality, unexpected eruptions and, and, and, and….(p.25). Schooling and education might take on the understanding of how a student is becoming in the intra-actions of so many variables of their lives. Education unfolds as a multiplicity, a becoming inbetween these encounters and therefore "the project of learning becomes not what distinguishes me from all that is around me and makes me superior to it, but what makes me part of it" (Quinn, 2013). Education and all the concepts that make up this intensity, now explored from the lens of becoming and emergence, might be approached in a different way. The human subject is not alone or separate but constituted by their interaction and entanglement within the world[42]. One of the ways this may be captured is through the understanding that the purpose of education may be defined as an ***expanding, non-linear process of strong emergence and becoming.*** The immediate question that emerges is what does this actually look like and how can it be imagined and conceptualized for lower secondary students in Ireland? It begs questions about a new onto-epistemological approach to education and curriculum. It has implications for how we see the human subjects of teacher and student

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[41] "We're tired of trees. We should stop believing in trees, roots, radicals. They've made us suffer too much. All of arborescent culture is founded on them, from biology to linguistics. Nothing is beautiful or loving or political aside from underground stems and aerial roots, adventitious growths and rhizomes. DELEUZE, G. & GUATTARI, F. 2003. *A Thousand Plateaus,* Minneapolis, University of Minneapolis Press. (p.15)

[42] Biesta writes about the opening up of existential possibilities in education and suggests it is less about seeing the subject as that which grasps and comprehends the world, and is more about offering the time and space to situate the subject differently in relation to the world (BIESTA, G. J. J. 2015b. What is Education For? On Good Education, Teacher Judgement, and Educational Professionalism. *European Journal of Education,* 50**,** 69-87.)

and knowledge making through their intra-action together within the very messiness of their world of schooling.

Education has a centrifugal purpose and wishes to achieve strong emergence. This raises an important question. If education is now considered to be an emerging process and oriented to the as-not-yet-imagined (Davis and Sumara, 2008, p.135), how do we deal with the way education favours order, stability, normativity and is essentially goals driven and teleological? Biesta (2013) deals with this difficulty in understanding education by suggesting that education is never entirely unidimensional in its intentions and ambitions so that there is possibly the difficult question of how to strike a balance. Complexity theory highlights that within all complex systems there is an orientation to order and self-organisation, but this orientation is open-ended and never closed (Byrne and Callaghan, 2014). It is constantly readjusting itself to the environment within which it exists so that normativity is constantly challenged. It is into this open environment that Biesta (2008) offers three main domains of purpose and function of education in the form of a Venn diagram as an insight into the complexity of our educational purposes: qualification, socialisation and subjectification. He insists that it is the overlapping and the intersections of these three related functions that makes for interesting effects, and these are the spaces in which this thesis is interested.

Figure 16 The three functions of education and the three domains of educational purpose (Biesta, 2006a).

The function of qualification lies in providing students with the knowledge, skills, understandings and dispositions so that they can "do something" (Biesta, 2010, p.20). This something could be job training, life skills, citizenship, cultural literacy and so on, and is not restricted to preparation for the world of work. In Ireland and other countries, this function of qualification is used to ensure that students earn points for entry into Third Level education and the examinations which determine these points have become high stakes examinations. The function of socialization works in its ability to insert individuals into existing ways of doing and being. This can happen by the individual being introduced to and included into the social, political and cultural order of the world in which they now live. Socialization can also take place as the school offers particular norms, values, traditions and ethos, sometimes particular religious traditions. Biesta (2010) acknowledges that the hidden curriculum would have a socializing effect on students even if socialization was not part of the aims and objectives of education. However, he insists that this function is important as a way of continuing our culture and tradition – "both with regard to its desirable and undesirable aspects" (p.20). Society exists through a process of transmission as Dewey (1916) reminds us without this communication of

ideals, hopes, expectations, standards, opinions, from those members of society who are passing out of the group life to those who are coming into it, social life could not survive" (p.4). Within the curriculum of lower secondary in Ireland, transmission of knowledge, culture and religion has been a primary aim for education and has offered the student and teacher a process of meaning-making within that educational space. When the curriculum is about the emergence of meaning, rather than the transfer of meaning (Osberg and Biesta, 2008, p.314), it may offer the teacher and student more freedom and agency.

Subjectification is the function that overlaps with socialization and which encourages the process of becoming a subject. Biesta is passionate about this function and states that "any education worthy of its name should always contribute to processes of subjectification that allow those educated to become more autonomous and independent in their thinking and acting" (2010, p.21). He asserts that qualification and socialization can empower the individual to live and function in the socio-political worlds they find themselves in. It is about freedom and emancipation as it offers the emergence of something that is different and new and not just repetition and more of the same (2013, p.64).

These functions all have a place within the process of education. The complexity of education lies in understanding how these different domains function, overlap and connect. Equipping students with the tools for work and for negotiating the world in which they live is necessary and fundamental. However, value choices are being made as to what tools, skills and knowledge are vital. Osberg (2008) reminds us that 'whoever' is 'included' through socialization is always included into a framework of values already defined by those on the "inside" which means it is inevitable (and unavoidable) that certain interests are promoted at the expense of others" (p.154). Socialization belongs to a linear and deterministic process. However, what Osberg, Biesta, Davis and Sumara all agree on is that there are other functions which are truly educational and operate according to a different temporality. These are those that open the

student to Deleuze and Guattari's "smooth spaces", to Davis and Samara's ever-expanding spaces of possibility and to Osberg's "centrifugal emergence". Biesta (2013) is very clear about the heart of any educational endeavour lying in the "emergence of human subjectivity" (p.5). He argues that education is "all about how we can help our children and students to engage with and thus come into the world (2013, p.5).

> Education is not just about the reproduction of what we already know or what already exists but is genuinely interested in the ways in which new beginnings and new beginners can come into the world. Such an orientation, therefore, is not just about how we can get the world into our children and students; it is also and perhaps first of all about how we can help our children and students to engage with and thus come into the world (Biesta, 2013).

The process in which we bring something new into world is the fundamental job of the educator and it is accompanied with an ethical charge. In this emergentist onto-epistemology there is an axiological call to responsibility. Living and thinking are simultaneities, and this destroys the binaries that existed which excluded what was 'other' and therefore did not matter. If humans are now co-equal alongside non-human and other-than human matter, if there is no hierarchy, it is clear that we need to take greater care of every part of our world. Barad (2007) takes up this very position by saying that "We need to meet the universe halfway, to take responsibility for the role that we play in the world's differential becoming (2007, p. 396). Hekman (2010) reminds us that this responsibility has an ethical component and "taking responsibility for these practices means, first, understanding their nature and extent, and, second, assessing the material consequences of those practices" (p.127). This ethical component requires that we seek to understand our social reality and fight the injustices and inequality we find there but we are also asked to re-imagine other possible social disclosures. We are being asked to understand education and the institutions in which it is practiced but also, we are being asked to reimagine these systems from the perspective of being nested within

the world. This need to re-imagine is effectively illustrated in the writing of Todd et al (2016) when they argue:

> Understanding the genesis of both individuals and institutions means understanding the diverse material and affective processes through which bodies of all kinds are constituted and sustained. However, it does open up the possibility for transformation through both a critical understanding of the constructed nature of those affiliations, and the development of creative practices that allow affects to be rerouted, relations to be re-worked, and bodies to be undone and re-composed (2016, p.188).

This call to ethical responsibility cannot be ignored and will need to be woven as an ethics of universal care in our understanding of the multiplicity of education. Education is a multiplicity that flows and emerges through a centrifugal process. It is ecological, expansive and concerned with strong emergence. Its purpose is to expand the human subject to (be)come into newness through emerging knowledge, understanding, skills, values and dispositions. It espouses radical relationality. Whilst education connects with different functions to enable the human subject to live and negotiate their world, the challenge for education is to consider subjectification - the who that is becoming into the world in their uniqueness and singularity (Biesta, 2006b). This places an ethical call to educators to respond to this purpose for all students. The question now lies as to where this coming into presence might happen in education. The following mind map offers a summary of the concepts offered in the discussion of education as becoming and emergence:
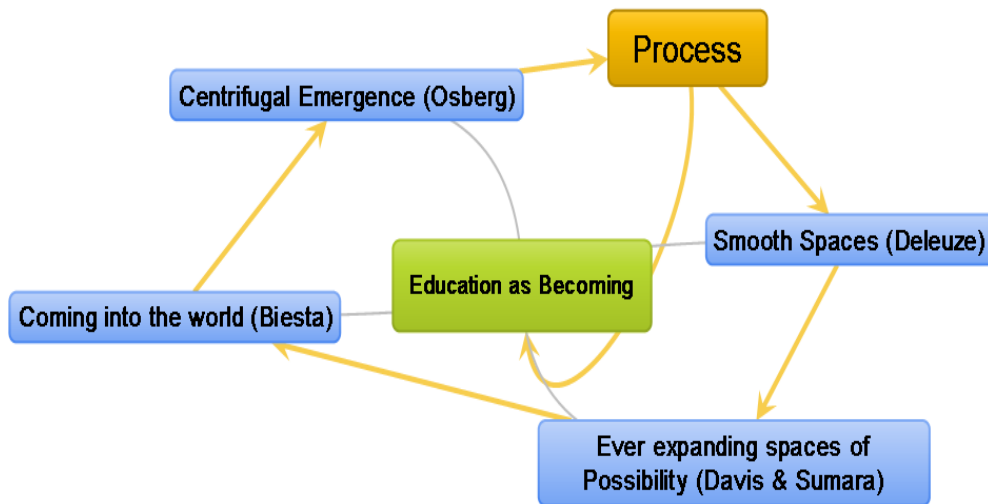
Figure 17 Education as Becoming

4.4 THE SPACE OF BECOMING AND EMERGENCE

This section of the plateau navigates four important components which generate the space of becoming and emergence for the multiplicity of education. The four components are: energy, matter, space and time. They help navigate an understanding as to how the purpose of education works in the assemblage of secondary education in Ireland. Each of these components will be discussed below, but it is the synergy of all these elements that opens up the space of possibility and potential for something novel and to encourage the becoming of education as a multiplicity and 'a creative act' (Biesta, 2013).
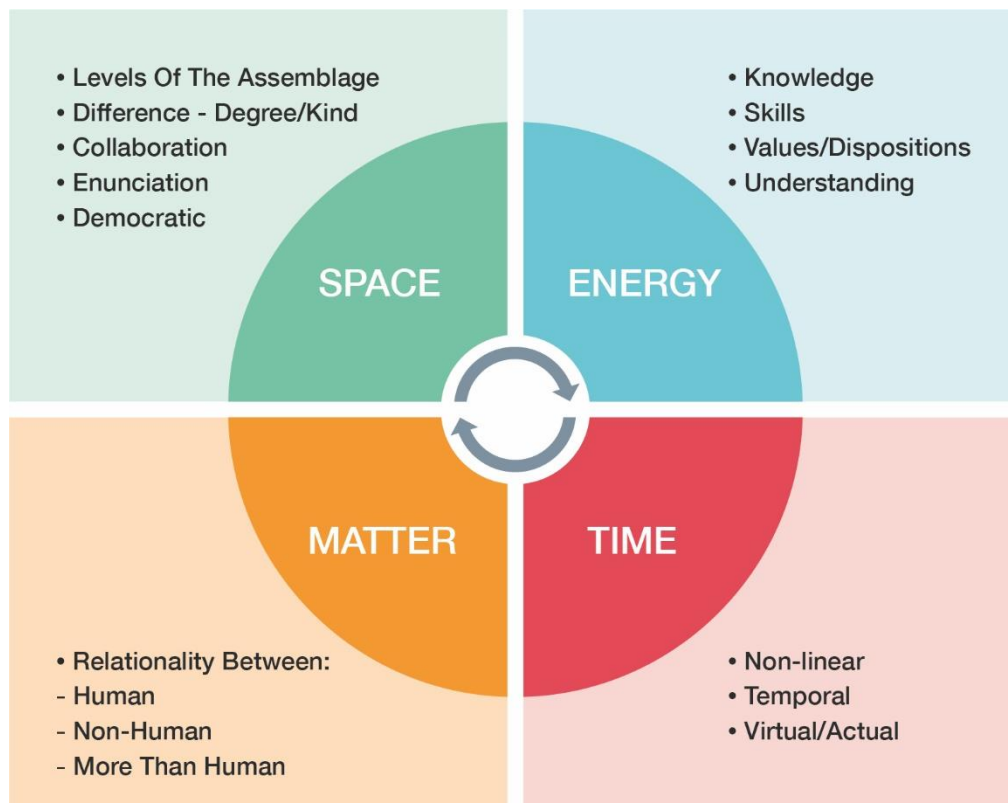
Figure 18 A matrix of the components to generate the space of becoming and emergence

for the multiplicity of education

4.4.1   Space

This research is interested in the *space* of emergence –how does the rhizomatic

structure of the assemblage of lower secondary education in Ireland encourage expansion,

becoming and emergence at all levels. This means we should concern ourselves with the space

and structure of the assemblage and how it connects in the process of change. This structure of

the assemblage has been outlined in Plateau 3 as an interrelated ecosystem of four main

domains: macro, meso, micro and nano. Emergence concerns itself with what is happening

within and without the four different domains of the assemblage. It is concerned with

communication, recursive and feedback loops and how their inter and intra-activity with other

domains, disrupt its equilibrium and move it towards the edge of chaos. Emergence happens

between and within this movement. The focus of this research for becoming is on 'the middle'

space of these inter and intra-relationships within the assemblage. Kauffman (1995) explains that it is in the intermediate situation between order and chaos that self-organisation occurs. It is the interplay of all its dimensions in the process of continual change and flux that offers the potential for liberation, freedom and democracy. In the universe there is a deep, 'living' order (p.304) – one of systems self-organizing themselves, via networks, inside these systems, catalysing themselves. The assemblage of lower secondary in Ireland develops its educational purpose from activity and decisions made at the lower levels of the organisation as it faces varying options amongst many diverse potentialities. New forms of life, behaviour, systems and organizations arise from lower levels of complexity and existing forms. At each bifurcation point, a jump is made and as time passes a particular momentum or trajectory is built. There is no way of predicting the potential options as they are all unpredictable from what was known before (Kauffman, 1995). We are reminded that initial conditions within a system can change the direction of a system. This understanding of how emergence works has implications for the educational becoming for both the individual student and the collective of actors in the assemblage. Exploring where the jumps are taking place and whether any patterns emerge in these jumps, offer the educator the possibility of mapping the space of emerging becoming of the assemblage as it engages in educational reform.

4.4.2   Time

Becoming and emergence is also concerned with *time* -particularly the experience of time from the perspective of the actors*.* Time is concerned with the process of change and as Complexity Theory and 'becoming' in Deleuzian and Guattarian thinking, acknowledges non-linearity, dynamism and expansion, then time and temporality as viewed in education should also employ these components. Any analysis of a complex system that ignores the dimension of time is incomplete (Cilliers, 1998, p.8). Whilst time works in an expansive and non-linear manner, the plans and purposes of education and curriculum for the assemblage of lower secondary education in Ireland are conceived according to a different logic. Previously, a linear

process was favoured and time was accepted as a ***chronological*** movement from past, present and future. A student moves through the years beginning at first year, moving into second year and on into third year. They transition from the primary school -past- and in future they will hopefully transfer into senior cycle and onwards into tertiary level. Students are divided into classes by age and their ability measured and quantified through the use of a grading system. Within the assemblage there is a holding onto the past, a pride in past educational traditions and heritage. This is important for the actors but this can be a restraint on the assemblage as there is often resistance to change the tried and tested approaches to education. The actors in the assemblage also look constantly to the future, particularly the time of the summative examinations such as the Leaving Certificate and the transition to university.   Learning outcomes, goals, aims, planning, all orientate to a determined future. There seems that there is little orientation to the present - what is happening at this minute within the classroom and the educational experience presenting in the now. Huebner (1975) argued that this search for goals and future orientation is fanciful and idle as it attempts to remove educators from the difficult process of living historically (Davies, 1983). A focus on the past or future alone distances educators from the lived experience of the students and teachers in the classroom.

This linear process also has a ***chronometry*** – time is represented through the indications associated with calendars (Alhadeff-Jones, 2017) – the school year is divided into segments such as terms, terms into weeks, weeks into days and days into lessons of a particular number of minutes -forty or sixty. Time is also divided into mid-term, holidays, exam time. Slattery (1995) suggests that within education there is a constant call to manipulate and control time. He offers the examples of "time-management, timed tests, wait time, time on task, quantifiable results, over time, time schedules, time-out discipline centres, allocations of instructional days or annual school calendars, core academic time, time between classes, year round schooling and the like" (p.613). The desire for "extra time" as a resource to implement the Junior Cycle was one of the

issues that brought conflict to its enactment. Chronological and chronometrical time seems to situate itself as external to the actors within the assemblage.

To add to the complexity of understanding how time works in the assemblage, there is also the experience of time itself from the perspective of an individual, a class, school, institution etc. These are the temporal experiences of time and they are diverse and many. Within a school, there is a lived time paradox in which there is an understanding of time as determined and linear yet, the lived experience of time can be one of uncertainty, unpredictability and dynamism. A teacher or administrator may plan all the learning outcomes they like, but a school day offers the unexpected, the unplanned and the unforeseen. This experience of time for teachers and students is often frenetic and becomes a constraint as they try to manage, control and manipulate time as a resource and something separate to themselves. The temporal experience of time in this way of thinking for teachers and students is that there is not enough of it. Again, Slattery (2013) offers a summation of the problem which can be traced to the assumption that the universe was created in time and space, as opposed to time and space being interwoven into the very essence of the cosmos (p.613).

Time as a linear sequence has been dictated by the Newtonian understanding of time as a mechanistic clock, ticking forward with the arrow of time pointed always to the future[43]. This metaphor of time has dominated the temporal experiences of human beings and as a result education has been divided into the time segments as outlined above. A linear and segmented understanding of time is no longer tenable in the world of Complexity Theory. Complexity Theory proposes time as a process of becoming which is now understood as an internal experience and not one to be managed or controlled as if it were a resource. It expands and develops webbed patterns rather than linear sequences. Such an understanding has huge

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[43] This has been discussed in the Plateau on Theoretical Framework -1.2.3.3 Time/Duration

implications for how we view the aims and purposes of education. They cannot be totally planned and determined but rather open to the unpredictable, the creative and the possible. They embrace the past in all its brutality and glory, open to the ecological and sustainability of the future, captured within the present moment in the classroom. As Deleuze (1991) suggests, time is pure duration where each moment has its place and a re-imagined view of time might open up new perspectives to approach the purposes of education where past, future and present are nested and mangled together.

4.4.3   Matter and Energy

What *matters* in the space of becoming and emergence is the space of relationality and connectivity. Deleuze and Guattari (2003) argue that what matters is becoming itself and in education this includes the process of subjectification which depends on encounter with others. Guattari (2000) proposes three fundamental ecologies to help understand the relationality of the subject. He sees an ecology of the environment, of the social nexus and of the psyche or mind. He insists that there must be the connection of transversal lines across all three. For Guattari then, ecology is far more than a concern for the environment, it is an epistemological system based on an understanding of nonlinear systems governed by feedback loops and nonlinear causality. An understanding of connectivity, of relationality and complexity theory are fundamental to the way in which this ecosophical[44] model operates. It captures the location of where education may situate itself in order for the student to come into presence. Education is

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[44] Guattari's ecosophy suggests that humanities scholars should concern themselves first with ontological advancements. Thus, in addition to green buildings, hybrid vehicles, environmental legislation, etc., we need to rethink traditional notions of selfhood and, at the same time, invent practices designed to facilitate an ontology consummate to contemporary ecological concerns, as well as the emergent relational modes proliferating with the expansion of global capitalism and digital media (TINNELL, J. 2011. Four Components of Felix Guattari's Ecosophical Perspective. *The Fibre Culture Journal,* 18.)

especially located in the relationships between the teacher and student but is not confined to these. It is also about the student and their relationship to the nature-culture continuum (Braidotti, 2013). This process of relationality is an immanent experience in which the student inter-relates and intra-connects with the multiplicities of other humans – teachers, form tutors, year heads, deputy principals, principals etc. This collective human assemblage of interconnections is dynamic.

Education flows on *energy* in the form of knowledge, skills, values and dispositions that have been preserved from the past, are now being offered in the present, in order to hopefully expand and realise a novelty and innovation for the future. It flows on potentiality, possibility and difference. Energy is constituted through encounter also with non-humans and more than humans: technology, desks, chairs, classrooms, textbooks, air, environment etc. The synergy that happens between/in the middle/at this threshold of inter and intra-actions is more than learning. Rather education from this perspective is a creative act because its primary goal is to bring something new into the world that wasn't there before. Deleuze and Guattari's (2003) description of a 'smooth space' – (like a desert, the steppe, the sea and the air) which tend to grow in all directions, capture the location of where this coming into presence occurs. What matters is how we come into presence in a world of plurality, diversity and difference as a subject and Biesta (2006b) insists that a Subject can only come into presence in a world populated by others who are not like us:

> The 'world' is understood as a world of plurality and difference, is not only the necessary condition under which human beings can come into presence, it is at the very same time a troubling condition, one that makes education an inherently difficult process (2006b, p.8).

Education lies in its potential to respond to this plurality and difference. The subjectivity of a student is energised, nurtured and fostered into existence through a process of interconnected convergence. It is concerned with opportunities whereby human beings can come into the world, to find their voice and to constitute themselves as unique, singular beings

(Biesta, 2006b). Subjectivity is not a what (such as an identity) but is the unfolding of difference and becoming. In the mangle of this dynamic vitality that is education, the student is not the only element in the multiplicity of lower secondary education assemblage, but so too the whole community, is immersed in becoming-education.

For a student to come into presence, all levels of the assemblage, through their interaction and relationships, forge the rhizomatic lines that can expand and change in nature to offer becoming and emergence. Biesta tells us constantly that education is a human encounter, but this encounter is not one where there is a direct input from the teacher into the mind of the student. The relation is only possible because of the existence of an unrepresentable, transformative gap, a space of enunciation that cannot be controlled by any of the partners in interaction, but at the very same time makes communication possible (2004a, p.21). Biesta (2006b) argues that emergence happens through a 'pedagogy of interruption' (p.150). He suggests that asking the simple but fundamental educational question; What do you think about it? – has the potential to interrupt and call someone into being as a unique, singular individual. He is clear that there is not just one way to approach this but many possibilities of approach exist. Curriculum could be about 'a collection of practices and traditions that ask students for a response and that provide different ways for newcomers to respond and come into the world" (p.150). Education becomes not a process of giving but a process of asking – asking difficult questions. Osberg (2008) calls this a *space for emergence* (p.157). It is a space for emergence because it is a space about openings not closures and it is an ongoing process where 'new worlds are allowed to emerge, or to say this differently where the world is renewed (Osberg and Biesta, 2007, p.49). Deleuze (2002) would offer it as a space of becoming and difference , a between space (p. viii).

The relationality of education must also move beyond the human encounter. The student as we discussed is in constant inter and intra-action with their world of human, non-

human and more-than-human. Part of this emergentist understanding of educational relationality is the space of complex responsiveness. Osberg (2008) explains that this is a necessary condition of relationality (p.157). This responsiveness allows for the re-imagining of how things might be, and the space of education offers the radical possibility of inventing new horizons and responsiveness to the care of each other and the world. We do not ignore the lessons of the past as these are very important but, "use the lessons of the past to invent something radically new; something which might accompany us into the future (and also which might not)" (Osberg and Biesta, 2010, p.164). An important insight that comes from seeing education as a complex space of relationality is that it calls for critical judgement to be continuously made at all levels of the assemblage and Osberg (2008) explains that this is a political space in which it becomes possible to continuously renew our ways of being-in-the-world-with-others and rethink everything about our world (p.158). Biesta agrees with this thinking and suggests that this educational space becomes a democratic space of renewal in which the possibility of thinking again cannot be foreclosed (Biesta, 2006b). This space is where freedom is made possible. Freedom emerges within/through the process of education not a result at the end of the process.

> I would argue that the presence of a space in which renewal can take place, is the condition of possibility of freedom. When we understand education in this way, as a space of renewal, it therefore becomes possible to understand it also, as a practice of freedom (Osberg, 2008, p.158).

This plateau has offered the perspective that education as a multiplicity might find its purpose in an ***expanding, non-linear process of strong emergence and becoming.*** This exploration has helped unpack what might be the educational purposes that flows through the assemblage of lower secondary education in Ireland. It has flagged the potential pitfalls of continuing to think of education as linear, deterministic and instrumental. The suggested space of emergence and becoming for education is the convergence and connectivity of space, time,

matter and energy. As separate entities, these four components are highly complex, but in their inter and intra-relationships, they move to higher level of educational complexity and pose challenges for the curriculum creators and makers. What is interesting is that education as emerging and becoming is totally unpredictable as the four of these components bump off each other, disrupt and disturb the assemblage of lower secondary in Ireland to expand its rhizomatic lines and change its nature. This understanding of the landscape of the purposes of education will assist in studying how these educational purposes flow through a curriculum and in what way do they encourage the becoming of striated and smooth space. Complexity Theory and the concepts of Deleuze and Guattari pose vital challenges for the actors in the assemblage. This plateau has offered an application of these concepts to the purposes of education. These challenges require a re-imaging, re-envisioning and a re-enchantment of educational purposes, processes and practices through an emergentist approach.

4.5 (BE)GOING THOUGHTS

Becoming and emergence is described as a process of change that is dynamic, rich, non-linear and creating connections and intra-relations between the subject, the assemblage and the world which brings something new and unpredictable – "the possibility for our growth and becoming-other at each and every present moment (Semetsky, 2005, p.20). This plateau proffers the following conditions as possible thresholds for education and suggests that becoming and emergence lie in re-imagining:

a. The process of change as one of strong emergence (Osberg, 2008), a centrifugal, expanding and ecological process.

b. Education is about bringing something new into the world (Biesta, 2006b).

c. The space of emergence occurs through radical relationality -the inter and intra-relationships between the subject, others and the world. It includes their encounters with the non-human and more-than-human world.

    d.   Becoming and emergence demands a responsible response.

    e.   The space of emergence must take account of space, time, energy and matter.

The rhizome of concepts that I have woven throughout this plateau to assist our understanding as to how education works in this research may be summarised is as follows:

Education works as an expanding, non-linear process of strong emergence and becoming. It is located in a dynamic intra-action and relationality between the human, non-human and more-than-human world which demands a responsible responsiveness.

This vision of education, captured between the idea of becoming and emergence, cannot be totally controlled or certain. The best way forward is to imagine the educational needs of that future and act upon it (Osberg and Biesta, 2010). When it comes to education there are certain things we do know -the importance of the teacher-student relationship, the power of feedback, parental interest in their child's learning enhances learning, good leadership and school management, on learning outcomes and much more (Mason, 2008, p.46). There is much that is uncertain but "making judgements about the outcomes of education becomes part of the open-ended educational process. It is this continual engagement in judgement (not the arrival at an end point) that makes the educational process educational" (Osberg and Biesta, 2010, p.158). With these concepts at the fore, this research is now interested in hearing from the actors in the assemblage of lower secondary education in Ireland. How are the purposes of education working in the assemblage? What purposes are being fore fronted by the actors and what is happening 'between' and 'in the middle' of this complex process. Where are the spaces of emergence and becoming for education?

Plateau 5 EDUCATION AS BECOMING IN THE ASSEMBLAGE OF LOWER SECONDARY IN IRELAND

5.1 (BE)COMING THOUGHTS

This plateau now turns its focus on the data from the interviews of the four main domains[45] to research how the purpose and desire of education works and functions in the assemblage. I begin in the middle, by entering a threshold of intensity that continuously bubbled up throughout the data as vital for the purpose of education. This intensity was the concept of liberation, freedom for and freedom from, and is foregrounded by nearly all actors in the assemblage. It offered the research a concept landscape that was fraught with contradictions, paradoxes and ambiguities in the data. This concept of liberation and freedom connects itself to a multiplicity of educational purposes and the plateau will seek to unpack how these purposes overlap and interconnect in a powerful desire for liberation from a specific type of education and freedom for another. I will pursue an understanding of the molar lines of purpose, the molecular lines and the opening of cracks to begin lines of flight of purpose. Our mission is to seek whether there is a deterritorialization and becoming for the purpose for education in the assemblage of lower secondary education in Ireland. In exploring these data, the approach is holistic and intra-connected rather than dealing with the actors separately. My role is to interweave theory and data so that I can follow the rhizome of connections and dynamism of the assemblage. At times there are differences, patterns and anomalies evident in the different groupings and these will be commented on but overall the description of data will be an interweaving of the connected voices from right across the assemblage. The following mind

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[45] The four spaces are made up of all the education agencies such as the Department of Education, State Exams Commission, NCCA, JCT, JMB, ETB, IBEC etc; principals; teachers and students.

map (**Figure 20**) captures some of the important concepts that have bubbled up in the data and which will be explored below:
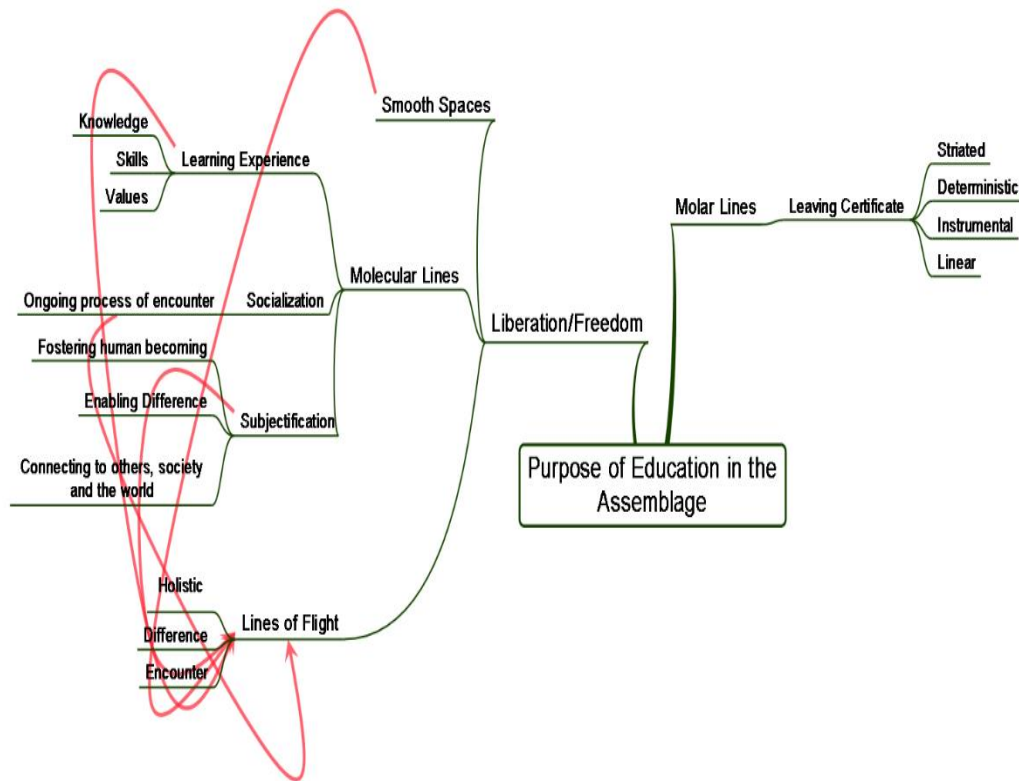
Figure 19 Mind map of the purpose of education for lower secondary education in Ireland

5.2   THE MOLAR SEGMENT CALLED THE LEAVING CERTIFICATE

The Leaving Certificate dominates the purpose of education in Ireland and there is a distinct and palpable desire from the majority of the agents in the assemblage to liberate themselves from its shadow. It is a molar mountain that has become embedded into the culture and society of Irish life and education. "Exams in Ireland are above the fold on the front page" (Actor 14), and it is "the tail that wags the dog" (Policy Actor 19), the "faceless machine" (Policy Actor 6), the "sorting hat" (Policy Actor 6) or "it's that kind of CAO sausage machine" (Business

Actor 4), and it is practically impossible to discuss the desire for Junior Cycle without a strong connection to senior cycle and in particular the Leaving Certificate examination.

So, where I am going with this is that, 93% of our second level students do the Leaving Cert. So, I suppose a concern I would have is that, whatever Intermediate assessment system is in place, it really does need to prepare students for the Leaving Certificate examination So, I suppose certainly foremost in my mind during the policy development piece here for Junior Cycle was that there would be sufficient bite if you like and depth in the assessment model, that would adequately prepare students for senior cycle. That you wouldn't have a disconnect between Junior Cycle and senior cycle education.

(Policy Actor 19)

This quotation highlights two important concerns. One is the value of progression from one stage of education to another and the need for a flow and connectivity between stages. Second, if 93% of students are transitioning to senior cycle, the Junior Cycle is no longer an exit cycle within itself and should therefore renew its purpose. The actor also underlines one of the problems for the purpose of Junior Cycle at present and that is the fact that the Leaving Certificate remains a high-stakes summative examination and has not yet been reformed. There were clear indications from the Department of Education and the NCCA that the process of reform would encompass the senior cycle in the future but at present there is that in-between space in the assemblage that the Junior Cycle stills leads up to an exam that dictates the future of the student. This narrow purpose has dominated the Junior Cycle landscape, creating a space of striated boundaries, closure and limitations. The assemblage desires a Junior Cycle experience whereby Junior Cycle is viewed as a phase or experience within itself and not a mechanistic entity dominated by the Leaving Certificate:

…the aims of a Junior Cycle education as a phase of education distinct in itself. As part of that, as a phase of education which follows on naturally from primary and then which is followed in the vast majority of cases into senior cycle. So, it has a value of itself and then these other if you like the sleeves of the T-shirt if you like you know. So, there's a whole concern about what are its aims? What's its purpose?

Despite this desire for its own identity, throughout the interviews there was a clear acceptance that at the moment all educational roads lead to the Leaving Certificate and there had to be a connection in Junior Cycle to this outcome.

I do worry about when it comes to Leaving Cert because my worry is, I'm physics and they need to rote learn for physics for Leaving Cert physics. So, I think all this is wonderful now but I'm worried about when I get those students at Fifth year. Will they be able to cope with me saying, here are your definitions? Go home and learn them.
(Teacher Actor 33)

The above quote captures the limitation not only on knowledge but on the methods of learning and teaching that a Leaving Certificate promotes. The identification of the teacher with her subject, "I'm physics", offers a glimpse into the role of the teacher and their identity in teaching within the senior cycle. As the main purpose for the education of students at lower secondary was preparation for the Leaving Certificate, with the introduction of a reformed curriculum, the big worry for principals and teachers was that there existed now a disconnect between the Leaving Cert and Junior Cycle. Repeatedly, the data showed that Junior Cycle could not be spoken about as a separate phase or entity in itself.

But I think the ideas behind it definitely are solid but it's just I suppose, putting it in place and making it work and making it work for the Leaving Cert.
(Principal Actor 21)

And then I think when they go on into Leaving Cert I just don't see the connect. I worry about how they are learning things now and how they will be expected to learn in the Leaving Cert. Which essentially is nearly the rote learning in a way.
(Principal Actor 34)

In the quotations above, there is a drive to locate connections between the cycles. The fusion of junior and senior cycle was a pattern that was particularly evident with teachers and students

and there was a reluctance to disconnect the two. The question as to whether Junior Cycle could realise a distinct space for itself seemed an impossibility.

I don't know necessarily if I felt I was unhappy with much of the content. The exam was quite long and I know students would have been quite stressed about how are we going to sit here for two and a half hours? Paper 1, two and a half hours, Paper 2, and it was quite daunting, but I suppose we were comfortable in knowing what had to be done and how to get them through and how to prepare them for the end product.

(Teacher Actor 26)

The Junior Certificate was concerned with "how to prepare them for the end product". Students had little agency or participation in the process. The purpose of education is seen as linear, deterministic and orientated to a future examination and not the educational experience within the present. Throughout the interviews, actors spoke about the importance of assessment and why the Junior Certificate was important as an examination but there was a clear message to all involved in education from one of the students. When asked about the importance of the Junior Cycle for his friends and classmates, he responded:

I don't think they see the junior cert is the be all and end all. They can do without things like that.
1\. People your age think they can do without it.
Yeah, it doesn't really matter that much.
1\. *What matters for people your age?*
Social life and friends (Focus Group Actors 38).

Reflecting back on all the conflict and anxiety that the reform produced and will produce into the future, as educators it might be significant to remember what is important in the lives of the students. The Junior Certificate mattered as a trial run for the Leaving Certificate but for students this is future-orientated and they seemed more concerned with events in the present. The complexity for the new curriculum was to engage in making the present educational experience matter for students, whilst connecting them to a future stage of education.

The retention rate of 93% of students up to Leaving Certificate is one of the highest internationally and when this is linked back into the purpose for Junior Cycle, we can acknowledge that it can no longer act as a rite of passage – "the Junior Cert is no longer an exit qualification" (Policy Actor 19). This retention rate reflects the attitude that there is a strong value to education which is very close to the Irish people. Education in Ireland is treasured and viewed as "as a passport to social and economic success" (Policy Actor 14). The Leaving Certificate offers the portal to that success and there have been very restricted educational alternatives available during the last decade. When the question was asked of students during focus groups, what they think education is for, all responded with the answer to "get a good job in life" and "to do well in life". Within Irish culture, the Junior Certificate and Leaving Certificate are accepted as a fair and transparent process and in the light of all institutions failing during the last decade, it has retained a respect and esteem from the people.

Whatever else about the leaving cert or the junior cert and remember running parallel with this was a banking crisis, in which institutions that had been stalwarts of Irish society were found to be acting the maggot. We were the other stalwarts of Irish society, the exams were clearly fair, reasonably transparent in the sense that you know they worked.
(Policy Actor 14)

However, the narrow purpose of the Leaving Certificate as a portal for jobs, CAO or other careers has had a serious backwash effect on the three years of lower secondary. Within the plateau on "Assemblage" we noted that this backwash effect created the molecular lines of lower secondary.

That you know there is a wash back effect from any assessment system and particularly an external assessment system as we've traditionally had in Ireland. That does wash back in terms of behaviour, teacher behaviour and student behaviour, exam preparation and so on back into the classroom.
(Policy Actor 19)

This washback effect on Junior Cycle may be located also in the pursuit of knowledge through subjects that can be continued at Leaving Certificate, teaching methodologies that promoted rote learning, validation through grades in exams, streaming and pigeonholing students at an early stage in their education career and the promotion of a grind culture that was accepted and embedded into society.

I was in Kilkenny, two years ago, a beautiful September evening, the kids had just come back to school. We were in the hotel and there were maybe about fifty boys queuing outside the hotel door. I said what's that about. That will be the grind class. It was said in a way that says that's normal, it happens at Easter here. Holidays again, Spring sunshine, hundreds of Junior Cycle students tripping off to these full day, full week. And the way in which it was accepted as, you know, what's the problem.

(Policy Actor 5)

These behaviours have become some of the building blocks in Irish society and have been accepted as normative. The problem was captured in the comment from one of the students in response to a discussion about the pressure that examinations place on different people. She suggested:

And that's why people, students are more prone to cheating is because the school system values grades over actual learning. It's really, really wrong.

(Focus Group Actor 29)

Here lies the discrepancy in the pursuit of a purpose of education. What is valued in education in Ireland is what is measurable.

It must be acknowledged that there were some classrooms where kids were somewhat motivated and so, but I think the system that contrived to create a form of learning as a system where teachers taught, how they taught it, how students learned was validated to a large extent by the examination system and was validated by a large extent by the inspection system. It was certainly validated by a group of parents and community who had expectations of Leaving Cert results for the benchmark and that learning the way we used to learn, is

probably the only way to learn, which was oblivious to years of brain research and learning

research.

(Policy Actor 3)

It was tangible in the data that the whole system desired a broadening and widening of what education offered at both junior and senior cycle. The assemblage desired liberation from the dominating effects of the Leaving Certificate. One actor who was not alone in this suggested that the education system was "dysfunctional now in my view and there is a serious question mark over whether it's fit for purpose (Policy Actor 17). This dysfunction is evident in how quickly the assemblage lost focus of the evidence that emerged from the ESRI Longitudinal report:

I think to a certain extent what has got lost sight of recently was the extensive longitudinal research that the ESRI did. I mean if ever you wanted evidence about, shall we say dysfunctional aspects of our education system. The lack of engagement. The lack of a sense of learner autonomy. Their revolting structuring of the curriculum to really provide a meritocratic system of social reproduction.

(Policy Actor 15)

Let us pause here to focus on the claims that this actor is making. The education system is dysfunctional, meritocratic, revolting and lacking in autonomy and engagement. This is the pattern of response that the assemblage offered in the data. The value of retaining the purpose of the Junior Cycle as a dry run to the Leaving Certificate now "weighs heavily" (Policy Actor 19). This is not just at agency level but the majority of the teachers believed that although they were comfortable with teaching to the exam, there was something wrong with the way the system was operating; "I just felt that the changing methodologies around teaching, the rote learning, just the writing, the learning towards the test, all that I just felt was wrong" (Teacher Actor 34). The experience of teaching in the three years of Junior Cycle was described as being in "a strait

jacket" (Policy Actor 24). Students from the different schools summed up their learning as to what the Junior Cycle years offered:

> *So, what do you think the Junior Cycle accomplished for you after going through the three years? What did you get from it?*
>
> *It has given us an idea of what the Leaving Cert will be like, very long exams, one after the other, in a short space of time.*
>
> *What about yourself?*
>
> *Yeah, we learned, and we can do the Leaving Cert better. What subjects we like enjoy, such as Maths and English and languages and stuff, what we are good at.*
>
> *And yourself?*
>
> *Exam preparation, what you have to study before an exam, how you have to study and predicting what is going to come up on the paper. That works for me.*

The students are clear about what they have learnt and are embedded into the instrumentalist and narrow mindset that views the purpose of the Junior Cycle as preparation for the Leaving Certificate. They believe if they do well in school, get their Leaving Cert, they will then find success in work and in society. In their understanding there is only one pathway to that success and it is through the Leaving Certificate. This is just a short insight into the molar mountain that inhabits the rhizome of becoming education in Ireland. The Leaving Certificate has generated mindsets that are ingrained in the very fabric of culture and society and which any change or reform needed to unpack and negotiate. The data demonstrates a clear desire to chip away at some of these mindsets, to be liberated and to move away from transmission and broaden the purpose for not only Junior Cycle but senior cycle also. There is a hope pervading the interviews that the Junior Cycle reform will offer a different purpose for education. This is now the territory that we enter.

5.3 THE PURPOSE OF EDUCATION AT LOWER SECONDARY IN IRELAND

To begin this section, I am going to fold or enter a pleat, (Richardson et al., 2001). I am going to fold two pieces of interview script on top of the molar purpose as discussed, so that the inside becomes the operation of the outside (Deleuze, 1988), and they can both speak to us about what liberation of the possible purpose for education in lower secondary education in Ireland might look like.

Example One

I would say the purpose of education is, the language may be a bit flowery, is to cultivate and enable a profusion of human flourishing. That means there has to be a profusion not a confusion, not a conflict, not an acrimonious thing but a profusion. So that people would begin to see, look we live in a democracy, people are different. They need to be enabled to be different, to place their difference, provided they don't trample on others. So that idea of a creative profusion. Now what that means individually is that educational effort should enable each person to appropriate, an unforced sense of emergent identity. Now when I say emergent identity, it's because, look, the person I am when I am twenty needs to develop further. My education isn't finished at twenty. But, I would hope that as I go on, I would take on more responsibility for my own learning. Follow my interests in ways that could become deeper. Develop new interests and have the capability to be a lifelong learner. That means that I am interested in conversations. Interested in listening. Interested in encounters with inheritance of learning, whatever. So, if you like it's a kind of a dialogical view of teaching and of learning, which leaves transmission behind.

(Third Level Actor 8)

Example Two

It is like you have a whole lot of different flowers, roses, daffodils, tulips, they are not all growing as roses or tulips, but they are all different and they have their own beauty. Education should bring that out, you know, what is natural to them, not something predetermined. Education should be about encouraging them to make a difference in society and it should be humanising. At the end of the day, it is no good getting 600 points for medicine, if you have not enough empathy for the girl sitting in the class beside you who has maybe a mental health difficulty. What is the point? Definitely, it should be humanising. Yeah, they should be leaving

here to make a difference to society. That, they go on to provide service in society for the benefit for others. That would be my own perspective.

(Principal Actor 21)

The desire for education in both of these examples are captured through metaphors of flowers. Principal actor 21 names the flowers; roses, daffodils, tulips, whilst the other actor, offers a much subtler imagining of flowers. Actor 8 wittily comments on the floweriness of their language, evoking for me the connection to an image of a profusion of flowers, and the verbs 'to cultivate' and 'trample'[46] reinforce this picture of growing, living plants. The word 'cultivate' in example one transports us to the land, arable land, which is to be prepared and readied for planting. Profusion, which means 'pours out' or 'pouring forth' paints the notion of extravagance and abundance. The metaphor of growth has been used for the purpose of education for over a century, see for example Dewey (1916), but what both examples offer the reader is a sensual threshold of colour, texture and scent. It moves education right into the ground of life, onto what Deleuze calls 'the plain of immanence' (Deleuze and Guattari, 2003), and away from the narrow focus of the examination. Placing these two concepts, cultivate and profusion, side by side, overcomes the idea of the student as an "empty vessel" (Management Agency Actor 7), but instead seeing the student as already containing talents and gifts that need to be enabled and encouraged so that human flourishing or pouring forth can occur.

Both examples insist on the difference of each student – they are all different and they have their own beauty. It is clear that they are 'not all growing as roses or tulips'. This difference is natural, unforced, and should not be predetermined. However, in the first example there is

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[46] My thoughts connected here to the poem "Nettles" by Vernon Scanlon

"And then I took my billhook, honed the blade

And went outside and slashed in fury with it

Till not a nettle in that fierce parade

Stood upright any more".

also an understanding of difference in kind, a difference that sees possibility and newness. It is not about transmission. Example two suggests a certain humanising is desired – a suggestion that education must prepare each student to be more human. Human flourishing is an emerging identity and what is interesting in the fold is how each of the interviewees turn for their answer for flourishing to the other, to the person. Here we glimpse how the inside of this pleat becomes the outside (Deleuze, 1988).

That means that I am interested in conversations. Interested in listening, interested in encounters with inheritance of learning, whatever (Actor 8).
At the end of the day, it is no good getting 600 points for medicine, if you have not enough empathy for the girl sitting in the class beside you who has maybe a mental health difficulty.
(Actor 21)

This humanising and flourishing happens in synergy not just with knowledge handed down from the past, but through/in/between the encounter with others. The purpose of education in both these examples also opens up beyond myself and the other and propels education into society and the world –"*service to the world".* There is no end point to our learning but rather the human expands and grows in the lifelong learning that continuously develops. Both examples unfold and enfold the purpose of education to be ***an on-going process of encounter that fosters human becoming through the enabling of difference and connectivity between others, society and the world.*** This purpose is not ends-orientated only but captures the movement of the assemblage to liberate itself to imagine a very different purpose of education for every student.

Alongside these two examples, I am now going to add in another fold or pleat. Whilst the purpose of education may be about cultivating creative profusion which denotes a certain wildness, chaos and unruliness, schooling and its purposes are more ordered and structured.

Example Three

Every Sixth year comes in for a tracking meeting and I always, share the analogy of we are now taking the scaffolding down. The old Seamus Heaney[47]thing and what's standing as a result. I love that metaphor and I say we are taking it down. So, what's left at the end of it all? Are you able now to go to college and be that independent learner that is creative, curious, inventive? I'm going to make a mark because you will never stop learning and you have a hunger still for learning in Sixth year.

(Principal Actor 25)

The insights that this example offer help to give a little direction to the profusion and beauty above. It suggests that young people need certain supports and frameworks to help assist and enable them in their educational and creative growth so that they still have a hunger for learning and to help them become independent learners. Perhaps it is through this scaffolding that the humanising suggested by Principal Actor 21 may occur. Although learning never ends, these supports can come down and hopefully the human being that emerges has built solid foundational structures in *creativity, curiosity and inventiveness*. Each of the examples suggests that the purpose of education is realised not through the Leaving Certificate examination, but liberation of purpose comes in the form of human dialogue -the dialogical form of teaching and learning described in example one. It is through the relationships developed in the school that profusion can be realised. It is in/through/between these relationships that the scaffolding is

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[47] Scaffolding by Seamus Heaney

Masons, when they start upon a building,
Are careful to test out the scaffolding; Make sure that planks won't slip at busy points,
Secure all ladders, tighten bolted joints.

And yet all this comes down when the job's done
Showing off walls of sure and solid stone.

So, if, my dear, there sometimes seem to be
Old bridges breaking between you and me

Never fear. We may let the scaffolds fall
Confident that we have built our wall.

erected and removed in order to let "something new come into the world" (Biesta, 2013). It has opened up possibilities of seeing the purpose of education lying in an emerging Subject who has become more deeply human through their interconnectivity with others who are different. What is interesting in the fold in relation to Complexity Theory, each example had an open and emerging vision of purpose and have moved away from a closed orientation. The fold offered a glimpse into what Plateau 4 proposed as education becoming and emerging: smooth spaces, ever expanding spaces of possibility; centrifugal emergence and the Subject coming into the world. The question that must be asked is whether this is the purpose that the whole assemblage proposes for lower secondary education? This fold or pleat, folding one text on/in/to another, offers a way of seeing the molar line of the Leaving Certificate as a striated space in comparison to the smooth space that the pleats are suggesting. It offers a challenge to the linear and deterministic purpose that connects us to concepts that need to be traced in the assemblage and then placed back onto the map of the assemblage. The exploration we now take is to map the following concepts through the interviews and discover if this is the liberation for purpose that the assemblage desires.

5.4 MOLECULAR CRACKS - AN EMERGING PURPOSE

From our discussion above, it is evident that the assemblage has a clear orientation to the purpose of qualification – the Leaving Certificate. From pleating our examples, we have noted a different orientation and desire for the purpose of education in the assemblage, a more emergentist approach in which the student/ human expands in flourishing/profusion. There are molecular cracks beginning to emerge within the data that give evidence of a desire for a different purpose of education for lower secondary education in Ireland. The data illustrates that how this orientation to human flourishing is working for the assemblage is through a deterritorialisation of the learning experience from what it was to a re-imagined engaging encounter.

5.4.1 The Learning Experience

What was very interesting in the interviews was the clear wish that the experience of learning in the classroom would change and be far more engaging, relevant and enjoyable. The assemblage desires that the purpose of education would seek to offer a different experience in learning for the students[48] .

But to me the core purpose was to give a renewed vigour and life to the experience of learning in classrooms and as a result to build better on the engagement of all students in their own learning, to take that sets of independence ownership, direction, choice and to build on that, to make sense of it for themselves so the balance was moving from a little bit more externally dictated to the student being in the control of their learning.

(Policy Actor 3)

I think there is a very strong dimension of education that's about learning and about creating an interest in learning, a love of learning, an appreciation of the importance of learning and acceptance of the fact that learning is the foundation of progressive societies.

(Policy Actor 6)

Well not to be trite, it is about liberation. Learning to think for yourself. To articulate your thinking. Learning skills. Learning what you're good at. Persevering at what you are bad at.

(Policy Actor 17)

These three quotations offer a holistic understanding of the learning experience and suggest a different pattern of connecting molecular lines to those which exist at present in the assemblage. Learning according to the assemblage involves an emotional attachment -*love and appreciation of learning* (Policy Actor 6*).* It also has a mental connection and whilst cognition, thinking and sense-making are very important to learning, the focus now is about taking

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[48] In the plateau "Becoming Assemblage" there was a description of the main points of the ESRI Longitudinal Study (SMYTH, E. 2009. Junior Cycle Education: Insights from a Longitudinal Study of Students. *ESRI Research Bulletin*.) which described the disengagement, boredom and difficulty experienced by students at Junior Certificate.

ownership of it, internalising and articulating it. The principal value that this learning promotes is liberation. This liberation is about democracy, the interiorization of values such as choice, perseverance and independence. The assemblage views human and social progress and flourishing as dependent on learning. This holistic approach to learning moves away from the idea of learning for qualification alone. It demands a more expansive educational experience both for the student as an individual but also for society too.

The type of learning that is suggested promotes the agency of all in the assemblage and there is a particular move to acknowledging and developing students' agency – "actually kids came in as agents of their own learning" (Third Level Actor 9). Teachers' agency also received quite a lot of attention throughout the interviews and both student and teacher agency are illustrated in the excerpt below:

So, I do think there is definitely a move for teacher agency. You would have a ball if you were back in the classroom, in terms of the students. It's just, you could definitely come up with a very interesting curriculum that promotes high levels of literacy, student's self-expression, creativity, and critical thinking, debating and role play. Definitely for anyone willing to act there is definitely room for agency.

(Principal Actor 21)

What is interesting in this excerpt was the linking of agency and creativity but also the openness to imagine possibilities in the classroom which were very much centred on the student. The magic that can be created in the classroom is captured in the words – *'you would have a ball'*. The last sentence captures an important tenet in the agency of teachers and students and that is their willingness to engage. There was no one in the interviews that suggested that teachers did not want to engage with offering students a powerful educational experience, but one agent offered a subtle dimension to this willingness to act. When discussing assessment for learning, she suggested that:

….it's not the teachers are not engaged in assessment and that they're not engaged in

formative assessment. They are, but because they're not consciously engaged in it they are not

then engaging with the structures, the philosophy, the rubrics of that mode of assessment,

sufficient to be able to amend it or adapt it and be responsive to learning situations as they

unfold.

(Policy Actor 13)

Conscious engagement involves a responsive response rather than a mechanistic reaction to the experience of learning and teaching. It facilitates action that can *adapt* and *amend*. This conscious engagement of agency is an energy that also brings a certain unpredictability into the search for purpose in lower secondary education. It was acknowledged that this envisaged change for learning even on a macro level is not something that can be controlled but is unpredictable and emerging:

I think it was our realisation very early in the work of the network[49] that we were incapable of

actually directing it and controlling it because the act of bringing together so many interested

and creative people meant they were all going to do a load of things themselves. Whether the

NCCA agreed with it or not, or whether the NCCA was involved in it or not, directly.

(Actor 6)

In connecting the many ideas and thoughts offered by the actors in the assemblage on the learning experience that is now desired, the concept of creativity underpinned many of their hopes. Biesta argues that education is a "creative act" (2013) and there was now an understanding that the agency to be creative brought with it unpredictability, excitement and liberation. This fundamental change in purpose and to the learning experience was spoken about as "a seismic shift" (Policy Actor 7), "a cultural shift" (Policy Actor 5), "turning the titanic" (Policy Actor 22), and "the whole educational enterprise at lower secondary has been flipped by

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[49] The network this actor is speaking about is the network of pilot schools that were set up to pilot the Junior Cycle curriculum in the initial years of the reform.

this" (Management Agency Actor 7). It is a clear move away from learning as transmission and the teacher as a deliverer of knowledge.

However, not all teachers in the assemblage were open to this change to learning. Some teachers and students wanted predictability, certainty and control.   Changing the exam orientated purpose to a more open purpose posed problems for teachers due to their need for clear cut curriculum that could be broken down into examination questions. In discussing how the curriculum might be an evolving process rather than a final product, the following policy actor explained:

In an examination orientated system, you don't really get the opportunity to do that because people feel that they need to have the final product before they subject children to it, who are going to be examined on it. That is one of the difficulties I think that we had, and it is arguable that, those kinds of very structured approach shouldn't apply to a stage of education like Junior Cycle where most students are proceeding to Leaving Certificate level. It is very different when you are talking about senior cycle and Leaving Certificate where the outcomes of students' education will to a certain extent determine the next stage of their education and their life chances beyond that but at the Junior Cycle stage I think it is arguable that we can adopt a much more flexible and graduated approach.

(Policy Actor 6)

The assemblage continued to be caught in a past in which education and curriculum were viewed as a 'product' which found its end in the Leaving Certificate. Within this mindset, flexibility and graduated approaches did not feature. The concept of curriculum as an evolving process was too alien to contemplate. The desire for a less structured and more creative approach to education and a different learning experience is verbally agreed by many but, the reality of the experience is captured by the following Third Level actor:

I don't think a lot of teachers get a kick out of the job anymore. They go in excited and young, but the excitement is kicked out of them. But it becomes a routine and drudgery. Even though you have different students in front of you every year, probably every 40 minutes. To them it could be different but for the teacher it's just students. (Third Level Actor 8)

The Junior Cycle proposes to move into a space that gives both students and teachers "a kick out of it" (Actor 8), and there was plenty of evidence in the data to demonstrate that thresholds were opening whereby teachers were beginning to offer a more liberating purpose for education. The molecular lines were beginning to emit cracks. To get a glimpse of the type of change and experience discovered, the reader might become nomad and whilst seated, enter into the following smooth spaces that the data offers below. What I was searching for were connections to a move to an expanding, centrifugal educational purpose and experience and the indicators of this were the spaces of becoming: space, time/duration, matter and energy[50].

A principal's visit to an art class:

Yesterday I was in class with an art teacher who was trying out the method, the VETS method. It was an inspiration to me because it was like prior learning was what was happening there. Prior learning was all that mattered. She couldn't tell them anything. She gave them the visual to look at and everything came from them. It just reminded me of how, when students are given that kind of responsibility in the classroom, how they will really engage. I've never seen anything like the engagement, now and I was like one of them. I was sitting there with them. So, engaged at what I was looking at on the screen and what it meant and why it meant that and why I thought it meant that and what it could actually mean. At the very end a student came up to the teacher and she said, normally she said I fiddle and doodle and draw when teachers are talking because I can't be absorbing all that, but she said today, I was completely engaged. They are the words she used, I was completely engaged, because they were given responsibility for their own learning. What do you know already? You know, it was prior learning.

(Principal Actor 34)

A Science Class:

Or, even in terms of research like, I'm doing earth and space at the moment and like, because the statements of learning are so, vague I suppose and broad, there is no specific galaxies they need to learn about. So, what I'm doing is a way you go this evening. Make a poster about a

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[50] This has been explained in the Plateau 4 Education as Becoming, The Space of becoming and emergence

galaxy and then they're all coming in with different galaxies. Yesterday for example we all

learned about seven galaxies, you know. Whereas before you'd never, you'd have mentioned,

it wasn't on the syllabus first of all earth and space, but even if it was you probably had

mentioned here's the Milky Way. Here's what you need to know about it. Now you're going

away and your letting them, you tell us what's important about that galaxy. But they're

coming back with the right stuff. And they know what they need to know about it and they're

going to remember their specific galaxy or whatever it is they are looking at.

(Teacher Actor 32)

A response to the integration of Wellbeing into English:

Well, again this morning I had First year, and I had one of them crying at a quarter past nine. I

don't know am I saying the right answer, he was doing a poem and it was about a man and

he's holding his 83 -three-year-old fathers hand and we're talking about the themes in the

poem about how life changes and people get old. And the boy in the class, it's his Granny's

year anniversary. So, we just all started to share stories about life and I was telling them about

something in my life. And by the end then we all start laughing and we said well you know life

is hard but let's finish on a positive story.

(teacher Actor 29)

A parent's response to his son's Classroom-based assessment:

He said you know my lad came home. He was just buzzing about this new Junior Cycle.

(Policy Actor 2)

A student's response:

I have a teacher he's really good like keeping you focused because he's able to like to make it

fun and still have you learn at the same time by sort of making everything he says different.

Like he's not monotone. He's sort of, like he'll include everyone in his class. He understands.

What does he understand?

Like, I don't know how to explain like, he just understands. Your point of view basically.

(Focus Group Actor 30)

Each of these quotes speak of an engaging experience within the classroom in which knowledge,

skills, understanding and values are expanded – different galaxies are explored, prior knowledge

and learning was drawn out in the art class so that new thinking and understanding was developed. This art class offered the possibilities of the virtual as the teacher encouraged possibility, unpredictability and trusted in the potential of each child. The result was absolute engagement, learning and the experience in some way of awe – awe at the students own ability to take it all in and become. A personal response by a student was not ignored in a poetry class but was encouraged to be enunciated and discussed. The material/poetry connected to life as it was felt and experienced. What mattered was the human being in that moment and not the examination. Each quote offers the picture of students and teachers finding a space where they are comfortable with each other and through the encounter feel more fully alive and of worth. The experience of the classroom-based assessment caused the student to 'buzz' – this is a far cry from the previous examination experience found in the data and in the longitudinal studies offered by Emer Smyth (2009). Within the above quotations, there is change evident specifically in the energy generated by the knowledge, skills, values and understanding, leading to a change in the dispositions of teacher and student. What matters in these examples are the human beings that inhabit the space of the classroom and how they can connect to the non-human (art and poetry). The spaces are democratic spaces where students are liberated to respond and are assured that everyone is understood. Above all, the experience is not one of determination and structure, but of potential and possibility.

In no way I am suggesting that these experiences did not exist pre-Junior Cycle in many of the classrooms in the country, but these experiences were a movement away from the norm of teaching to the syllabus. This is aptly described in the following example:

Plain common sense you could say, but if you are thinking, I want to do justice to the subject that I teach. I want to do justice to the kid's potential in this subject. Then on the other hand this thing is pulling you. Colleagues are pulling you, saying God, you are a brave man. I wouldn't be sticking my neck above the parapet the way you are doing it there now. Because what will parents say and the kids themselves. Is this on the course? All these kinds of pressures are coming at you. (Third Level Actor 8)

In addition, I do remember as a teacher experiencing these magic moments or smooth spaces, but then having to say, "now let's get back to work", as if what had gone before was not related at all to education. What the assemblage is proposing now is that these experiences become the norm not the exception. Actors are requesting that the purpose of education includes enjoyment, engagement and the agency of students. The question arises as to whether these were just four exceptions in the data and whether there are patterns emerging of education as becoming and emergence. Where are the lines of flight happening within the molecular lines and how are they deterritorializing and reterritorializing in the assemblage? In what way is the purpose of education expanding in energy, space, time and matter? There is a definite desire for a change of purpose which is described below by a policy actor who was engaged in reforming the Junior Cycle curriculum:

If it is not happening in the classroom, it is not happening. So, we can have 800 pages of Synergies for Better Learning from OECD, we can have the well-being advice documents which I think is the outcome from a Dublin mini summit. Which is really good. We can have all the paperwork and booklets, if it doesn't 'ruffle the ocean floor', if it doesn't have an impact on classroom practice then there is no point, there is no point in me doing what I'm doing.

(Policy Actor 5)

5.4.2   Smooth Spaces - the purpose of this learning experience?

The purpose of this learning experience may be found in the quest of the assemblage for smoother spaces of new knowledge, skills, values and dispositions. Whilst the learning of the past is valued, there is a definitive move to valuing the relevance of this learning for the present and with a particular eye to the future. There is a move within the assemblage to rethink the importance of an integrated approach to time and to build the educational spaces that acknowledge this rethinking.

5.4.2.1 *Knowledge*

It was interesting to remark that in discussions of knowledge, interviewees referred to mainly subjects as the source of knowledge. Within the assemblage the knowledge lines are subject lines and thus to make any change in the purpose of education, these need to be cracked. There is a desire to make knowledge more relevant to the world of the students and these subjects, as the only ground of knowledge, are now under scrutiny as suggested by one principal: *"So, like, in my head I am rating the value of the subject"* (Principal Actor 21). Previously in Ireland, students at lower secondary level would take between eleven and thirteen subjects. There were clear indications of curriculum overload[51] and the volume of content being taught.

So, when I read or heard about the possibility, in fact the mandatory nature eventually of having to reduce the number of subjects, it was happy days. We became very excited about it because we thought that it really does suit our school and we got on board very quickly with the whole notion of talking to staff about it and saying you know, here is an opportunity that locally we can decide what subjects? How many subjects? We can think about short courses. We can tailor the short courses to our particular context. So, being on the edge of x, we were thinking maybe caring for animals or the horticulture or those kinds of things. So, we certainly would have been early adopters.

(Principal Actor 28)

The Junior Cycle Reform with the reduction in the number of subjects to ten[52] for state examination has helped with the curriculum overload and as seen above, the discussion now centres on the relevancy of these subjects for the students within each school. However, this structural change has created a tense political climate around the discussion of subjects, short courses and wellbeing.

... I set up a well-being committee and I never saw in my whole life so many teachers who got involved in this committee. I know the reason was because they were afraid of what would be

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[51] SMYTH, E. 2009. Junior Cycle Education: Insights from a Longitudinal Study of Students. *ESRI Research Bulletin*.

[52] Schools can take the maximum of ten subjects to state examination. There can be a combination of subjects and short courses, but they cannot go beyond the ten.

lost, and it was not that they were necessarily wanting to implement the changes. It was they

were afraid that my subject may be lost if I don't go and voice….There were all these people,

like history, geography teachers, people with subjects who..... there was talk that history,

geography, religion, were going to be cut and they were all on the committee. They were not

there to drive reform. They were there to protect. There were mixed agendas .

(Principal Actor 21)

This mixed agenda is highly complex, and it relates not just to the time given to a particular

subject on the timetable but particularly whether a teacher will continue to have a job if their

subject is cut. This political climate was felt in all schools in the research and each principal

found that they had to negotiate very sensitive terrain as subjects had been seen as silos of

knowledge, independent of each other and some subjects viewed as infallible.

The fact that a lot of the exam papers aren't higher and ordinary. I think that is fantastic…
This is telling me that they are curriculum focused and not student focused. That they are
exam focused and not student focused, and they think that all they have to do is go in and
deliver it and every student is going to absorb it equally. This is real old style.

(Principal Actor 21)

From the excerpt above, it is clear that normative acceptance of subjects, the behaviour that

accompanied such acceptance as highlighted above in class streaming, and their hierarchical

order in the eyes of the assemblage were under attack:

You know, they were questioning why it is Home Economics, Art, Music and Business, why not
put in history and geography as a choice and I'm standing up in front of the staff and I'm
thinking there will be blood on the carpet.

(Principal Actor 21)

The re-imagining of what knowledge is and where it might emerge has caused intense

emotions in schools. The space is opening up for teachers not only to re-imagine their subjects

but other possible knowledge making that they might like to offer through short courses and the

area of Wellbeing. Moving to education as subjectification focusses on the centrality of

students' needs. The knowledge offered in subjects and short courses also is encouraged to be cross-curricular and co-curricular, breaking down the individual subject silos but what seems to be essential in the data is that a teacher must relate the subject to life and the world.

It wasn't necessarily about knowing Romeo and Juliet inside out. It was about what you could learn through that about the world, about life and how you could transfer it across other subjects in your own life.

(Principal Actor 34)

Perhaps what is different in the approach to knowledge was the recognition, not only that it must focus on what was happening in the world and in life, but also that it encouraged critical thinking. With the rise of populism, the assemblage sees the need for "analysis, rigour and thinking" (Actor 6). This thinking is about "the ability to synthesize, pull knowledge and ways of approaching things from different strands and bring them together" (Actor 4). There is a clear desire in the assemblage to ensure that knowledge becomes "powerful knowledge" (Young, 2013). However, whilst the assemblage is on the same level as to why knowledge is important for education, the problem lies in the how this knowledge is generated, and we will return to this question in the plateau " Curriculum as Rhizome".

5.4.2.2   *Skills*

One of the biggest changes for the assemblage was the focus on the development of skills as well as knowledge. One student summed this up by emphasising that the purpose of education was "that it will get you ready for adulthood and college and then your job" (Focus Group Actor 32). This getting ready means the acquisition of certain skills. The assemblage offered three areas of skills that they desired as belonging to the purpose of education during the phase of lower secondary: life skills, work skills and learning skills.

For the students, the life skills they spoke about centred around relationships*: "*how to relate to friends and deal with them" (Focus Group Actors 31); "being a teenager*"* (focus Group Actors 32); "manners" (Focus Group Actors 36); "boundaries" (Focus Group Actors 31); "oral skills*"* and "being able to have conversations" (Focus Group Actors 31); "maturity" (Focus Group Actors 37) and "confidence" (focus Group Actors 31). As far as priorities were concerned, school was all about meeting and being with their friends (Focus Group Actors 35; 36), working with their friends but they also highlighted that friends can cause stress and they needed skills to deal with that. The significance of relationships is an area of skill making that needs perhaps more attention in our curriculum spaces. The introduction of the area of learning called Wellbeing has been welcomed by all agents across the system –"wellbeing is big*"* (Teacher Actor 30) and it is here that the possibility of focussing on relationships could emerge. It particularly responds to the mental health issues present throughout the education system, even at primary level. It sits side by side with teaching and learning as far as the assemblage is concerned in the purpose of education:

Parents would always say to me; I am worried about Johnny and he's not doing that well. I would say, if Johnny gets to 18 years of age and Johnny is happy in mind and body and feeling fulfilled, the world is his oyster. If Johnny gets 800 points in his Leaving Certificate and is not happy in mind and body, I would have serious misgivings about Johnny's future. So, to me the first piece is the welfare piece. It's the development seed. It's the wellbeing piece.

(Policy Actor 10)

The quotation above highlights again the move from a narrow understanding of education to one that concentrates on a more holistic becoming for all students. The real purpose of education is to ensure that they were about *"*engagement with life as well as with learning*"* (Policy Actor 3). Wellbeing as an area of learning had not been introduced to this cohort of students, but they were aware that it would help to improve life skills – "it's about like, growing

up and taking care of yourself" (Focus Group Actor 36). The rest of the assemblage viewed the key skills, as outlined in the Junior Cycle Framework, as life skills.

The new specification, more than the previous curriculum, and a sense that the kids could
engage at a level that would support them for the life not just for their learning.
(Policy Actor 3)

Two key skills that are prominent in the minds and hearts of principals and teachers are numeracy and literacy – "I think once they have those two basic skills, I think everything else falls into place" (Principal Actor 34). Other skills such as managing yourself, creativity, thinking, underpin "the whole idea that a school is there to help its students flourish in life" (Policy Actor 15). The more academic students wished to substitute subjects like religion and SPHE for subjects such as Maths and English that would "help you prepare for exams, especially in third year" (Focus Group Actor 29). There is a recurring pattern within the data of the students focussing and favouring repeatedly on a closed and deterministic approach to skills that are relevant to the examination. Anything else was superfluous to their needs.

5.4.2.2.2   'Work' skills

The second area of skills suggested by the assemblage were those related to work. The word work in relation to education was used throughout the interviews hundreds of times in many variations; learning how to work, going to work, homework, doing too much work. Work and how it operates is an important value in the assemblage. The purpose of education is very much about preparing students for their future careers and the work world.   From the perspective of the students the work skills they had learned varied from "time management" (Focus Group Actors 36); "deadlines and schedules" (Focus Group Actors 38); "teamwork" (Focus Group Actors 37), "being organised" (Focus Group Actors 31) and "leadership" (Focus Group Actor 31). One student spoke at length about organisation, whilst others have learnt that they need to acquire that skill much more in the future:

I have become more organised. Like, my journal, I always write down everything the teacher says. If they call out a day, I am writing it down like straight away and like then I always like writing, like three weeks until this or like two weeks until this. I think that will help me like when I go out of school so, I actually stay organised like with whatever job I get or whatever I do. Like, I can actually organise what I have to have done and everything.

(Actor 31)

These skills that "prepare young people for work" (Business Actor 4) are also viewed as educational values.

You guys, being business employers, talking about competences and you know the critical thinking and communication skills. You can call them what you wish, transferable skills, key skills, employability skills. We have got a host of names in the education world. We are basically talking about the same thing here. Those are education values as well. They are quite aligned to education values if you think about it.

(Business Actor 4)

The two skills that are aligned to educational values that were seen as important for the assemblage were teamwork and collaboration. Actors suggested that the influx of big companies like Google and Facebook into Ireland and the way we have moved from "a Fordist assembly line type company" (Business Actor 4) to the workplace of teams, will need to be catered for in schools through skill development. This skilling for teams is evident in the turn to group work in many of the teachers' classrooms and in the experience of students in their first three years of lower secondary:

There was much more group work and it was kind of more interactive between teacher and student. You didn't really come in taking down notes or anything like that. You kind of learned as a group and then you could study on your own for what you learned as a group.

(Actor 38)

The skill that enhances effective teamwork offered in the data is collaborative practice. We shall return again to collaborative practices as part of curriculum enactment, but what was evident

was that success in the work world demanded the skill of being able to work with others and the

individualism of the previous system was being dismantled.

Unbridled individualism has been promoted. Like, it was all about me getting to the top.

Getting the best results. Schools are about getting the best results. Worse than that, the

subjects I study and what I get from studying them are unrelated in many cases to even work or

life. They are just a vehicle to me getting to the top of the queue. It's a little bit like almost, get

into medicine with building construction, art and music. There is no requirement on me to

demonstrate that I have any aptitude or interest in the subject area that I am going to go into.

(Policy Actor 10)

The interesting pattern about the interest in work in the assemblage is that it is future

orientated. Building the skills of teamwork in the classroom, if only seen for the purpose of a

future career, will miss an important insight that education as becoming may offer. One area

of work that could be visited is homework and how it works for the student and teacher. The

frustration of one student captures the feelings of many of the students to their experience of

work within lower secondary education. He describes his day in the following way:

When I go home, I have just spent seven hours in school. I am expected to get like 8 hours

sleep every night because that's for my mental health. That's fifteen hours out of the twenty-

four hours of my day gone. Like dinner, all of the other eating that goes on in the day. There's

probably about four hours left, and I still have homework to do. So, it's very hard to put off

everything that you want to do in your life to do this three, four hours of homework that's

expected of you. So, if you go home and you do all the homework that is set out for you

perfectly the way they want it done. And then you do study for every subject like, teachers

expect you to go home and do your study as well as doing the homework that they give you, it's

really, really difficult.

(Focus Group Actors 36)

The points race that finds its completion in the Leaving Certificate was not concerned

with relevancy or building a student's capacity for a future area of study. Points were valued

not knowledge or skills. Assisting with the development of team and collaborative skills, was an

awareness of the importance of skills such as oral skills. Teachers viewed these as part of the work world where presentations are one of the common communication methods. However, students did not see the development of oral skills only in this light but related them to life skills. They saw the skill as important for conversation. What was relevant to them in the present moment were the conversations they could have with friends and not some future venture that might never happen. What I particularly found captivating in one piece of interview data was the comment – "Because somebody can do well in an examination does not necessarily mean they're going to be the sort of worker that you're looking for" (Business Actor 4). Again, and again, the challenge to the old mindset is being voiced in the assemblage and the purpose of developing skills for educational purposes begs the question, what skills are we developing and why?

5.4.2.2.3   Learning Skills

Of all the skills discussed, learning skills were perhaps the most important for the actors and they focussed on the what they imagined the student becoming an independent learner would look like.

I suppose that it was kind of getting stale and that we weren't really doing the best for the students. We were focusing too much on rote learning as opposed to actually giving them skills to be independent learners.

(Teacher Actor 26)

What it means to be an independent learner for the assemblage is about "empowerment" (Business Actor 4), "enabling" (Third Level Actor 8), "confident" (Focus Group Actors 29), "motivated" (Policy Actor 3) and "taking control of learning" (Principal Actor 25). What was made very clear was that the Junior Certificate did not encourage this skill building.

So, it never gave that time to be able to fully allow the students to work themselves. You felt like you were constantly teaching to that syllabus because it had to be done and the experiments had to be done, had to be completed in a specific way every time. Whereas, we've

moved now towards twenty-four statements of learning and we had to unpack them as to

what we felt was a great fit for our school.

(Teacher Actors 33)

Even more active learning. There seems to be more independent learning. Preparing them for

life, I suppose. The old Junior Cert, was that preparing them for life? Probably not. They're

getting an awful lot more skills now in terms of Wellbeing, the managing myself, you know.

They are ticking all the boxes for working life. So, they are taking control of their own learning

as well.

(Teacher Actor s 33)

Actors showed concern that the previous approach to learning had not prepared students for

their transition to college:

I can see it in these youngsters who come in here in their twenties on 600 points. In some way

their adolescence has been left on hold.

(Third Level Actor 8)

There is clear acknowledgement right across the assemblage that these skills must be tied up

with future jobs, careers and of course the Leaving Certificate but there is the idea, that

alongside a better learning experience for the student and teacher, that learning is a skill and is

something that can be taught and learned.

It makes it more interesting when it's focused around what you're learning and getting you

involved, you are more involved in the class and it sticks with you better.

(Focus Group Actors 38)

This is a clear move away from the previous classroom experience of handing students

notes and learned off questions. The notion of "spoon feeding" (Teacher Actors 33) the students

is to be put aside and instead a range of learning skills acquired.

Students agreed that in approaching their Leaving Certificate that they would need to

spread their time across subjects but found it difficult to study subjects they didn't like. They

also pointed to the importance of the skill of prediction in their exams (Focus Group Actors 38). One skill they had picked up was how to space preparation for long examinations and also to keep motivated in their study. Motivation was mainly promoted by the examination system and the students wondered why would you learn if there were no exams?

Yeah, I think it was worth it because the junior cert is something to, like look forward to, you are going to do something, you are doing this for the junior cert. Say if you are in first year and there was no junior cert and you'd be like what's the point in me doing this.
(Focus Group Actors 29)

Students did note a significant importance in learning for the love of learning and choosing subjects that you like:

I think it's kind of like pursuing something that you are passionate about in the end. So, instead of just learning off, just to learn and just to get through school, instead you are kind of going to subjects that you like and then you have a goal in your mind to get to a certain college.
(Focus Group Actors 29)

The purpose of education for students is very much connected with these skills and the opportunities to develop them come through their encounter with subjects, extra-curricular activities and especially in their relationships and connection with teachers:

We always put in for extra- curricular activities, to ideas like, the student council. So, like leadership skills, like teamwork. Or we can like put aside the subject and it's just the advice that the teachers give us in general. My English teacher once said get a job that doesn't feel like a job. So, I've stuck to that advice.
(Focus Group Actors 29)

I cannot leave this area of learning skills without describing a particular line of interest in the data that spoke about teachers and developing their own learning skills. At times the data showed restrained annoyance at the role that teachers continued to play, their inability to learn and take their own agency.

In a lot of places there is good teaching and learning happening, but there is a lot of teaching that the teaching could do with a kick in the ass. Do you know what I mean because a lot of teachers were coasting? They weren't challenging the kids. I thought that a lot of kids are being short-changed by the education system. They were not being challenged or being offered opportunities to reach their full potential.

(Policy Actor 22)

What is significant about interviewing most of the stakeholders across the assemblage was they themselves had been teachers and therefore had a very good understanding of the difficult and controversial terrain that teachers were now inhabiting with the new curriculum reform. This is captured below in a very profound way:

The other thing that I think is really important is, a personal value for me would be the whole business of the professionalism of the teacher. The whole notion of what is professionalism and how is professionalism enacted. I suppose the things that everybody would have in common would be the notion of a set of skills that are very particular. The capacity to reflect on those skills and to apply them in a responsive way rather than in a mechanistic way and the autonomy to make decisions based on the reality. They would be the kind of principles that I would very definitely adhere to, but I also know the reality in schools is that teachers lived professionalism is different from espoused professionalism because of the shadow of the exams.

(Actor 13)

This excerpt connects us again to the importance of the purpose of education and the difficulty that teachers in lower secondary in Ireland are contending with. If our purpose is predominantly examination orientated, then there is a particular skill set that a teacher develops, and this has been the skill set that has been encouraged by the system: teaching to the test, rote learning, predicting questions, reduce the course, get good results (Principal Actor 23). However, there is now a call on teachers to develop a different skill set which approaches education from the learning experience and not the examination. It is a call to move from the striated spaces of the molar line of the dominance of the Leaving Certificate and move towards

more smooth and open spaces. This approach might offer teachers their own agency but alongside this agency is needed the skill of self-reflection and self-awareness and to look at the reality of the student and the learning experience and respond to that –"decisions based on the reality" (Policy Actor 13). For teachers this is an exciting space to move towards:

The joy that teachers are experiencing when they go to the CPD that is in their subject groupings. When they meet teachers from other schools that teach their subjects and they're working on examples of student work.
(Third Level Actor 9)

However, teachers are caught in this between space of educational purpose, between the new purpose and the continuation of the old-style Leaving Certificate and the new skill set will be a slow evolution. This thinking is summed up by one of the agents when he suggests that "it will take this decade for it to happen and the change will be generational. It won't be, add water and stir" (Management Agency Actor 7).

The data suggests a broad range of skills that the assemblage considers important for education. What was particularly absent in the data were skills relating to technology. One interview offered a far-sighted understanding of the importance of digital literacy and the influence of the world outside the school. This is certainly an area that the assemblage needs to explore or become outdated and archaic:

I certainly view digital literacy as on a par with traditional literacy in terms of the requirements of a young person today, but that would be contested widely by teachers in particular because our affinity to where we are at, our subjects and our areas etc and I think where I see it going is that, there always will be this dance between the world outside of schools and the world inside of schools but increasingly the world outside of school is influencing, influencing, influencing, changing, changing more what we do and if it doesn't, any particular school can become obsolete.
(Policy Actor 3)

Through the complexity lens it might be considered that some of these skills are quite closed and ends-orientated and the question as to whether they retain a too narrow purpose for education will be considered in the discussion plateau. However, through the Deleuzian lens I believe that the assemblage is beginning to crack the molecular line of narrow purpose and these molecular cracks are beginning to offer some different trajectories for skills which are more emergent and educational. I draw you to the constant referencing of these skills not only to the instrumental need of exams and work but to a connectivity with life itself and essentially to others and the world. Is this a line of flight that deterritorialized the idea of skills into a different landscape? In contemplating the Junior Cycle curriculum in the plateau "Curriculum as Rhizome", we will draw out the implications of how having a narrow or broad purpose of education influences not only the design and development of curriculum but its enactment too. We will follow the molar lines, molecular lines and maybe the lines of flight as we map how the assemblage "wanted to hang onto a wider set of learning" (Policy Actor 2).

5.4.2.3 *Values*

5.4.2.3.1 Holistic and Student-centred

The values and dispositions that the assemblage purpose for education are an intense multiplicity, sending out tentacles every which way and overlapping and intersecting at varying conjunctions. One thing was very evident in the data and that was the call for absolute clarity as to what it is we value for education and for the student. There was a definitive need to know what it is we are about and "any discussion about education does bring us into a much sort of broader examination of our values, our societal values, our goals (Policy Actor 4). What we do value is a holistic education for the student.

Well, it would be heavily anchored in student centred, heavily anchored in the holistic. Heavily anchored in developing the whole person, all aspects of learning and that multi-intelligence thing. The philosophy is, everybody can learn, there is no such thing as not learning.

(Third Level Actor 12)

The use of the words "heavily anchored" three times in this statement drew my attention. It suggests a passionate desire to be clear about the values of the Junior Cycle and to produce a student-centred, holistic learning experience for all students but at the same time, if something is "heavily anchored" does it allow flow, dynamism and movement? Many of our syllabi are over twenty years old, some forty and they have been heavily anchored in a purpose and value that is no longer meeting the needs of the student. Heavily anchoring something does not allow any room for emerging change or becoming. In our world today of global connectivity at every level, this might be a mistake. However, with deference to the agent, perhaps the language picks up a distinct need in the system for change from where it is at present and it certainly was not student centred or holistic in its orientation. There is a strong desire for the Junior Cycle Reform to move beyond the narrowness of the previous reforms and the call is for "Junior Cycle programs which should be more child development focused, stressing the social, emotional, physical and aesthetic developments of the child as well as cognitive development" (Business Actor 4).

Discussion about values brings us into the terrain of socialization and there is an understanding that education is nested within and influenced by society.

Socially, yes because education is a social enterprise. I mean schools are social institutions. Education itself is a social institution. It cannot be static and since social society because of globalization or technological things, the demise of the power of the institutionalised churches, the failure of trust in banking, business, politics, we have lived through now something far more radical then the French Revolution ever did. So, the schools don't need to necessarily mirror society but because they are embedded in society, they do need to move, and education needs to move.

(Policy Actor 7)

What does that movement look like or rather as one agent asked -*what sort of people do we want to produce?* And they continued to argue "that education is very much predetermined in

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the society which it works through" (Policy Actor 4). Many theses have been written about the effect of socialization on education and it would take another thesis to follow this train of thought. However, within the limitations of this research, knowledge, skills and values that are chosen to be part of the curriculum, need to be explored for the inherent values that lie within. If we see education as a creative act which is open and unpredictable, then there is no clear way of knowing what affects the inheritances are having on students and schooling. This is not a call to do nothing, but rather invites the agency of the teacher and the whole assemblage to be reflective and vigilant.

How therefore are values working in the lower secondary assemblage in the light of curriculum reform? There is an ethical warning offered by one of the agents about getting this right. He tells us that:

Education reform, you are dealing with young people's lives and it's important that you don't screw up or screw up as little as possible because, they can have lifelong consequences.
(Business Actor 4)

Throughout the system, all desired that students would achieve to the best of their potential and promoted the value that all could aspire to realise that potential. They acknowledged that "teachers are in teaching to help kids to do their best" (Third Level Actor 8). Teachers empowered and enabled students to achieve. This aspiration was highlighted by the teachers and principals themselves:

So, for me, this might sound terrible as a teacher, but for me grades aren't important if the child has done their best. They have done their best and I don't care if they get a Pass or if they get a Distinction once it's their personal best. That they have achieved as high as they can.
(Teacher Actor 35)

I say once you do your best it doesn't matter if I see a 'D' in your Christmas test or if I see an 'A' once I know it's your best. That is my mantra. I don't try and put too much, maybe it's bad, I

don't try and put too much pressure on kids. I just try and encourage them to do their best that

they can.

(Principal Actor 34)

Students also agreed that one of the important values in the system was that they were being

challenged to do their best and that this was supported by their teachers through the encounter

in the classroom:

Yeah that's okay. They just want to know how well you're doing. It's like they genuinely want to

know your progress in class and maybe you should go back and revise somethings.

(Focus Group Actor 31)

I have highlighted the importance for the assemblage of an education that is student-centred,

holistic and aspires for each student to reach their full potential. This leads us to a very

interesting value in that the assemblage desires – the value of difference.

5.4.2.3.2 Difference

The data has shown that what is now desired is a different hope and achievement

centred on the holistic development of every student. This aspiration comes with an

understanding that students are not all the same, but each are unique and different:

I think, as I talk to you now many schools talk about treating every child exactly the same and

there's a fairness and consistency. But sure, they're not all the same. They have different

needs; they have different challenges. So, some come to school hungry, many don't thankfully,

but some do. Some have you know broken homes. They are coming from where the parents

are going through difficulty, whatever. So, consistency is almost the wrong issue. It's about we

need to make sure that the learning experience is as relevant and both supportive and

challenging. It's not supposed to be an easy ride.

(Policy Actor 11)

From the excerpt above and throughout the assemblage, there is a recognition that

students are different as human beings. They are different in gender, personality, intelligence,

emotional maturity, social etiquette etc. They are different in **degree**. Their **actual**[53] lives are very different. They are nested in a range of multiplicities of families, communities, cultures, beliefs etc and they present in the classroom as different. These might seem like statements of the obvious, but it has been the habit of the assemblage in lower secondary to treat all students the same and in a very uniform manner [54].

We are tied into a one system. One everything curriculum. While in other countries you can choose your state curriculum, your International Baccalaureate curriculum etc. I think the notion of prescribing a national curriculum and hoping that it fits everybody's needs is something that I would possibly think it is not the healthiest.

(Policy Actor 3)

The movement in the assemblage to embrace difference of degree and kind, brings the values of equity and inclusion into the arena for the purpose of education. This was highlighted by the following policy actor as of significant importance:

There are also the principles of equity and inclusion which are really important. By equity I mean, recognising the rights of all children to a quality educational experience. So, if you work at it from a point of equity then you have to say, well actually it has to serve everybody and not just the kids who are good at doing exams. There have to be outcomes here that are really valid, and which can be recognised and should be recognised beyond that. So, equity would be one. Inclusion is another. I love the fact that we're now looking at the students who are working in Special School settings or in Special Ed settings within mainstream schools and actually not seeing them as second cousins. That they are actually people who can make achievements. Who can actually develop and progress and whose progression can be recognised and rewarded?

(Actor 13)

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[53] In the plateau "Becoming", Deleuze and Guattari (2003)

outlined that difference is not just about "not sameness" but there is difference in degree (actual) and kind (virtual).

[54] I must acknowledge here that the education system in Ireland does support Special Needs students and has recognised their needs and challenges. However, up until the Junior Cycle they still had to sit the very same exams as students who had no special needs.

This excerpt highlights the desire for equity of a quality educational experience and the move towards more inclusive classrooms, but it is now asking for "*outcomes that are really valid*". Outcomes are often restrictive and deterministic but placed beside validity, this actor is asking that perhaps we can place outcomes beyond the linear and fixed and move them to a different space. There is an aspiration or maybe even an imperative here that there is a different recognition that might be imagined – "*recognition and should be recognised beyond that*". This call might be seen as a movement which situates us on the plane of immanence and moves us into a smooth spaces (Deleuze and Guattari, 2003). It brings us into the very middle of difference.

Equity and inclusion do not just happen by recognising actual difference or difference in degree but through the process or event of **difference in kind[55].** I am plugging into Deleuze and Guattari's understanding of difference to help us negotiate what the assemblage is now requesting of educational purpose. It is suggesting not just an identity that is static and fixed but rather opens to the whole concept of the process of change that is difference. There is a challenge for the assemblage that requires a combination of and connectivity between the many elements that make up the educational experience for students, so that a difference may emerge as these are reordered, renewed and rethought. The assemblage is no longer just looking at knowledge as the main element, but with a combination of skills, values and dispositions, centred on the students holistic becoming – physical, mental, social, emotional and spiritual, then perhaps something new and novel has the possibility to emerge. The assemblage desires difference in kind, difference in how the educational encounter is experienced and this means a change in not only how we value the role of the teacher, student and school but the behaviour that we value too.

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[55] Difference in kind is not about 'not sameness' but difference in itself. It is difference that is virtual, continuous, irreducible to number, pure duration and happens in-between or in transition. See Plateau 1

I mean the way I categorise it is, why should a child in Killybegs get exactly the same experience and outcomes as a child in Kilmainham? There is no reason why they should.   So, the potential of this curricular frame works to give the school autonomy to develop its own lower secondary provision as a whole school endeavour, is something that is really magical.

(Management Agency Actor 7)

Students clearly understand this, and the excerpt below is an indicator of what they now expect of their teachers:

Yeah, the teacher needs to realise that every class is different. Like, you can't teach every class the same.   There can be different kinds of students in each class.

(Focus Group Actor 31)

Repeatedly in the data there is the recognition of difference in degree but the desire also for difference in kind –'you can't teach every class the same'. This move that the assemblage is desiring is a very difficult and challenging move and it comes with a whole new way of thinking, of communicating and behaving not only for the teacher, but for the student, parent and leaders of post-primary schools. It moves the educational encounter into a whole new territory. To convey the move that I am talking about, one of the agents, in talking about the change that will be needed now in assessment, suggested that it is akin to being told that there is a new colour in the rainbow:

It's like somebody telling you there is an 8th colour in the rainbow and you only know seven. In fact, everybody you speak to only knows seven. So, I have a hidden agenda in telling you there is 8. Why wouldn't you be entirely suspicious?

(Actor 13)

Negotiating difference not only in degree but in kind, is seeing a new colour in the rainbow. When you see it, there is great excitement and joy, but the difficulty is conveying something that is beyond measure to an assemblage that wishes to see what is actual and not what could be, the virtual, the possible. Here lies the seismic shift, the cultural turn we have been talking about.

5.4.2.3.3 Encounter

Across all the domains of the assemblage, one strong connection that was offered as central to the purpose of education was the value of encounter and relationships. Education happens between/within/through our relationship and encounters.

Really, when it comes to education, education is about relationships. In fact, everything is about relationships. If you cannot relate to kids and to others, you can't make any progress.

(Actor 10)

It was suggested earlier that the assemblage offered the purpose of education to be an emerging identity for the student, a pouring forth of what is already there with expansion and possibility. This subjectification (Biesta, 2010) can happen when the student is called forth by another person. For some of the agents in the assemblage, they see the role of the teacher as someone who is right in the middle of things and have a very important role in the students' fulfilment and achievement. They disapprove of the idea of the teacher as advocate for the students. This idea of teacher as advocate was an argument proposed by the ASTI union, in response to why teachers could not assess their students for state examinations, but it is seriously under attack in the data:

An advocate is wrong. You are not on the side-lines cheering that kid on. You are actually playing the game with them. You are not the coach. You are not standing on the side-lines shouting go on, work harder. You are actually in there with them. You are taking the steps before them. You are pulling them with you. You do a bit of coaching, a bit of shouting from the side but you have to be in the middle.

(Third Level Actor 9)

It is hard work bringing something new into the world, but this is the space of education as becoming, right in the middle where things speed up. However, the journey to the middle is difficult and there are some serious concerns:

I think there's a genuine respect that teachers do everything they can and then some more to help their students. I think there was a genuine recognition that if you start playing around with the area of a teacher deciding the grades the student gets, in a State certified exam, you end up in a very different space. You know it's that boundary, as to what the job of the teacher is.

(Policy Actor 18)

Here the juxtaposing desires of the assemblage, to stay in the same space or to move into a new one, is disturbing the system. I am reminded here that Schiller argued that human development depends on the successful negotiation between contradictory forces of existence: in fact, there is 'no other way to develop the manifold aptitudes of man than to bring them in opposition with one another" (Schiller, 1795, Letter VI). Complexity sees this type of disturbance as ripe for change and what will be interesting to map is how the assemblage will self-organise and adapt to these disturbing waves of change. From the interviews, the desire of many in the assemblage of lower secondary is to move into a different educational space from where it was. It is about crossing boundaries away from the transmission of skills, knowledge and values and a more transformative approach that is related to the not just the future but to life in the present. It is taking what was past also and making it relevant to the student of the twenty-first century. It is also a re-imagining now what the job and role of the teacher and student might be.

Education has to be an encounter, a genuine encounter between a young person and a tradition of learning. So, it's an interplay not a transmission. If it is a transmission, then the learner is being silenced. That's my ongoing worry.

(Third Level Actor 8)

In response to that worry, one of the students offered the example of what a genuine encounter in the classroom, difference in kind, looks like:

Yeah, there's also the impression we're free. We can talk to our teacher because we can trust them. At the start of first year in English class, I barely talked at all. I didn't actually say

anything for the first three weeks. Like, I only actually answered questions but then the fourth

week I was just talking to everybody. I was like, once I heard that everybody actually can

understand my opinion.

(Focus Group Actor 31)

The encounter in education proposed by the data is one of liberation, a freedom to/from/which

opens the threshold of possibility for each student to begin to dream of the as not-yet-imagined.

5.5   BE(GOING) THOUGHTS

The question pursued in this plateau was to explore how does the purpose for education

work in the assemblage of lower secondary in Ireland. Juxtaposing desires were encountered in

the assemblage. One desire sees the purpose for education as exam orientated and the actors

noted how narrow, linear and restrictive an educational experience this purpose offered not

only the student, but the teacher also. It is a molar line in the assemblage that will be hard to

crack. However, it is clearly a very important purpose in the assemblage in Ireland and has had

a huge backwash effect on developing momentum to bring other purposes into the arena. It

has created a web of molecular lines that have generated an architecture that supports this

molar line and its accompanying mindsets. Without exception, all agents, including students,

teachers and principals in the assemblage wished for liberation from this constraining purpose

and proposed other purposes.   They desire a purpose that acknowledges the need for

qualification but views lower secondary as a time for a different becoming – one which asserts

the domains of socialization and subjectification. The purpose for education that is desired is

one that hopes to liberate for fulfilment, difference, equity, inclusivity, democracy, life and the

becoming of the person. The purpose of education proposed in the assemblage was described

as ***an on-going process of encounter that fosters human becoming through the enabling of***

difference and connectivity between others and the world.

The assemblage desires a rediscovery of "soul" (Principal Actor 21) which it is hoped can be supplied by the reformed curriculum. Lines of flight that offered a becoming in the purpose of education were seen in the discussion of how lower secondary is generating new knowledge, skills, values and dispositions which have sparked a sense of excitement, energy and new life into the learning experience. Nevertheless, the continued presence of the unreformed Leaving Certificate encourages the transition between purposes to stagnate and challenges the opening up of thresholds of creativity and imagination. When this tracing or plateau is placed back onto the map of the assemblage, it is clear that the purpose for education is betwixt and between, coming and going, in a threshold space. The data are clear that the deterritorialisation of purpose can only happen through encounter, engagement and relationships. This is the molecular crack that has opened possibilities. The purpose for education is to ensure human flourishing and profusion, and the actors are suggesting that this can only happen right in the middle of the classroom. However, data also shows a reluctance to change these relationships-there is a dichotomy between the desire and lived reality particularly in the experience of the classroom. The deterritorialisation of difference -degree and kind- might help to make what is familiar unfamiliar in the classroom encounter so that there can be a movement forward through the threshold not by offering answers but through a process of problematization.

Plateau 6 Curriculum as Rhizome

6.1 (Be)coming Thoughts

In Plateau 4 "Education as Becoming", I defined and argued why education may be viewed as ***an expanding, non-linear process of strong emergence and becoming. It is located in a dynamic intra-action and relationality between the human, non-human and more-than-human world which demands a responsible responsiveness.*** This definition highlights four main ideas for education:

- Knowledge and the human subject are not fixed or static but in a process of becoming.

- Education is a multiplicity.

- Time is understood as a present-future.

- Education is an affirmation of life.

This plateau seeks to negotiate how this purpose for education works as it now unfolds, emerges and becomes through/in/between curriculum. Curriculum is like a kaleidoscope[56] because in trying to offer a definition, it slips and slides into many patterns of meaning, supposition and complexity. There are the varying American and European trajectories of curriculum theory, models of curriculum and pedagogical suggestions, with a myriad of authors and possible thresholds of entry. The commonplace understanding is that curriculum is a noun, a product - the lesson plans we implement or the course guides we follow (Slattery, 2013, p.66). However, curriculum is a highly complex landscape[57] and contested discipline (Pinar, 2012, p.2). Curricular

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[56] A kaleidoscope produces a succession of symmetrical designs in mirrors to reflect the constantly changing patterns made by bits of coloured glass at the end of a tube. The kaleidoscope creates constantly changing images and yet is always symmetrical within its own context (SLATTERY, P. 2013. *Curriculum Development in the Postmodern Era,* New York and London, Routledge. P.283).

[57]**Appendix 9** which outlines the forms, levels and components of curriculum is offered to highlight the complexity of curriculum planning, development and enactment.

theorists find it hard to agree on what curriculum is about (Glatthorn et al., 2016), what disciplines it draws its sources from (Young, 2014) and to add to the difficulty, curriculum has now become the property of government policy and interest groups (Waks, 2003). Curriculum's complexity also lies in its evolution from discussions about planning, design, implementation and evaluation to discourses that promote understanding of culture, history, politics, aesthetics, theology and autobiography (Slattery, 2013, p.200). Curriculum is undergoing a renaissance at the moment (Priestley and Biesta, 2013) and there is a palpable excitement emerging in the literature and discussions as curriculum theory creates new conduits for re-imaginings (Doll, 2012, Davis and Sumara, 2010, Byrne and Callaghan, 2014, Slattery, 2013).

The threshold to re-imagining in this thesis is to view curriculum as rhizome[58]. This plateau will offer the reasons for this position through a critique of the educational literature on how curriculum is created and made. Curriculum design and development has often been characterised by defined roles at national, local, school and classroom level (Deng, 2013) but this has sometimes produced fragmented curricula with gaps between the vision and enactment (van den Akker and Thijs, 2009). Priestley (2007) highlights that the failure of many initiatives to impact on practice has been due in part to an unsophisticated understanding on the behalf of policy makers that meaningful change must involve practitioners (p.21). The literature highlights a resilience to enact curriculum change and reform (Cuban, 2002, Sugrue, 2008, Swann and Brown, 1997); and such resilience has been experienced during previous curricula reform in lower secondary education in Ireland (Looney, 2001). In the light of defining education as a process of becoming and strong emergence, this thesis proposes that Complexity Theory offers further insights into the process of curriculum making. It endorses a more connected and

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[58] As explained in Section 1.3.1, rhizome is a form of plant that can extent itself through its underground horizontal tuber-like root system and develop new plants COLMAN, S. 2005. Rhizome. *In:* PARR, A. (ed.) *The Deleuze Dictionary.* Edinburgh: Edinburgh University Press.. A full description of what is rhizome is offered in the plateau 'Theoretical Framework'.

engaged approach with all actors in the assemblage. This approach might offer a curriculum that comes up through the middle of the inter-actions rather than top-down or bottom up.

Based on the educational literature and the thinking of Complexity Theory, I propose two inter and intra-connected roles for bringing about curriculum reform: **the curriculum creator and curriculum maker.**

a. **The curriculum creator** for lower secondary education may be defined as a multiplicity of all the actors in the assemblage who are engaged in creating a curriculum[59]. Curriculum emerges as a collaborative and distributive ecosystem, connecting, consulting and communicating in constant feedback loops, providing flow and dynamism as curriculum is designed and mapped. This multiplicity looks beyond its own boundaries to connect with insights, understanding and knowledge across the globe. The role of the curriculum creator is to synthesize for the assemblage the raw ingredients of curriculum: process, structure, standards, vision, professional development, practices and evaluation. It proposes that these emerge through the richness and diversity of the assemblages connectivity and relationships within and without. The curriculum ingredients are mapped as a curriculum rhizome which is made up of multiple segments: principles about the world and the human subject, knowledge, skills, values and dispositions. Intrinsic to this map lies approaches to teaching, assessment and learning.

b. **The craft of the curriculum maker** lies in a deep understanding of the educational and curricular theory, concepts, language and practices. Definitions of curriculum making go as far back as Bobbitt (1918) and have recently become more ecological in its approach (Priestley et al., 2015). The work of the curriculum maker lies at school and classroom level and builds on the work they engaged with as part of being curriculum creator. Curriculum making may be defined as the process of connectivity -the craft of connecting all the elements of the curriculum

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[59] In Plateau 3 we discussed the many participants in the DES who engage in curriculum; policy makers, finance, special needs, teacher education, allocations etc. These will be just some of the people who make up the multiplicity of creator.

multiplicity so as to make an educational encounter that allows for powerful emergence of something new and 'the as-yet-unimagined (Davis and Sumara, 2008, p.135). The curriculum map produced by the assemblage insists on critical engagement and the practice of professional judgement by the curriculum maker (Stenhouse, 1975). The craft at its best, builds links and inter/intra-relationships between elements offered on the map and people to enhance the educational experience for all. It opens thresholds to possibility.

Curriculum creation and making need an appreciation of the following three areas and involves action at all levels of the assemblage:

1. The *ideological* landscape of a curriculum, its epistemological, ontological and axiological positioning.
2. The rhizomatic pathways of the curriculum *framework*.
3. *Pedagogy* -the rhizomatic implications for teaching, assessment and learning.

Unfolding the landscape of these three areas requires dialogue and the engagement with six basic questions: What, how, where, when and why is any curriculum worthwhile? And for whom is this curriculum worthwhile? These are the questions that will help steer the discussion in this plateau to explore how curriculum as rhizome can assist our understanding of curriculum creation and making as emerging and becoming in the context of lower secondary education in Ireland. The following mind map offers highlights the main areas of interest as we travel through this intensity:
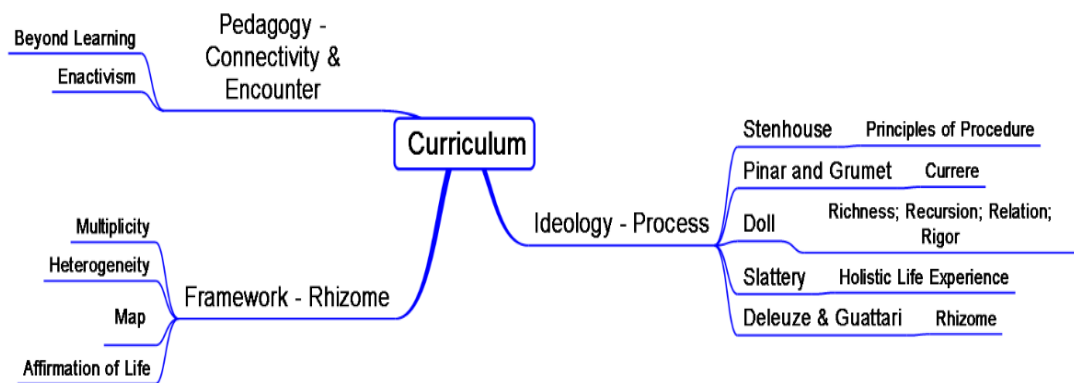
Figure 20 Mind map of Curriculum as Rhizome

6.2 CURRICULUM THEORY

The ontological, epistemological and axiological components of the purpose of education converge as educational concepts that make up a curriculum theory. The functions of curriculum theory according to Glatthorn (2016, p.74) is to help describe, explain, provide a critical perspective and to guide practice but these functions are highly complex. A curriculum theory is a set of tools used by the curriculum creator which assists in the development and planning of a curriculum framework (Kelly, 2009). This framework then concerns itself with questions and theories of learning, teaching and human development. It looks at pedagogy and methodology, needs and levels of the students and assessment and evaluation. This is the territory where the craft of the curriculum maker puts theory into practice (Priestley et al., 2012). Deleuze and Guattari offer a set of tools in their "multiplicities, lines, strata, segmentarities, lines of flight, and intensities" (2003, p.4) which will be helpful in understanding the landscape of curriculum theory. Surrounding this, lie the concerns of the political, cultural, physical, emotional, ecological and spiritual environment or context of the society or community.

Curriculum theory attempts to develop a holistic view of curriculum, making sense of the complex environment but also of the overlaps and interconnectedness of each area. Young's (2013) definition of the purpose of a curriculum is *how does it promote conceptual progression?* He has argued that much of curriculum theory has focused too much on the curriculum as "knowledge of the powerful" - a system geared to sustaining educational inequalities - and neglected the curriculum as "powerful knowledge" (2014). As a result, certain key questions about knowledge are avoided. However, to concentrate on knowledge alone would be a miscalculation considering the importance of the Subject [60] or human dimension of the curriculum, the experiences generated by the diversity, plurality and agency of relationships, not only between humans but also between the non-human and more-than-human. It would ignore the significance of values and dispositions that occupy a curriculum; justice, democracy, equity, responsibility and plurality.

6.3 Curriculum Ideology

6.3.1 Curriculum as process

Employing a definition of curriculum as rhizome was influenced by educational literature which turned from curriculum as product to curriculum as process. Lawrence Stenhouse and William PInar wrote extensively during the 1970's[61] and promoted the idea of curriculum as *process* in response to the metanarrative of Ralph Tyler's product model of curriculum known as the Tylerian Rationale (1950)[62]. The central problem with curriculum Tyler saw was the gap

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[60] When speaking of a person as subject, this thesis will use a capital letter for Subject. This will ensure that when we are talking about subjects as in knowledge disciplines, the reader will not be confused.

[61] Stenhouse, died in 1982, which was a shock to the world of sociology and education. Pinar continues to write about curriculum and education today. His co-authored book "Understanding Curriculum" (2008) is a comprehensive treatment of the curriculum field (PINAR, W. F., REYNOLDS, W. M., SLATTERY, P. & TAUBMANN, P. M. 2008. *Understanding Curriculum: An Introduction to the Study of Historical and Contemporary Curriculum Discourses,* United States, Peter Lang.

[62]

between aspiration and practice. The product model has dominated curriculum development over the decades. From Tyler's framework, influential models of curriculum development have been built by people such as Hilda Taba (1962) and Benjamin S. Bloom (1956). Hardarson (2012) notes that these models "are still influential and have largely been incorporated into the so-called Bologna Process[63] where one of the key concepts is 'learning outcome' (Karseth and Sevesind, 2010). An article in *The Bologna Handbook* thus advocates learner-centred, specific outcomes in almost the same terms as Tyler, and claims that among 'the great advantages of learning outcomes is that they are clear statements of what the learner is expected to achieve and how he or she is expected to demonstrate that achievement' (Kennedy et al., 2006). Watson (2010) criticises this approach by stating that this model is "concerned with setting out not what children are expected to know, but how they should be" (p.99). This particular point is reinforced in the many discourses by Hargreaves (2009), Young (2013), Wheelahan (2010) and Priestley & Biesta (2013), who pen their concern about a curriculum creating a homogenized student force.

Stenhouse (1975) saw the Tylerian Rationale as product-orientated and instrumental and his premise was the question whether curriculum and pedagogy can be organised satisfactorily by a logic other than that of the means-end model. He defined curriculum as:

> ...an attempt to communicate the essential principles and features of an educational proposal in such a form that it is open to critical scrutiny and capable of effective translation into practice" (1975, p.5).

His main motivation was to offer each student a possibility of developing individuality through a process of critical engagement and understanding of culture. Instead of aims and objectives, he suggested 'principles of procedure'. His principles of procedures offer goals centred around the process of learning and not just around a product. His understanding that knowledge is

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[63] The **Bologna Process** is a series of ministerial meetings and agreements between European countries designed to ensure comparability in the standards and quality of higher education qualifications.

provisional and susceptible to revision, fits in comfortably with complexity thinking. He

highlights in this understanding the power of the curriculum which cannot be contained in

objectives, but that speculation offers a student many horizons of possibility for thinking and

evaluating. He views subjects as the structures of knowledge and culture and therefore the raw

material of thinking. Stenhouse (1975) believed that teachers are the most important resource

that a school has and "the way ahead is through providing opportunities for teacher

development, and particularly for the refinement of judgement" (p.24). Stenhouse saw that the

teacher as researcher needed to network and develop connections with the academic world in

order to "make and create educationally worthwhile changes in their classrooms and other

learning environments" (Elliott and Norris, 2012). This understanding gives teachers the

autonomy of judgement about not only how to change their teaching but engaging in real

collaboration with the curriculum design and its development. It helps them to become critical

agents in the education of their students and empowers them to make pedagogical changes in

the very heart of their teaching, the classroom. He tried to return autonomy, agency and

judgement back to the teacher.

Stenhouse (1975) saw the curriculum as active, a process rather than a technical

exercise. The educational concepts of curriculum are not static things but rather each concept

is in process of purposing, modelling, learning, teaching, assessing. Stenhouse argued within all

this dynamic movement that "education as induction into knowledge is successful to the extent

that it makes the behavioural outcomes of the students unpredictable" (1975, p.82). One of the

most insightful ideas that Stenhouse proposed and which influenced the idea of curriculum as

rhizome in this thesis was that curriculum happened between people not objects. Certainly,

there are objects involved in curriculum; textbooks, classrooms, copies, pens, technology etc.

but it was Stenhouse's concentration on the people in the curriculum and the process they were

experiencing that really disrupted thinking over the past decades about curriculum. The process

he suggested helped to engage in criteria and procedures that opened a process of thinking in

order to improve performance. Performance was a dual endeavour between teacher and student. He grounds theory and practice together as an experimental process.

6.3.2 Curriculum as Currere

Many others have engaged, developed and critiqued the process idea of Stenhouse (Kelly, 2009, Young, 2013, Priestley, 2014, Cuban, 2002), however, it was Pinar and Grumet's (2008, 1976), definition of curriculum as *currere* that extended the process model suggested by Stenhouse and offered a line of flight to curriculum as rhizome. In 1976, William F. Pinar and Madeleine R. Grumet introduced an autobiographical theory of curriculum. They reconceptualized[64] curriculum beyond subject material and practice and returned the definition of curriculum to its Latin explanation and defined "currere" as racing the racecourse or running the track:

> Currere describes the race not only in terms of the course, the readiness of the runner, but seeks to know the experience of the running of one particular runner, on one particular track, on one particular day, in one particular wind…. Educational experience is a process that takes on the world without appropriating that world, that projects the self into that world without dismembering self….(Pinar and Grumet, 1976, p.36).

The focus for Pinar and Grumet is not on the noun 'racecourse' but rather on the verb 'to run'. It is not the course to be run or the objects used in the running of the course. They argue that "the course most broadly is our lives, in schools and out and the running, is our experience of our lives" (1974). They adds that:

> The method of currere is a strategy devised to disclose experience so that we may see more of it and see more clearly. With such seeing can come deepened understanding of the running, and with this, can come deepened agency (Pinar and Grumet, 1976, p.vii).

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[64] It is suggested that Professor Paul Khlor, at a conference at the Ohio State University in 1967 titled "Curriculum theory Frontiers", was the inspiration for reconceptualization of the curriculum field.

It is very much about the inner journey, insights, imagination and the internal experiences rather than goals and objectives. They move beyond the curriculum as product and something to be delivered, to that of process, transformation and self-renewal. They suggest the importance of autobiography to the concept of curriculum as they believed that the field of curriculum had forgotten the existing individual. They explained it is not that the public world of curriculum, instruction, objectives is unimportant but "it is that to further comprehend their roles in the educational process we must take our eyes off them for a time, and begin a lengthy, systematic search of our inner experience" (1974, p.3). Sellers (2013) sees currere as a way of considering curriculum as living and lived experience with/in which learners and teachers are embodied (p.32). She explains that in these reciprocal relationships, both learners and teachers move backwards and forwards, simultaneously, through learning experiences towards enhancing the knowing and knowledge of their inner and personal worlds. Where Stenhouse offered the importance of culture and knowledge as the raw material for thinking, Pinar and Grumet suggest the critical route of the autobiographical process and the experience of the individual as they undergo the process of 'running' the course. Doll suggests that the focus of this is:

> …the experience an individual undergoes in learning, in transforming and being transformed. Such a view includes both content and process, with the content embedded within the process, forming part of it……one that moves beyond a spectator epistemology, beyond a process-product, subjective-objective split
> (1993, p.13)

Pinar and Grumet suggested that the idea of currere broke down the binaries and dualisms that are found in the curriculum: teacher/student, object/subject, learning/teaching etc. This idea of curriculum works from the middle of life and integrates the different binaries. Graham (1992) highlighted its shift in focus towards understanding the experience of the individual dwelling with/in lived curriculum. Hussain et al. (2014) in their research draw on the idea of currere and see that the 'course to be run' can be viewed as the planned curriculum, i.e.,

what is made explicit in curriculum documents, and currere 'to run' as the received curriculum or the reality of student's lived experiences (p.81). The question this posed was where in the curriculum in Ireland does a student and teacher get the space 'to run'? Does the Junior Cycle curriculum offer this running space so that they can become?

6.3.3   Curriculum as Complexity

The concept of curriculum as process was further influenced by the work of Ilya Prigogine on thermodynamics and the curriculum world of William E. Doll. Doll (1993) investigates an open system of cosmology and suggests that the sweeping changes affecting art, literature, mathematics, philosophy, political theory, science and theology - changes questioning the basic epistemological and metaphysical assumptions in those fields- will play themselves out in education and curriculum (p.3). He envisions a new educational order will emerge and with it a new concept of curriculum. This concept will engage with "a more complex, pluralistic, unpredictable system or network" (p.3). It will change the relationships of the teacher and students which will be less of the teacher transmitting knowledge to the passive student but rather "more a group of individuals interacting together in mutual exploration of relevant issues" (p.4), a more hermeneutical approach was being proposed. He suggests that traditional modes of assessment and evaluation will become irrelevant as the interactions in the classroom become unquantifiable. His vision sees that curriculum is no longer a course to be run but rather as a passage of personal transformation (p.4).

Doll (1993) requires a replacement of the modernist paradigm and points to biology for its rich and complex metaphors for curriculum thought and development. He contends that "biology -with its concepts of complexity, hierarchy and network relations – is heuristically a rich metaphor for curriculum thought" (p.67). However, it is the concept of self-organisation as "the pivotal focus around which open systems work" (1993, p. 98), that he sees as an essential concept for curriculum because "it depends on reflective action, interaction, transaction -key

points in the curriculum theorizing of Jean Piaget, Jerome Brunner and John Dewey (p.72). He

offers an alternative to Tyler's Rationale and the three R's: 'Readin', 'Ritin', 'Rithmetic', which

had a pre-set functionalism, in what he calls the four R's matrix which is based on the

transformative nature of open systems. He argues that a postmodern curriculum should be rich,

recursive, relational and rigorous. *Richness* refers to the curriculum's openness and layers of

meaning which he suggested as" the right amount of indeterminacy, anomaly, inefficiency,

chaos, disequilibrium, dissipation, lived experience" (p.176). *Recursion* describes reflection,

which helps curriculum grow in richness. Its frame is open, and dialogue become the essential

condition of recursion. *Relation* is multi-dimensional; in a pedagogical way and in a cultural way.

Firstly, it reflects pedagogical relations which focuses on the connections within a curriculum

structure and secondly it reflects cultural connections through which learners interpret

curriculum at a local level, while at the same time local culture connects to a larger global

community. Doll's definition of *Rigor*, finally, differs substantially from the modernist notion of

rigor. Two characteristics of a rigorous and transformative curriculum are indeterminacy and

interpretation. Because certainty can never be attained, even at extremely high probability,

rigor refers to "….purposely looking for different alternatives, relations, connections" (p.182).

Thus, rigor for Doll means the conscious attempt to ferret out assumptions as well as

"negotiating passages between these assumptions, so that the dialogue can be meaningful and

transformative" (p.183). The order of this matrix is dependent on disequilibrium,

indeterminacy, lived experience and chaos rather than a rigid structuralism (Slattery, 2013,

p.26).

Recently, Doll (2012) reiterated his emphasis on the importance of relations for

curriculum. He argues that "relations, in terms of similarities and differences, become the focal

point for a developing epistemology (p,25). This moves us from isolated facts (with all their

inertness) to interconnected or webbed patterns (with their ongoing 'aliveness'). He sees this

transferring into how he lays out a syllabus which must now be high in problematics and not too

rigid. He favours "a frame that combines closure with openness, a modest rigidity with a structured flexibility" (p.25). He embraces complexity and the aim of the curriculum is to generate cross-fertilization, pollination, catalysation of ideas. Learning is now non-linear and the teacher's role in the community of learners is that of both 'planting a seed' and taking the lead role in fertilizing the seed that it may grow[65] to eventually pollinate and catalyse other ideas. Curriculum is an emerging one within an ongoing process of interconnections and in which he envisions education as "a sort of transformative union that results (or can result) from differing qualities, substances, ideologies, selves combining in new and (thermo)dynamic ways. Underlying such transformative union is self-organisation" (1993, p. 159). Doll draws on the words of the poet Kundera to sum up his understanding:

> A fascinating imaginative realm,
>
> Born of the echo of God's laughter,
>
> Where no one owns the truth,
>
> And everyone has the right to be understood (Kundera, 1988).

The curriculum ideological landscape, mobilized by Doll, has been taken up by many other writers on curriculum. Slattery (2013) builds on Pinar's "currere" and acknowledges Doll's work as forging a path between the constructive[66] and deconstructive postmodern theories (p.27). Slattery sees curriculum as "interpretation of lived experience rather than a static course of studies to be completed" (2013, p.97). In a very interesting connection between the film

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[65] We are reminded of the work of Dewey. who explained that when it is said that education is development, everything depends upon how development is conceived. Our net conclusion is that life is development, and that developing, growing, is life. Translated into its educational equivalents that means (i) that the educational process has no end beyond itself; it is its own end; and that (ii) the educational process is one of continual reorganizing, reconstructing, transforming. P.50 (DEWEY, J. 1916. *Democracy and Education,* United State of America, The Free Press.)

[66] This constructive or revisionary postmodernism involves a new unity of scientific (in contrast to scientism), ethical, aesthetic, and religious institutions. It rejects not science as such but only that scientism in which the data of the modern natural sciences are also allowed to contribute to the construction of our worldview (GRIFFIN, D. R., COBB, J. B., FORD, M. P., Y., G. P. A. & OCHS, P. 1993. *Founders of Constructive Postmodern Philosophy: Peirce, James, Bergson, Whitehead, and Hartshorne,* Albany, State University of New York Press. P.xii)

"Dances with Wolves" in which the soldier, played by Kevin Costner, learns the healing dance of spirituality, Slattery argues that:

> Curriculum development in the postmodern era must be attentive to this healing dance, the spiral of creation, and a yearning for wisdom embedded in the interrelationship of body, mind and spirit. Educators must recognise and embrace the healing curriculum dance and celebrate the mystical, multicultural, interdisciplinary, social, ecological, and holistic dimensions of the school curriculum (2013, p. 1-2).

He views curriculum as a holistic life experience, the journey of becoming a self-aware subject capable of shaping his or her life path. Slattery promotes curriculum as theological text - an autobiographical process, a cosmological dialogue, and a search for personal and universal harmony and he does so through reconceptualizing the following words: curriculum as *running*; theology as *seeking*; and text as *ruminating*. He affirms the importance of chaos and complexity both in the pedagogy and framework of curriculum. Slattery concludes that curriculum development in the postmodern era is a cosmic vision accessible to those educators willing to see order emerging from the complexity and chaos of life (p.280).

Whilst Stenhouse, Pinar and Grumet, Doll and Slattery offer an ideological landscape for curriculum based on process, currere and complexity respectively, each approach points out implications for pedagogy and content. They are seeking spaces for reflection, hermeneutical, interpretation, diversity of disciplines and voices but also a curriculum that is non-linear, complex, eclectic, kaleidoscopic, proleptic and which connects body, mind and spirit. Together they suggest that curriculum is emerging, becoming and the pivotal focus is on relations, interactions and connections as the human subject journeys in personal transformation and self-awareness. They highlight the importance of a curriculum which encourages the growth of agency for each human being as they journey in deeper understanding about their holistic life experience and the world.

6.4 THE CURRICULUM FRAMEWORK

6.4.1 Curriculum as Rhizome

Curriculum ideology with all its understanding of Subject, knowledge, experiences and values is translated into a curriculum model or map. In the light of the discussion above, a different curriculum model may be contemplated and suggested:

Curriculum as rhizome and education as becoming.

It was the philosophy of Deleuze and Guattari, as expressed in their book '*A Thousand Plateaus* (2003), that offered the metaphors to support the concepts that were evolving as a possible response to curriculum. The metaphor of rhizome depicted the epistemological, ontological and axiological ideology that supported an evolving understanding of what education is for and therefore how curriculum might work beyond the functions of qualification and socialization. Curriculum as rhizome has four main inter and intra-connecting domains that support education as becoming:

1. Curriculum becomes not as a product but as a process of connectivity.

2. Curriculum becomes not as a developmental unit but as a heterogeneous multiplicity.

3. Curriculum becomes as a map not a tracing.

4. Curriculum becomes as an affirmation of life.

Curriculum as rhizome envisages a dynamic living system and one which embraces education as becoming and emerging. It advances a way to re-imagine the structure and framework of curriculum.

This framework of curriculum is a biological model, a model which supports the structure of an ecosystem. Davis and Sumara (2008) distinguish between two types of structure: architecture and biology. When talking about the structure of buildings, they suggest that there

is a prompt to think of fixed organisation, preplanning and step-following which then allows for the association of such notions as foundations, platforms, scaffolds, basics, hierarchies etc (p.13). The architectural structure is very often the framework used for curriculum with its foundational principles, step by step phasing and scaffolding of learning. The rhizome model is interested in biological structure which offers a very different meaning and association of notions: network, ecosystem, patterns, fertilization, symbiosis etc. The structure of the organism and the ecosystem is constantly evolving and thus moves away from hierarchies and foundations. It arises from and embodies its history, but it is incompressible (p.14). Curriculum as organic structure will "be caused and accidental" (p.13) – there will be a proposed curriculum but there will also be that curriculum that emerges through the agency of the assemblage. There may be the hidden curriculum, caused but for many, accidental. Curriculum as organism or ecosystem is "both familiar and unique"(p.13) – components that are already known such as subjects, materials, resources etc. Yet, there will be new elements – in the Junior Cycle Framework: short courses, Wellbeing, approaches to teaching and learning, technology and, and, and…) Davis and Sumara suggest that the curriculum will contain completeness but process – knowledge, understanding , skills and values may be achieved but they will always be emerging, becoming and in process (p.13). Although many of the structure's traits might be characterised in global or general terms, yet, the finer details – and perhaps, most of the vital details, in terms of understanding the system' general character[67]-can never be known or replicated precisely (2008, p.13-14). Many countries have tried to translate Finland's approach to curriculum but without the same success as there are social, economic, cultural and political influences that are untranslatable (Sahlberg, 2012). The grand narrative of the existence of one ideology, structure, methodology or pedagogy that answers the needs of curriculum and which

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[67] One very distinct character of the lower secondary assemblage in Ireland is how teachers understand their relationship with students

can be transferred to another school or jurisdiction has been well deconstructed in the postmodern curriculum literature (Doll, 1993, Lather, 1991, Slattery, 2013, Usher and Edwards, 1994). The complexity of each unique school and context must be celebrated (Slattery, 1995, p.614). Thus, the map of curriculum as rhizome as ever connectable and expanding connections to all sorts of diverse possibilities, offers the opportunity for curriculum to meet contextual and environmental intensities in which it exists.

Curriculum is always a ***multiple[68]***. This multiple is neither subject nor object but is rather about "determinations, magnitudes and dimensions that cannot increase in number without the multicity changing in nature" (Deleuze and Guattari, 2003, p.8). The framework of curriculum as a multiplicity is not composed of units. It cannot be a developmental unit which is progressing towards an end point but rather as a multiplicity, it is framed more in terms of expansiveness and outward movement or as Deleuze and Guattari explain "directions in motion" (2003, p.20). It acts by expanding its molar lines, molecular lines and lines of flight. This way of thinking curriculum is not totally defined by points that it connects, or by points that compose it; on the contrary, it passes *between* points, it comes up through the middle (Deleuze and Guattari, 2003, p.293). The middle is not the centre. There is no centre and within the rhizomic framework of curriculum all is equal and a-centred. It is about what happens between the human encounter (of the student and the teacher, student and student, the student and the school and the many others that are encountered) when they plug into life in all its assemblages and multiplicities. Reading this rhizomatic framework needs an ecological literacy. What is meant by ecological literacy is an understanding of the whole of life, human, non-human and more-than-human, as webbed, connected and mangled (Pickering, 1995), and as such living accordingly.

If we look at the framework of the Junior Cycle curriculum as seen below, it is made up of three main dimensions: 8 Principles, 24 Statements of Learning and Eight Key Skills, which

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[68] The concept of multiplicity is explained in section 1.3.3.1

then offer different trajectories of learning through subjects, Level 2 Learning Programme, Wellbeing, Short Courses and Other Learning Experiences. These are then assessed and reported.
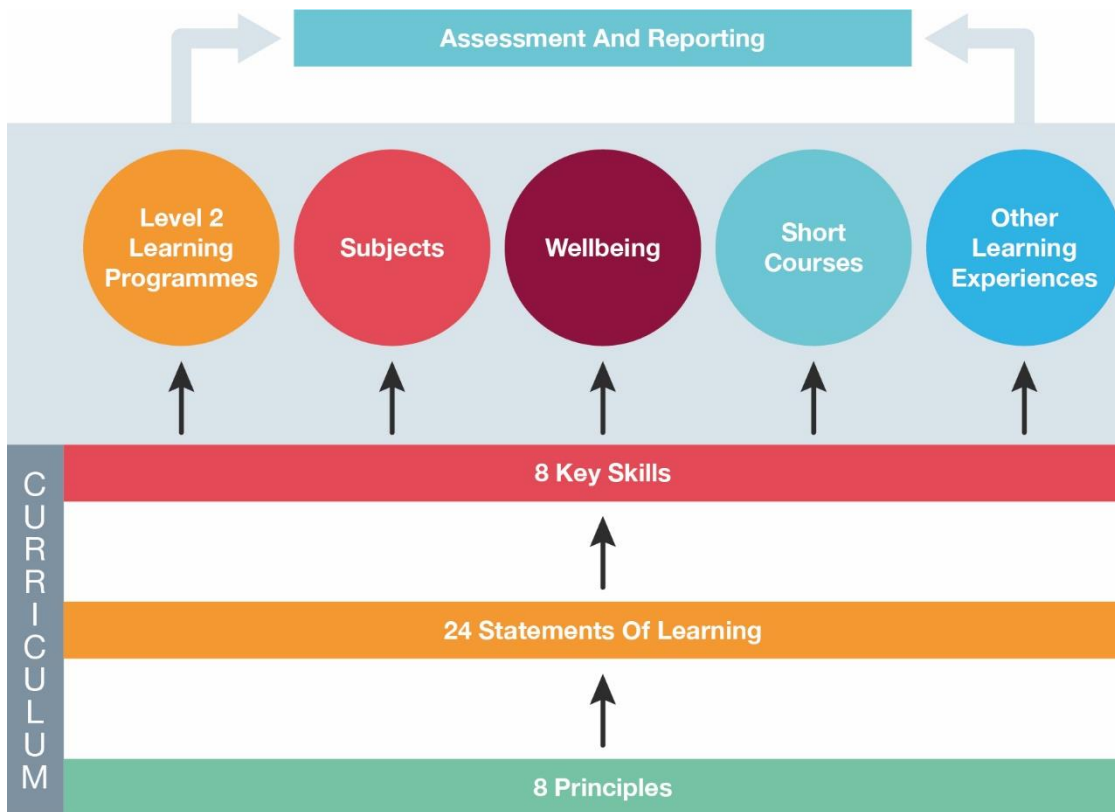
 Figure 21 Structure of the Junior Cycle

In Figure 22 above, these three dimensions which make up the curriculum for the Junior Cycle are shown as ascending in a hierarchical process, beginning with the foundational 8 Principles and moving upwards to include the 24 Statements of Learning and the Eight Key Skills. Initially, the model has arborescent tendencies. It takes as its root or foundation the 8 Principles and moves then to the trunk of the curriculum which has two domains: Learning (24 Statements of Learning and Key Skills. The pedagogical responses to this curriculum are offered like branches, assessment and reporting the leaves of the tree. Curriculum as rhizome views these three dimensions not as separate hierarchical lines, roots leading to trunk and branches but rather, it is concerned with what is happening inbetween, in the middle as these three dimensions expand through their interconnections with each other. It is a ***map not a tracing*** and it encourages us

to think of the curriculum as "networked, relational and transversal" (Colman, 2005, p.231). A map according to Deleuze and Guattari must be produced, constructed, a map that is always detachable, connectable, reversible, modifiable, and has multiple entryways and exits and its own lines flight (2003, p.21). The curriculum as a rhizo-map offers segmentary lines, molar concepts that "leak and emit lines of flight, in other words, concept creation through territorialisation, deterritorialization and reterritorialization" (p.21).

The Junior Cycle Framework offers possible rhizomatic model tendencies but *Figure 22* above, does not capture this understanding. The components of the framework are robust, but a reimagining of how this framework might work as rhizome needs to be advanced to embrace the emergentist desire and purpose of education. The first step is to begin with the multiplicity of education as outlined in Plateau 4.2. This multiplicity is made up of an understanding of the human Subject; knowledge; the world; and values. It is into this landscape that the 3 domains of the Junior Cycle curriculum: 8 Key principles, 24 Statements of Learning and Eight Key Skills are placed. The curriculum maker understands the multiplicity of components that make up education and decisions and judgements about curriculum are informed by these concepts. Each of these three curriculum domains is a large bulb or tuber (a milieu or intensity) as found in a rhizome and is made up of multiple lines - molar, molecular and lines of flight.

The Human Subject

8 KEY PRINCIPLES
Quality   Wellbeing
Creativity & Innovation
Continuity & Development
Engagement & Participation
Inclusive Education
Learning To Learn
Choice & Flexibility

8 KEY SKILLS
Communicating
Working With Others
Staying Well
Managing Information & Technology
Managing Myself
Being Creative   Numeracy
Literacy

Values

24 STATEMENTS
OF LEARNING
Texts   Idea Concepts
Artistic Works
Technology   Initiative

Knowledge

The World

Figure 22 3 Main Milieu of Junior Cycle Curriculum

Each tuber is of equal importance and offer a highly complex landscape of different concepts. The complexity expands as the tubers make connections and build interrelations between each other.   As an example, the role of curriculum maker might begin by understanding the complexities of each domain that makes up the framework. They would then question as to how these three milieus can connect, expand, synergize to offer the space for a student to become and emerge through/within an educational encounter. The content of the curriculum is emerging and is made up of the connected elements of the three domains. Progression may be planned not in a linear process but by an on-going expansion of the three domains. As these tubers connect and build links between each other, knowledge, understanding, skills, values and dispositions may be generated. The curriculum maker has the agency to begin where the needs of the students dictate - they might have literacy or numeracy needs and this is perhaps the

jumping off point. Or perhaps the starting point might be a "Wicked Problem"[69] that the school needs to address and thus the beginning might be from the domain of the key principles or statements of learning. The curriculum maker can enter this framework at any point, however for the moment, as an example, entry begins at the Principle 'creativity and innovation'. The assemblage has highlighted this as one of the proposed desires of education for the students of lower secondary. Pausing at this threshold, the curriculum maker explores and unpacks what these concepts might mean. How do these concepts work in a curriculum? The question might be asked as to what is being suggested by placing creativity and innovation side by side? The work of the curriculum maker is to turn concepts into processes and with the knowledge and understanding of the process of creativity and innovation that is garnered, the connections that this principle makes within the 24 Statements of Learning are followed and charted. Creativity is offered in the following statements of learning:

3.   creates, appreciates and critically interprets a wide range of texts

4.   creates and presents artistic works and appreciates the process and skills involved

22.   takes initiative, is innovative and develops entrepreneurial skills

23.   brings an idea from conception to realisation

24.   uses technology and digital media tools to learn, communicate, work and think collaboratively and creatively in a responsible and ethical manner

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[69] Horst Rittel coined the term "Wicked Problems" which are distinguished by the following characteristics:
- You don't understand the problem until you have developed a solution.
- Wicked problems have no stopping rule.
- Solutions to Wicked Problems are not right or wrong
- Every wicked problem is essentially unique and novel
- Every solution to a Wicked Problem is a "one shot operation". CONKLIN, J. 2006. *Wicked Problems and Social Complexity,* Napa, CA, CogNexus Institute.

Examples of "Wicked Problems" are solving the health care crisis, climate change, crime, defining a mission statement etc.

By connecting both of these milieus, it is possible to begin to see a map emerging as to the type of knowledge, experience and understanding that is being suggested. There are multiple possibilities and the curriculum maker might stay there awhile and see how these statements connect back to other principles but for the moment follow the connections now to the key skills. One of the key skills is 'Being Creative' and this skill enables students to develop their imagination and creativity as they explore different ways of doing things and of thinking. They are encouraged through their learning experience to develop the skill of:

- Imagining

- Exploring options and alternatives

- Implementing ideas and acting

- Learning creatively

- Stimulating creativity using digital technology

From the rhizome framework, there are a multitude of networks, connections and expanding concepts as each tuber/milieu/multiplicity connects with each other and emits cracks and hopefully lines of flight. The developing framework that is plotted, seeks to respond to the needs of the students and open spaces for something new to come into the world.
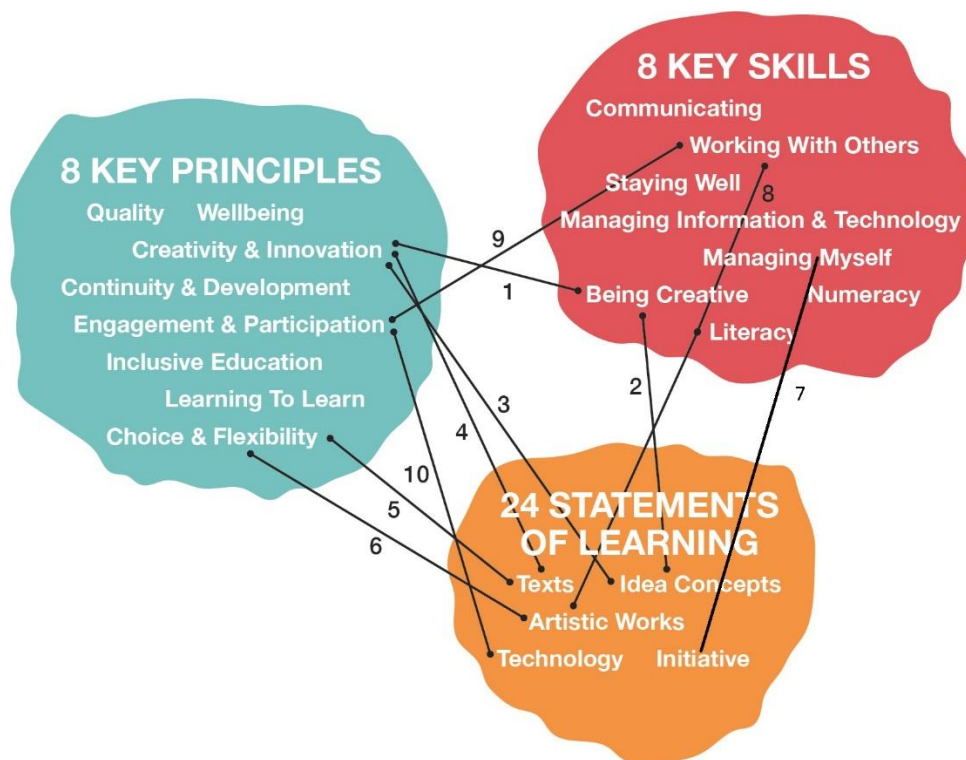
Figure 23 Mapping the connections in creativity

The figure above depicts the obvious connections between creativity and innovation, but what happens if this creativity is connected to literacy or to the Statement of Learning 9: (understands the origins and impacts of social, economic and environmental aspects of the world around her/him). The 'asignifying rupture' that this could cause and the deterritorialization of the learning might open the potential for a smooth space in the development of this curriculum. As an educator, to explore curriculum as rhizome, entry lies at the threshold that opens the educational purpose for the student in their particular expanding needs and context. The assemblage of lower secondary insisted on a purpose that moved beyond qualification to a more human becoming and this is the portal that begins entry. Connections may be followed or the curriculum makers may break away from the connections but what is offered is the agency to decide how these concepts, values and skills might be translated. It is the *movement* not the end points that is important. Curriculum as rhizome is a collaborative and collective exercise carried out by a school in response to their purpose and students' needs. Subjects might be used as a structure that supports the connections, or a risk

might be taken to look for alternatives. All elements can belong and connect to the rhizome.

Through following the connections, mapping curriculum poses the question: What new thoughts does it make it possible to think? What new emotions does it make it possible to feel? What new sensations and perceptions does it open to the Body? (Massumi, 1987a, p.xv). Curriculum as rhizome offers myriad pathways, and connections can be made to the most diverse possibilities. Rhizomes connect to their roots but they also connect to other things, like the wind, or animals or human beings (Deleuze and Guattari, 2003) and for curriculum this makes it an open space of potential and possibility.

For curriculum as rhizome to become and emerge, according to Doll, (1993) the structures of it must "maintain a delicate balance between sufficient coherence to orient agents' actions and sufficient randomness to allow for flexible and varied responses" (p.148). Such a framework may be referred to as "enabling constraints". This refers to the structural conditions that help the balance between sources of coherence that allow a system to maintain a focus of purpose/identity and sources of disruption and randomness that compel the system to constantly adjust and adapt (Doll, 1993, p.147). Coherence offers the system structure and stability and allows the agents to make sense of the system they are part of and randomness in an open system refers to how the system is influenced from the inside and the outside (Hussain et al., 2014). The Junior Cycle offers 8 Principles, the 24 Statements of Learning and the Eight Key Skills. Here is the coherence but how you map these through connections, makes for the randomness and creates ever expanding rhizomes that occupy N dimensions - not just the usual three dimensions but any number. Curriculum is about getting the balance of coherence and randomness and Doll (2012) suggests that each system must find their own balance as sufficient coherence and randomness can only be sensed and cannot be measured. Coherence comes from the deep knowledge and understanding the curriculum creator and maker has about the students and the domains. There is also a required skill to make sense of the connections and so a curriculum maker might also be a multiplicity of agents who collaborate to synergize a

curriculum that encourages the becoming of all students – a school, a subject department, a co- or cross-curricular team etc.

This energy, openness and the richness of its connectivity allows all life to be affirmed within curriculum. It can reach into every aspect of life, both good and bad, human, non-human and more than human, emerging in the middle of things. Deleuze and Guattari offer examples of all sorts of connections: linguistic, perceptive, mimetic, gestural and cognitive (2003, p.8). This framework of curriculum is a learning system.   It learns to survive through its connections and its ability to self-organise. The rhizome offers a way of imagining a multi-dimensional system in a different way to the unidirectional and binary logic.   The framework is **heterogeneous**, always in a state of being diverse in character. What the concept of rhizome offers is not an oppositional structure, but rather it is a model that begins where the curriculum is in arborescence and looks to make those underground connections. Rhizomes are difficult to separate from trees and there is no rigid separation. It is important to remember that tree roots can be found in the rhizome (2003, p.15). Rather:

> The important point is that the root-tree and canal-rhizome are not two opposed models: the first operates as a transcendent model and tracing, even if it engenders its own escapes; the second operates as an immanent process that overturns the model and outlines a map…(Deleuze and Guattari, 2003, p.2)

Curriculum as rhizome is a process of arranging, organizing and fitting together a process of knowledge making. It encourages currere as it negotiates pathways that allow the student open space to run and to emerge in their subjectivity. It is a holistic approach to curriculum that draws and connects to/with/in all aspects of life: cultural, natural, historical, political, ecological, theological, aesthetic and the autobiographical. The structure of curriculum as rhizome is ever

expanding. It disturbs conventional ordering, sequencing and categorizing. Curriculum framework as rhizome becomes a map[70].

6.5 CURRICULUM PEDAGOGY

6.5.1   Defining Pedagogy

When the curriculum ideological concepts have been decided and the framework of the main features of the curriculum has been sketched, the process of curriculum making turns to pedagogy. Schools, teachers and students become the ones who are responsible to actively bring the curriculum to life and make it flow. Pedagogy is the craft of making the curriculum come alive through the educational connection and encounter between teacher and student. It unites human beings in an encounter within the classroom in 'which we shift the borders of our self-understanding' (Todd, 2014). It connects the roles, knowledge, experiences and actions of the teacher and student at that present moment so that both teacher and student are offered the possibility of transformation and becoming within this encounter. It allows for a mediated and negotiated space to be created so that something new and unpredictable can become. Pedagogy happens in the between or middle space of the educational encounter , 'small moment of grace, those instants of living transformation, actually make a difference to who we as students and teachers become in the process' (Todd, 2014, p.243). The connection of student and teacher within the classroom 'is the site of everyday pedagogical action, everyday pedagogical practice. The pedagogical moment is located at the center of that praxis' (Chapter 3, p.4).

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[70] This map moves beyond Inter-disciplinary learning (IDL) that has been advocated in some modern curricula. It sees subjects as one of the many elements that make up knowledge and focuses on what comes up in the middle of the connections made. PRIESTLEY, M. 2019. Inter-disciplinary curriculum: why is it so difficult to develop (part two). *Wordpress* [Online]. [Accessed February 13th 2019.

Osberg and Biesta (2010) suggest in their 'logic of emergence' (Plateau 4.3) that it is both meaning and human subjectivity that need to emerge in order for true education to happen. They argue that this openness changes the usual pedagogical approach to curriculum which has been orientated to the achievement of ends and outcomes. Meaning and knowledge making is unpredictable and can no longer be delivered or transmitted but should find ways to transform and encourage the emergence of the Subject. Therefore, curriculum making in the school and in the classroom needs to respond to the call of currere (Pinar et al., 2008) and the 'smooth spaces' of Deleuze and Guattari (2003). Pedagogy should assist in this space of emergence (Osberg and Biesta, 2008).

How then is pedagogy understood in an emerging curriculum? The pedagogy that this understanding suggests is one which foregrounds educational relationships. A rhizomatic curriculum re-imagines not only the roles that will be played by teacher and student but a re-conceptualizing of how these roles will be played. Todd explains that:

> ..the teacher-student relationship becomes one of mediation and exchange.
> Although each bears a different role, they nonetheless are linked through the
> porosity of the classroom - the practices they engage in within it - texts they read, the
> art they create or the material spaces they inhabit (2014, p.241).

In breathing life into the new curriculum, teachers and students are now faced with significant judgements about what that mediation and exchange looks like for their classroom. This opens up a highly complex process where 'teachers provide educational opportunities" and the "students are responsible for taking advantage of them" (Pinar, 2011, p.79).

6.5.2   Connectivity – the process of Learning and Teaching

If the human being is inseparable to the world in which they live and a learner is an open, complex system that, according to Davis and Sumara (2008), "is capable of adapting itself to all sorts of new and diverse circumstances that an active agent is likely to encounter in a

dynamic world" (p.14), then pedagogy must take account of how a student learns. Learning thus is contextual, complex and a generative process (Sellers, 2008, p.6). It is non-linear and takes place within the middle of life, not separate to it, as a multiplicity connected to and nested in other multiplicities. The school as a place of learning is not separate but mangled within the messiness, chaos and flux of life and experience. There are two main branches of the psychology of learning that have influenced the approach to the student and the practice of teaching and assessment in the Irish context: behaviourist and constructivist. It is important not to view these theories as totally distinct and autonomous as they can often overlap particularly in times of transition and reform. The traditional approach to learning and the student was based very much on behaviourism and instrumentalist theories. Behaviourist theories focus on that which is observable, what is seen: how people behave and especially how to modify behaviour. Any consideration of mental process, which is by definition unobservable, fell outside their self-imposed range of interest. Learning is viewed as a conditioned response to stimulus in which rewards and sanctions are means to establish desired behaviour. Behaviourism provided a theory of learning that was empirical, observable and measurable. For its time, it was a major break-through in understanding human behaviour as it used a scientific method rather than metaphysics and divine intervention to explain the cause of social, human, physical and biological phenomena (Harasim, 2012, p.10). Ivan Pavlov (1849-1936) was considered its intellectual founder. He offered the idea of classical conditioning which involved four stages: acquisition, extinction, generalisation and discrimination[71]. However, the work of Skinner (1904-1990), on what he referred to as voluntary or operant behavioural conditioning, had

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[71] **Acquisition**: The acquisition phase is the initial learning of the conditioned response – for example, the dog salivating at the sound of the bell. **Extinction**: Once learnt, a conditioned response will not remain indefinitely. Extinction is used to describe the disappearance of the conditioned response brought about by repeatedly presenting the bell, for example, without then presenting food. **Generalisation**: After a conditioned response to one stimulus has been learnt, it may also respond to similar stimuli without further training. If a child is bitten by a dog, the child may fear not only that particular dog, but all dogs. **Discrimination**: Discrimination is the opposite of generalisation. An individual learns to produce a conditioned response to one stimulus but not to another similar stimulus. For example, a child may show a fear response to freely roaming dogs, but may show no fear when a dog is on a lead, or distrust Alsatians but not Jack Russell terriers. (PRITCHARD, A. 2009. *Ways of Learning: Learning theories and Learning Styles in the Classroom,* London and New York, Routledge.

major influences for education and learning and he argued that reinforcement (positive or negative) and shaping[72], can explain all human learning.

This theory of learning was highly instrumental and suggested a form of teaching whereby complex skills and knowledge can be taught by breaking it down into smaller pieces and teaching the basics first. The teaching approach suggested was transmissive, instructional, teacher-directed and controlled. Didactic methods of teaching assumed that there was an objective reality of the world which could be gained by all students through transmission from the teacher, textbooks etc and where there was little interaction or space for questions. Learning off by heart, reciting subject material and rehearsing answers to questions were some of the methods used by the student of a behaviourist system.

> …knowledge is a kind of substance contained in and given form by the vessel we call the mind. Professors' mental vessels are full or almost full. Students' mental vessels are less full. The purpose of teaching is to transfer knowledge from the fuller vessel to the less full
> (Bruffee, 1999)

Modes of assessment were greatly influenced by this approach to teaching and learning and they have very much dominated the Irish examination system for over a hundred year. However, one of the main criticisms must be that it was not concerned with mental activity, concept formation or understanding. The fact that students can be rewarded for learning something that they do not understand does not sit well in an education of becoming.

In reaction to didactic approaches such as behaviourism, constructivism is a theory of learning that states that learning is an active, contextualized process of constructing knowledge rather than acquiring it. Learning takes place when new information is built into and added onto

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[72] The notion of shaping refers to a technique of reinforcement that is used to teach animals or humans behaviours that they have never performed before

an individual's current structure of knowledge, understanding, skills and attitudes (Pritchard, 2009, p.17). It highlighted the importance of the role of the individual in making sense of the world. It comes under the broad heading of cognitive science which investigates 'intelligence and intelligent systems, with particular reference to intelligent behaviour (Posner, 1984). Knowledge is constructed, elaborated or restructured based on personal experiences and hypotheses of the environment. Knowledge is gained through reason, by considering the available information and assembling a personal interpretation. It's not concerned with whether knowledge is true in the absolute sense, since truth depends on the knower's frame of reference. Learners [73] continuously test these hypotheses through social negotiation. Each person has a different interpretation and construction of the knowledge process. The learner is not a blank slate or empty vessel (tabula rasa) but brings past experiences and cultural factors to a situation. Harasim clarifies how exactly constructivism works:

> Constructivism refers both to a learning theory (an empirical explanation of how people learn) and to an epistemology of learning (a view of the nature of knowledge). They are not identical terms, however. The constructivist learning theory explains how learners construct meaning. The constructivist epistemology refers to a philosophical view that knowledge is constructed through our interactions with one another, the community and the environment, and that knowledge is not something absolute"
> (2012, p.12)

As a learning theory, constructivism is an umbrella term for different approaches to learning and there are many psychologists and educators associated with constructivism. The work of Piaget (1952) on cognitive development and the importance of the individual's personal knowledge processing for successful learning (Sellers, 2008, p.16), alongside Vygotsky's (1978) sociocultural

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[73] Over the past number of years, the word 'learner' has been used instead of the word 'student'. Priestley and Biesta suggest that the notion of 'the learner' is broadly underpinned by constructivist learning theories formulated by psychologists in the 1940s and 1950s, and adopted by educationalists and policy makers int eh 1960s and 1970s in a pragmatist/constructivist amalgam expressed as 'student-centred learning' . PRIESTLEY, M. & BIESTA, G. 2013. *Reinventing the Curriculum: New Trends in Curriculum Policy and Practice,* London/New York, Bloomsbury. (p.57)

theory of human learning, have offered a different pedagogical approach to the Junior Cycle curriculum

Constructivism underpins the learning and teaching offered in the Junior Cycle Framework. Whilst it proposes that learning is about the individual constructing their knowledge through a social and collective learning, and tries to move away from the student as a passive learner, constructivism may not offer the possibility to open up the smooth spaces of Deleuze and Guattari (2003), or the potential to bring something new into the world as suggested by Biesta's emphasis on subjectification (2013). What is absent is the role of the teacher within constructivism and Biesta suggests constructivism is bringing about "the disappearance of teaching and the concomitant disappearance of the teacher" (2012a, p.35). He explains what he means in the following:

> The quickest way to express what is at stake here is to say that the point of education is never that children or students learn, but that they learn something, that they learn this for particular purposes, and that they learn this from someone. The problem with the language of learning and with the wider 'learnification' (Biesta, 2010a) of educational discourse is that it makes it far more difficult, if not impossible, to ask the crucial educational questions about content, purpose and relationships.

The role of the teacher as an essential component of the educational encounter has been eroded in the constructivist theory of learning. The Junior Cycle curriculum proffers a different role for teachers through their pedagogical interaction within the classroom but one of the weaknesses is the suggestion by constructivism that they are on the side-lines of the classroom facilitating learning. This erases their own knowledge and discipline base which adds richness to the classroom environment. Pedagogy from a rhizomatic curriculum makes connections through affirmation of diversity, difference and multiplicity. Biesta insists that "the purpose of education is not that students learn, but they learn for a reason" (2013). The role of the teacher and their approach to teaching can open this reason to something "beyond learning" (Biesta, 2006a) and something incompressible. The philosophy that underpins curriculum as rhizome requires that students and teachers engage in an alignment of learning, teaching and assessment. This

enables each to be actively involved together in an encounter through connecting in a process of exploration, experimentation, reflection and problem solving. Constructivism in the Junior Cycle curriculum might not encourage the realization of purpose that the assemblage desires (Plateau 5).

6.5.3   Enactivism

Enactivism is based on the ideas from the biologists Maturana and Varela (1980, 1987), Varela, Thompson and Rosch (1991), Bertalanffy (1968) and Capra (1996). The idea of the need for a different theory of learning, which tries to negotiate a response to questions about "the adequacy of constructivism as a learning theory" (Begg, 1999), has been emerging and perhaps adds to the idea of curriculum as rhizome and the logic of emergence. According to Begg, Davis and Bramald (2012, p.51), enactivism draws from a number of discourses, among them phenomenology, constructivism, ecology, and systems and complexity theories. Enactivism might be considered as an elaboration of constructivist epistemologies. It views learning and knowing, as complex, emergent processes by which dynamic agents maintain fitness with one another and within dynamic contexts. Begg, drawing on the work of these theorists offers a definition of enactivism as :

Learning is living, living is learning and this is true for all living organisms
(1999, p. 81).

Enactivism understands the world and the subject as inseparable: we co-emerge and cognition (learning) cannot be separated from being (living). Knowledge is the domain of the possibilities that emerges as we respond to and cause changes within our world (Begg, 2013). Davis suggests that instead of seeing learning as "coming to know", the learner and the learned, the knower and the known, the self and the other, all are co-evolving and co-implicated (1996). How does this work exactly as a theory of learning? Drawing on the work of Cilliers (2001a) who outlined important qualitative characteristics of complex economic systems, these qualitative

characteristics are reframed as important signposts that may guide the assemblage of lower secondary in understanding enactivism.

- The open assemblage of lower secondary comprises of **human beings** who make up numerous types of elements or nodes: classes, schools, institutes, departments etc.

- They interact with each other through communication, both physical and information, and through collaborative practices.

- Some relate more than others and the relationships can change -e.g. a principal will have far more inter-relations than a teacher, a teacher more than a student etc.

- The interactions of the people and elements are non-linear. A small cause in the system can bring about a large effect.

- People usually interact to those in near vicinity to each other. Teachers will be more inclined to discourse with teachers with whom they sit with in the staffroom, with students in their own classes and with teachers in similar subject departments in their own school.

- The interconnections of the agents are influenced by their environment – the stability of society, climate, politics, technology etc.

- The interactions are in a constant state of dynamism – students are forever growing, teachers change schools, retire, promotion etc.

- The assemblage of lower secondary is influenced by its history and change may be slow. However, specific influences, for example technology in the last decade, can cause sharp changes.

- Each element in the system is ignorant of the behaviour of the system as a whole. It responds only to information that is available to it locally.

Enactivism understands the complex idea of nestedness and offers a nested understanding of student and context, whereby learning is viewed as highly complex.

> Learning should not be understood in terms of a sequence of actions, but in terms of an ongoing structural dance – a complex choreography – of events which, even in retrospect, cannot be fully disentangled and understood, let alone reproduced (Davis et al., 1996, p.151-169).

Knowing is not separate from the subject or from the world but unlike constructivism where knowledge is interpreted as a human construct and evaluated in terms of its fit with the knower's experience and shaped by the learning context, enactivism does not "locate" knowledge but rather sees knowledge-as-action (Begg, 2013, p. 84). Knowledge is nested and embedded in the world, embodied in a series of increasingly complex systems (groups, schools, communities, cultures, humanity, biosphere) and embodied knowledge extends to these bodies that are larger than human.

Enactivism begins to embrace the type of learning and teaching that a rhizomatic curriculum offers. It overcomes binaries between teaching and learning, teacher and student and sees these as nested and co-implicated. It shifts the understanding of knowledge making as part of a learning system that can adapt, self-organise and emerge. It embraces the understanding of the expansion of the rhizome through transformation, lines of flight and opens education to the 'yet-not-imagined' (Davis and Sumara, 2008). If learning is about transformation then it moves beyond a planned direction and outcome for the subject, and sees learning as affecting our entire web of being, and, "it follows that what one knows, what one does, and who or what one is cannot be separated" (Begg et al., 2012). How it works for the curriculum as rhizome is a concentration on the interrelatedness of the teacher/student, teaching/learning and the shared emergence of self, knowledge and experience. Assessment in all its forms take on a new imagining in a rhizomatic curriculum

Enactivism and complexity theory work from the premise of inter and intra-connectivity. The traces of such thinking and action are beginning to emerge in the assemblage in lower secondary in Ireland. The lower education system in Ireland still retains hierarchical structures of organisation, the fragmentation of knowledge into subjects, time into sequences and semesters and the assessment of what is measurable and quantifiable. West calls this approach to schooling the "egg crate approach" and insists that "the main force behind the cellular school is bureaucratic momentum" (West, 2013). In reality, developing and implementing a new curriculum and pedagogy in such a system poses major challenges to the enactment of this learning theory. There is much preparation of the semiotics, material and social flow of the assemblage in order to accommodate this proposal. However, amongst the molecular lines there are cracks in the fissures which are emitting small glimpses of a move to a more rhizomatic understanding of pedagogy which is nested and where connectivity is fundamental. These fissures and cracks will be explored in the next Plateau.

6.6 (BE)GOING THOUGHTS

This plateau offered a complex intensity to traverse and has left many questions that perhaps disrupt previous thinking about curriculum. This thesis is concerned with curriculum change and reform during a period of profound transformation and the thinking offered by the many writers on curriculum, builds the possibility and potentiality of critique to the reform process that lower secondary education in Ireland is engaged. This chapter was perhaps one of the most challenging as I constantly had to remind myself not to fall back into arborescent was of thinking. Initially, I had thought to begin this chapter with Bobbitt (1918) and work through the decades of development but realised that to think complexly I had to build a more webbed pattern of curriculum thought and the writers I choose to do that offered concepts that certainly encouraged a different way of thinking about curriculum. Through an in-depth reading of the literature, it was very clear that the curriculum creation and making negotiate three main areas:

a. Ideology – the concepts about Subject, knowledge and experience and values that make up curriculum

b. Framework – the model that a curriculum uses to frame its ideology

c. Pedagogy – the practices of teaching, learning and evaluation that respond to the model and ideology.

In the journey to understand these three areas, there was a clear indication that the previous areas of ideology, framework and pedagogy, do not respond to the epistemological, ontological and axiological concerns of education that are now emerging. In Plateau and 4 and 5, these concerns were outlined and the desires for education were viewed as a multiplicity. Complexity, chaos, evolution and systems theory have all had significant influences on the various educational concepts offered and it was suggested that **curriculum may be seen as rhizome and education as becoming.** Curriculum as rhizome connects the following concepts:

- Curriculum is a process of connectivity

- Curriculum is a heterogeneous multiplicity

- It is a map, not a tracing

- Offers an affirmation of Life.

The ideology of process and currere as outlined by Stenhouse, Pinar and Grumet and developed by Doll, Slattery, Davis and Sumara offered the ideological background to this suggestion. Curriculum is concerned with the space to run, the inner and outer journey of the runner. Through mapping the main tubers or intensities of curriculum, it was possible to follow their connections and allow for the space for the teacher/student to run. This mapping as rhizome has pedagogical implications and enactivism as a response to constructivism, was posed as a tentative beginning or possible way forward to understand how curriculum as rhizome might work in the classroom.

At this point, we turn to the actors in the assemblage of lower secondary education in Ireland, to offer their insights, views and perspectives on curriculum, and particularly on the process of designing, developing and enacting the Junior Cycle curriculum itself.

Plateau 7 CURRICULUM IN THE ASSEMBLAGE

7.1 (BE)COMING THOUGHTS

From growing evidence offered by research (Smyth, 2009, Gilleece et al., 2008), curriculum practices in lower secondary education in Ireland were judged to be in contradiction to the desired purposes for education in the assemblage. The Junior Cycle curriculum was enacted to offer a more holistic and student-centred approach to education. As described in Plateau 3, this placed the actors at a threshold between the old approach which was dominated by the Junior and Leaving Certificate examinations and between the threshold to a more open and centrifugal process of education. This plateau seeks to map the struggle that this new curriculum encountered as it attempted to open up spaces to the broader educational experience for students. It will explore curriculum under the following three areas: its ***ideology, framework and pedagogy*** within this liminal and transitioning space. These are the flows that makes curriculum realise its purposes: Ideology is the semiotic flow; the framework is the material flow and pedagogy is the social flow of the assemblage (Deleuze and Guattari, 2003). The following Venn Diagram captures these three interrelated flows of the Junior Cycle curriculum. The main concepts that emerged within the data are captured in each of the areas but the underpinning concept for all three areas is multiplicity. This is significant as the reform of the curriculum at lower secondary education in Ireland is focussed on expansion, process, changing the nature of its molar, molecular and lines of flight. The analysis in this plateau will map its becoming and emergence. What we will be seeking are the patterns and connections that supported molecular cracks and lines of flight as the assemblage self-organises to find the best fit for the becoming of education. We are also interested in patterns where these lines of flight were more linear and deterministic, more destructive than creative (Deleuze and Guattari, 2003, p.506).
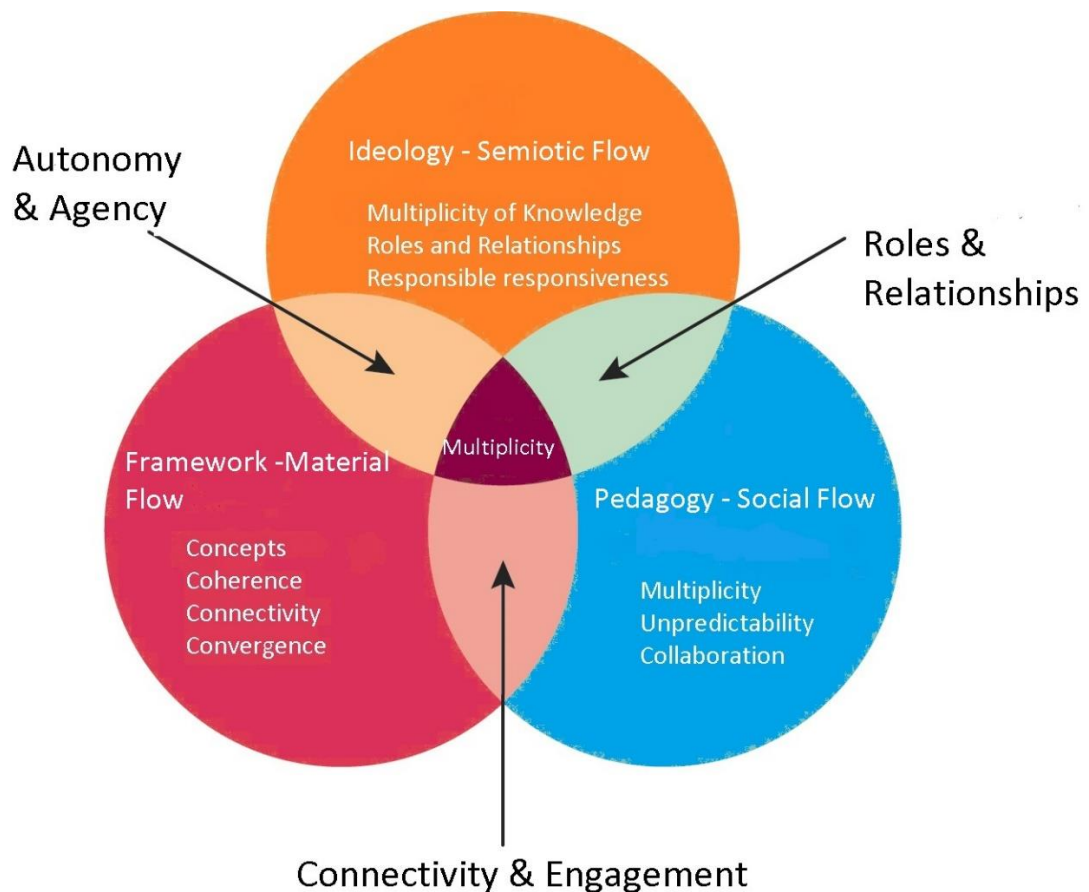
Figure 24 Venn Diagram of the Semiotic, Material and Social flow of Junior Cycle curriculum reform

What the mapping will offer is the insight into how these three important curriculum flows work to make a curriculum and encourage the assemblage to reform. It will offer a picture of what comes up in the middle as these three interconnecting areas of ideology, framework and pedagogy converge to bring the desire of the assemblage to life. It will assist in answering the central question of this research: **How is curriculum becoming in the assemblage of lower secondary education in Ireland?**

1. In terms of ideology, the study will analyse what epistemology, ontology and axiology underpins the Junior Cycle curriculum from the perspective of all actors in the assemblage and whether it offers transition to becoming more open and

centrifugal It will analyse what slows down and speeds up the flows to this expansion.

2. Regarding the framework, it investigates how it works as it scaffolds and maps this ideology

3. Pedagogically, it analyses the responses of the actors to developing new practices of teaching, learning and assessment and how these all intra-connect to create an educational encounter for all students that opens to smooth spaces.

Once these three areas are explored, we may be able to see the patterns emerging in each area in making curriculum. These three key questions are examined from the perspective of all the actors in the assemblage. One of the actors described the complexity of this curriculum terrain as one of 'shifting sands' (Principal Actor 21) and it is into this territory we now enter.

7.2 CURRICULUM IDEOLOGY

The ideology of the Junior Cycle curriculum is about process not product. The Deleuzian and Guattarian term for process is 'flow' and the mapping of curriculum ideology analyses how the language and concepts offered in the Junior Cycle curriculum offer different rates of flow – "slowness and viscosity[74]" or " acceleration and rupture" (2003, p.4). The semiotic flow of the assemblage of lower secondary education in Ireland is offered under the three following areas of flow: epistemology, ontology and axiology: .

7.2.1   Epistemology

The epistemological landscape describes the knowledge proposed by but also contained within the assemblage. The predominant questions relating to knowledge which arose from the data are:

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[74] Viscosity is the state of being thick, sticky, and semi-fluid in consistency, due to internal friction.

1. What theory of knowledge is operating within the assemblage and how does it work in the Junior Cycle curriculum?

2. What were the challenges confronting this theory in lower secondary?

3. How and why did the early adapters apply this theory of knowledge?

4. What were the outcomes of these applications?

7.2.1.1 *What is the theory of knowledge operating within the assemblage?*

The data offers a distinct shift in how the assemblage is viewing knowledge. For many of the actors knowledge has become a multiplicity and is no longer to be found only in subject areas specifically In the Junior Cycle, knowledge finds a new home in the 24 Statements of Learning. These offer multiple trajectories such as subjects, short courses, wellbeing, Level 2 Learning Programmes and other areas of learning[75]. Actors propose that it is through the expansion of knowledge within these multiple elements, plus the development of skills in the use of knowledge, that will steer the curriculum towards a centrifugal approach. The changing approach to knowledge is aligned with the changing purpose of education in the assemblage[76]. Access to knowledge is achieved through the building of problem-solving capacity, higher order thinking, the motivation to learn how to learn and self-regulation. They suggest that knowledge, skills and understanding all nest within each other, bringing about a synergy that opens up knowledge to locating its intrinsic worth, its relevance and offering autonomy to respond to the needs of the students. The following voices map this changing understanding:

I don't need to know the recipe for lasagne off by heart because in two seconds I can get that recipe on my phone. I don't need to ever remember but I need to know how to chop the onions. I need to know what kind of tomatoes and why I am using plum tomatoes instead. I need to know that. That's skills and knowing how to peel a tomato and knowing how to chop my

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[75] Appendix 8 offers a detailed understanding of each of these areas of the Junior Cycle curriculum

[76] Please see 5:3 to review the purpose of education for lower secondary.

onions because that's a life skill and that's something that I will bring with me to many other recipes. But the actual how many ounces of, that's not important anymore. Except the exam asks you, how many ounces? The written exam is the problem.

(Principal Actor 25)

So, it never gave that time to be able to fully allow the students to work themselves. You felt like you were constantly teaching to that syllabus because it had to be done and the experiments had to be done, had to be completed in a specific way every time. Whereas, we've moved now towards twenty-four statements of learning and we had to unpack them as to what we felt was a great fit for our school.

(Teacher Actor 33)

The proposal that the actors are forwarding here is knowledge and skills for their intrinsic value and for their relevance to life. Knowledge is a response to the context and fit of the student. In each example, there is the suggestion that the exam has been a confining and inhibiting factor on learning bringing a 'slowness' to the flow of knowledge. The repetition of the words "it had to be done" captures the limitations and restraints experienced and it is summed up nicely by Principal Actor 25 – "the written exam is the problem". This turn to the intrinsic worth of knowledge has offered thresholds of opportunity for lower secondary to move beyond the linear and deterministic approach to knowledge that had directed the curriculum for the Junior Certificate. Knowledge is beginning to be seen not as separations but as connections. This new approach "is much more rounded" (Policy Actor 22). It connects to many possible sources and demands a different response from the actors. Curriculum making in the Junior Cycle curriculum offers a centrifugal orientation if the actors have the agency to respond.

7.2.1.2 *What were the challenges confronting this theory in lower secondary?*

One of the biggest challenges was the belief that the very identity of a teacher as the source of knowledge was under attack. The new curriculum reduced the number of subjects to ten for state examination in response to the overloaded curriculum offered previously. However, this structural change created a tense political climate around the discussion about

the relevancy of subjects and where the new short courses and wellbeing now fit into the knowledge landscape

... I set up a well-being committee and I never saw in my whole life so many teachers who got involved in this committee. I know the reason was because they were afraid of what would be lost, and it was not that they were necessarily wanting to implement the changes. It was they were afraid that my subject may be lost if I don't go and voice……there was talk that history, geography, religion, were going to be cut. They were not there to drive reform. They were there to protect. There were mixed agendas.

(Principal Actor 21)

This mixed agenda is highly complex, and it relates not just to the time given to a particular subject on the timetable but whether a teacher will continue to have a job if their subject is cut. This political climate was felt in all schools in the research and each principal found that they had to negotiate very sensitive terrain: "I'm thinking there will be blood on the carpet" (Principal Actor 21), as subjects had been seen as silos of knowledge, independent of each other and some subjects viewed as infallible. For the first time in a long time, the assemblage had to answer the question what knowledge does our students need to know and why?

It cracks me up when people think I have to have 55 maths classes. This is telling me that they are curriculum focused and not student focused. They think that all they have to do is go in and deliver it and every student is going to absorb it equally. This is real old style.

(Principal Actor 21)

By no means is the Principal Actor 21 above suggesting students should not have Maths classes, however, it is clear that pre-existing attitudes to knowledge and subjects are being strongly challenged by the Junior Cycle curriculum, specifically:

- Normative acceptance of subjects

- Delivery of subjects

- Behaviour that accompanies such acceptance -class streaming

- Hierarchical order of subjects

In relation to subject hierarchy, the data conveyed very interesting mindsets. Mathematics and science were viewed as the subjects of most value at the top of the curriculum hierarchy and there is a certain excitement in the flattening out of this structure:

I think it has broken the hierarchy of subjects to some extent and I love that. Because this thing of maths being more important than any other subject, cracks me up.

(Principal Actor 21)

The question as to whether the Junior Cycle has broken the hierarchy of subjects needs to be questioned here. Mathematics, English and Irish are still viewed as essential and core learning and have two levels of assessment, higher and ordinary. They have been offered 240 hours as opposed to 200 hours for all other subjects. This actor, however, suggests that the Junior Cycle has interrupted previous mindsets to subjects which are now viewed through the lens of what is the best for the student. The focus and priority of STEM subjects has built up momentum over the past decade reinforcing a hierarchical culture. This orientation to STEM was seen as heavily influenced by policy coming from Europe and the OECD:

Education policy in Ireland as we know is deeply influenced by the internationally policy framework, whether it's Europe 2020 agenda or the OECD 21st century learning skills. That really was significant in shaping key players thinking.

(Policy Actor 16)

STEM has an important part to play in the new Ireland, however actors were expressing the need for it to find its space alongside and not above other sources of knowledge and skills.

Actors at macro and meso levels particularly suggest a search for 'a broader space' (Policy Actor 14) for students and teachers to occupy, despite the reluctance of the micro and nano actors. This search was not just about a rebalancing of an overcrowded curriculum but had individual as well as societal possibilities and improvements.

So, the Junior Cycle was to reduce that pressure in a well-being sense on teachers and students to kind of get it into a broader space. To remember that we were at the education business. To kind of create a continuity with primary. To take space where it was because certainly the terminal exam is a terminal exam and there is always going to be an exam, but we didn't have to be doing that in Junior Cycle. To decouple them was the key issue I think. So, there is a broad swathe of goods, a whole lot of common goods, societal, educational, personal all kinds of things out of doing what we tried to do and are trying to do.

(Policy Actor 14)

What is significant about the quote above is that it highlights that the curriculum was not just a product but a process. The curriculum includes the individual's educational development but also moving it from the private sphere alone into the public arena. The actor has in mind, engagement with a process that would disrupt and decouple the current curricular trajectory and occupy a different pathway which would educationally benefit both individual and society. However, we still see the acceptance of the need for a terminal examination. I question whether "there is always going to be an exam" and propose a reimagining of what might be possible.

This leads into the next challenge to expanding knowledge and skills - the very influential molar line of the Leaving Certificate. This call was too strong for some of the actors in the assemblage to resist as described by a physics teacher in the act of unpacking the 24 Statements of learning:

Well, I suppose in terms of the Leaving Cert subjects, we kind of, when we were unpacking our learning outcomes, it was the case of the physics department sat down and decided. Right, what do they actually need to know for Leaving Cert physics? So, it gives us a bit more freedom in terms of what way are you teaching that topic at Junior Cycle physics that's going to feed into either biology or chemistry. Where before we'd never really have discussed it. You know, they'd come into me in fifth year and I'd go oh, is that how they taught you to do X, Y or Z? We never had a chat about it, let's have a standard way of doing it. Whereas now we kind of have a bit more of a common approach.

(Teacher Actor 33)

The idea here of unpacking the Junior Cycle learning outcomes through the lens of the Leaving Certificate, whilst highly rational in an exam driven system, does not encourage the kind of landscape of the 'as-not-yet-imagined' or smooth spaces. The approach to 'standard ways of doing it' and the 'common approach' builds the walls and boundaries of the striated space and limits the possibilities of curriculum making. The data offers evidence that not all schools or teachers had the capacity or knowledge to be creative curriculum makers. This concern was voiced a number of times particularly by the macro actors but also by teachers and principals and connected to the understanding of equality of educational experience for all students and ensuring that no one school or student was left behind:

I think there was a concern that some schools weren't going to be able and that there was going to be an innate inequality based on the fact that some schools are going to be far ahead than others. So, there was a need to kind of give enough flexibility for schools but enough commonality. So, that pulled everything back a bit I think.

(Policy Actor 9)

The change in 2015 to the framework brought in further rules and indicators of what was expected in order to help schools scaffold the learning in how to make curriculum and embrace the new approach to epistemology. This concern that the framework demands creative engagement and agency from leaders and teachers is a constant challenge and the development of how the system needs to learn and improve itself is an approach to be frequently addressed during curriculum reform.

Branching out and expanding the epistemological understanding of the assemblage has had many challenges. Knowledge was the central domain of subjects and the culture that developed around this mindset has been very difficult to change. There has been continued resistance to cracking these molecular lines and the rate of flow to expand knowledge has been slowed by the many complexities and challenges . Repeatedly, data reminds us that subjects must flow into the senior cycle and the restrictions of the molar line of the Leaving Certificate is

a constant challenge to be faced. What is difficult for the actors to comprehend is knowledge is now a multiplicity and subjects are one element of a range of possibilities. What is a struggle for the actors is the trajectory of thought that suggests that the Junior Cycle should meet the needs of the students at their particular time in life first and foremost and not just the Leaving Certificate?

7.2.1.3   *How and why did the early adapters apply this theory of knowledge?*

Despite the conflict faced by the actors, data showed a clear demonstration that the meso and micro actors were making curriculum from the multiplicity of 8 key principles, 24 Statements of Learning and the Eight Key Skills:

The idea was that schools would then sit down with the framework and design their own Junior Cycle. In some ways that was the one that put the most challenge up to schools. There was no doubt about it. There were schools who were gung-ho to jump in.

(Policy Actor 9)

Some schools found this curriculum making liberating because now they were able to respond to the diverse needs of their students. Whether they were an urban or rural school, the agency and autonomy of what curriculum proposed lay within the responsibility of the actual school. Data offered also a story, narrated by Principal Actor 25, about his school which had a mixture of staff from two different unions but who found a way to embrace change by "building the scaffolding ourselves". This scaffolding came in the form of having "lots of conversations", "building relationships", "centralizing of information on a digital learning platform" and "having easy access to resources for staff" – "they know where to find everything". However, what was significant was the leadership of the change and the evidence that this principal had a clear vision of where he wanted the school to go in creativity and innovation. In that particular school, leadership of curriculum change was about ensuring that everyone was included: all students, teachers and parents. His approach was about "repetition and it's embedding itself slowly but carefully" (Principal Actor 25). He favoured a distributive leadership style to change and enabled

the staff to take control bit by bit but this happened through building processes and structures to assist with their learning. Perhaps the following words sum up an important tenet of connecting the many elements – "Get your framework and you can hang things onto that" (Principal Actor 25). Actor 25 understood the need for a holistic approach to curriculum making. The school understood how each part of the multiplicity of knowledge was to be engaged with and planned a process for its enactment over time.

Knowledge has found tentacles that stretched beyond the previous syllabus to a recognition that students must also become agents in knowledge making. Actors tried to give voice to the changes they were experiencing in the classroom encounter. Students are no longer passive recipients of a curriculum, but they are also becoming knowledge-makers:

Yeah, basically you take what she's telling you what to do and you, kind of do it yourself.
(Focus Group Actors 32)

At the end of the day I think that each class is a team and we have the responsibility and the choice to want to learn.
(Focus Group Actor s 31)

It was no longer just about learning off facts:

You know you learn off all these facts. And you meet them in September and they don't remember any of it, and I get it what Ruairi Quinn said about fit for purpose[77]. So, I think they need to be creative. They need to embrace learning, to have that enquiring mind and to be able to look for information.
(Policy Actor 24)

There is a different expectation outlined in the approach to knowledge as the actors point to the importance of skills and values in knowledge making. Creativity, exploration, enquiry and

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[77] Ruairi Quinn, Minister of Education outlined why the Junior Certificate was unfit for purpose during the Seanad Éireann Debate on 23rd October 2012.

an openness to learning being encouraged, highlighting the desire of the actors to promote the

application of the student's imagination, encouraging the generation of new ideas, questions,

seeking and experimenting with alternatives and to evaluating their own and their peers'

ideas, final products and processes. It is an opportunity to open different spaces for students

but the verbs in this quote above request action from the student – "to embrace", "to

enquire", "to look for" – not just remembering. However, data also offered examples of

confused thinking about how knowledge now worked in the new curriculum. On the one hand

there was evidence of the early attempts to approach student agency as knowledge makers

but on the other hand, there were certain misunderstandings about the continued importance

of different discipline and subject knowledge. The following business teacher explains:

There is no point sometimes just giving them the information. Sometimes I think we

underestimate what they can come up with and I think I found that with myself, this year with

the Second years. I'm like, do you know what? They are able. They are well able to do this,

you know. Whereas before, you'd be just like, no give them the information. Learn that

information and we will have a test at the end of the week. Whereas now I think I am a bit

more, no you know some of this stuff. Business is common sense. This is a life skill.

(Teacher Actor 35)

This quote offers a clear effort by the teacher to promote the ability of the students and to find

the space in understanding that students are part of the process of knowledge making.

However, the subject of business goes beyond common sense and according to Young (2013)

who promotes the concept of "powerful Knowledge"[78], knowledge promoted in the classroom

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[78] Powerful knowledge has two key characteristics and both are expressed in the form of boundaries.
It is specialized, in how it is produced (in workshops, seminars and labs) and in how it is transmitted (in schools, colleges and universities) and this specialization is expressed in the boundaries between disciplines and subjects which define their focus and objects of study. In other words, it is not general knowledge. This does not mean that boundaries are fixed and not changeable. However, it does mean that cross-disciplinary research and learning depend on discipline-based knowledge.
It is differentiated from the experiences that pupils bring to school or older learners bring to college or university. This differentiation is expressed in the conceptual boundaries between school and everyday knowledge. YOUNG, M. 2013. Overcoming the crisis in curriculum theory: a knowledge-based approach. *Journal of Curriculum Studies,* 45**,** 101-118.

is never just about day to day knowledge, but belongs to the domain of disciplines and subjects. He argues that all disciplines have core concepts that need to be central and built on. It would be a mistake for a teacher to dismiss the importance of the discipline knowledge that they have to contribute to the classroom encounter. We are reminded of Biesta's warning of the erosion of the teacher in the constructivist classroom(2012a, p.35). The subject of business is more than "common sense". Whilst offering a multiplicity of ways of encountering knowledge, the Junior Cycle framework still promotes the prominence of subjects and disciplines.

Within the data, teacher actors were attempting to voice their changed understanding as to what constituted knowledge and content in the classroom.

….. with First year. They'd normally have to cover like, filtration and evaporation. You'd simply just take like, soil and water ……..But the link to everyday life just wouldn't be there. Whereas this year I got two packets of crisps…We looked at the salt content on the two packets and then we took the packets of crisps and we mixed them with water. We filtered them. So, it meant that we were able to see just how much salt was in and compare the two crisps. And they learned their two techniques, but they also were able to discuss how salt content wouldn't be great within their diets. It was much more rounded rather than there's your equipment. Do the experiment. What do you see?

(Teacher Actor 33)

The teacher in the above quotation has taken the agency to extend knowledge as a platform to further discussion and connections to their lives and diets and to personalise the application for the students. The Junior Cycle framework has offered the space for this to occur. Data offered many other similar examples of encouraging the development of the student to a more "world centred education" (Biesta, 2018).

Repeatedly, teachers felt a liberation to move beyond selecting content because it might be on an examination paper in the future. The Junior Cycle curriculum encouraged a disruption to the assumptions about knowledge and content. The springboard for selection of content and knowledge begins with the 24 Statements of Learning, the Learning Outcomes and Learning

Intentions of the subject specification. Integrated into this beginning are the 8 Principles and 8 Key skills. The focus lies in what does the student need to know rather than what does the student need to know for the final examination. The DES did not offer examination papers in the first year of a new subject specification and this thus directed schools to begin the process with Learning Outcomes[79]. The assemblage sees the need for "analysis, rigour and thinking" (Policy Actor 6). This thinking is about "the ability to synthesize, pull knowledge and ways of approaching things from different strands and bring them together (Policy Actor 4). The change lies in an attempt by teachers to include students' knowledge, expand previous sources of knowledge, to expect agency in knowledge making but also that knowledge would be added to and moved into further spaces of possibility. Whilst the Junior Cycle had reduced the time allocation for some subjects[80], the autonomy and agency it was offering, encouraged the teacher and student the possibility to expand understanding whilst reducing content at times in favour of a more in-depth process:

The longer you spend on something even if you have to spend that extra week, once they get to that eureka moment where everything fits and works, with Junior Certificate you could be teaching ten topics and may never get there because you are just rushing through.

(Teacher Actor 33)

The data demonstrates how and why the early adaptors tried to embrace the Junior Cycle curriculum. They affirmed that what was liberating in the reform was this potential move to a deeper and broader range of knowledge that responded to the needs of the students in their particular context and how it makes sense to/in/within their lives.

So, what has changed? I think what has changed here, it's actually not about the sort of assessment we are doing, it's about what's happening in the classroom and among teachers within it. There are no big complaints about specifications anymore and I think as each

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[79] A critique of the choice by the NCCA to take the route of Learning Outcomes and Learning Intentions will be explored in Plateau 8.
[80] Most subjects besides Maths, English and Irish, have been reduced to 200 hours. Subjects like science and modern languages would have had more time on the timetable previously.

specification comes on board and it can continue to breathe new life into the subject. That is

where you meet the teachers and the students desire. The student wants more engagement,

the teacher wants it to be more relevant, more attractive, more enjoyable to teach. I think

that's happening.

(Policy Actor 19)

7.2.1.4   *What were the outcomes of these applications?*

In the assemblage, the macro actors designed and developed the curriculum and then it was handed as a product to the meso and micro actors. The Junior Cycle curriculum calls on all actors at every level of the assemblage to become involved in curriculum making. For the early school adaptors, the data offers evidence of molecular cracks as schools shift to courses on coding, philosophy, wellbeing, Chinese, Digital Responsibility, Animal Care and Crime Investigation as possible areas of expanding knowledge. Uptake has been slow with these short courses but that has been due mainly to the constant changes that took place in the initial years of the reform. The area of learning called wellbeing has been also introduced with 300 hours at present on the timetable in the form of PE, SPHE, CSPE and guidance. This has offered many schools significant challenges as they do not have PE facilities to offer students. Knowledge in this area is not only learning ***about*** wellbeing but also learning ***for*** wellbeing. The restriction of wellbeing to the above subjects would be a serious limitation on an area of learning that might generate spaces that really respond to students' needs. There is this constant coming and going between offering open possibilities for students but then closing them down into segmented subject areas. However, schools have also embraced Level Two Learning Programmes (L2LP's) targeted at a very specific group of students who have general learning disabilities in the higher functioning moderate and low functioning mild categories.

The other thing that was very exciting was extending opportunities to children with mild to

profound learning difficulties to participate in the Junior Cycle and then figuring out how that

would work. So, we've ended up with Level Two Learning Programmes and Level One Learning

Programmes. We've also ended up with a hybrid called a Level Two/ Level Three Learning

Programme. That's where a child may take some subjects at Level Three but may also take

others at Level Two.

(Policy Actor 13)

However, the lines of flight lie in the expansion of knowledge within the subjects beyond the content needed for examination that have driven the main changes. The impact of this approach was described by actors as : 'they seem to be happier; they like to know where they're going and what's expected of them' (Principal Actor 25). Students are "engaged" (Policy Actor 5), "confident" (Policy Actor 3), "managing" (Principal Actor 21) , "leading" (Principal Actor 25), "skilled" (Policy Actor 3) , "responsible" (Policy Actor 15), "thinking and problem solving" (Principal Actor 28). The "results are better and "the uptake at higher level is greater" (Principal Actor 28) and "attendance has improved" (Principal Actor 34). Whilst core and central areas of the discipline or subject continue to remain the same, the change lies in offering students the agency to discover, explore, critique and begin to make connections to other knowledge and the world which is their home.

There is a clear change in the theory of knowledge in this new curriculum. Knowledge is a multiplicity and has expanded within and without a subject and thus changing the nature of the molecular lines and how it is viewed within the assemblage. Within each subject there is the suggestion of a re-ordering and renewing of knowledge therein to open it up to smoother spaces. This approach has challenged the assemblage and has 'ruffled the floor of the ocean' (Policy Actor 5) in terms of the hierarchy of subjects, STEM and the influence of the Leaving Certificate[81]. It has challenged the assemblage to connect knowledge to both the private and public domains, developing the individual as well as society. Within the assemblage there are clear indications that schools, teachers and students have moved into the thresholds of this new

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[81] As I write, the subject of history is being reviewed by the DES and the NCCA as to whether it should be reinstated as a mandatory or core subject. Assumptions about what knowledge is important for a student in the twenty-first century is being explored .

epistemological understanding. They see the intrinsic worth of knowledge and the importance of the agency for all actors to respond to the needs of the students. What is becoming in the theory of knowledge as multiplicity for the Junior Cycle is a happier and more engaged student who not only has acquired new knowledge but also the skills to use it. For all actors, this emerging approach to knowledge, this line of flight, proposes a creative turn to a new ontological approach to curriculum. It encourages a different approach to curriculum as actors take on new roles to respond to these epistemological challenges.

7.2.2   Ontology

The holistic approach to be played in this curriculum reform was fragmented and lost at the beginning of the enactment due to a lack of communication and clear messaging. The response of actors to the ontological changes proposed in the reformed curriculum was limited by this fragmentation and this is reflected in the following thoughts of a policy actor:

If there is one thing that I think might have been lost, it's that notion of schools rethinking their whole approach at Junior Cycle.   I think one of the strategies that many schools adopted during the dispute was to break up the Junior Cycle, have the elements of the Junior Cycle changed and to try to advance individual elements. Like, we will do a little bit of work on key skills or we will do a bit of work on well-being or we will do a bit of work on learning and teaching in classrooms. Schools were very successful in mediating that difficult period in that regard but something about the whole picture may have been lost then during that time.

(Policy Actor 6)

One Actor suggests that the industrial dispute has 'done damage to the Junior Cycle brand itself' (Principal Actor 21). A pattern that emerged within the data was the loss of the holistic understanding of the curriculum reform at the initial stages of enactment and this misunderstanding encouraged lines of segmentation and classification which stunted the flow within the assemblage. The whole approach to curriculum was changing and the actors at times did not understand the significance of the changes. The ontological theory that is foregrounded from the interviews is the centrality of the student, the professionality of the teacher and the

collaborative and collective nature of the assemblage. The roles of teacher and student intra-relate and interconnect with each other and propose a radical change in the relationality of/in/within the assemblage.

7.2.2.1 *The Role of the Student*

The role of the student in the Junior Cycle curriculum offers three main ontological changes: a student-centred approach, a focus on wellbeing and the enabling of student agency. The main vision of the Junior Cycle "places students at the centre of the educational experience, enabling them to actively participate in their communities and in society and to be resourceful and confident learners in all aspects and stages of their lives" (NCCA 2012)[82]. The findings show that there was general agreement over all the interviews for a recognition of this vision and a move away from more instrumental centralities. However, the centrality of the student at times got lost due to the continued concentration on assessment during the early years of the reform. The question of equity of experience for all students was a major concern for the assemblage in the design of the Junior Cycle framework. There was a worry that previous curricula only catered for a certain category of students but certainly not all students' needs were served:

In some schools around, who is served by the Junior Cycle? So, if you work at it from a point of equity then you have to say, well actually it has to serve everybody and not just the kids who are good at doing exams. There have to be outcomes here that are really valid, and which can be recognised and should be recognised beyond that.

(Policy Actor 13)

Lower secondary education served the needs of those students who could do well in assessment and examinations. There is a recognition within the assemblage that it needed to look for 'outcomes here that are really valid' (Policy Actor 13). The discussion about the use of the concept "outcomes" will be taken up in Plateau 8, but the actor is appealing to an education

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[82] This vision will be discussed at greater length in the Discussion Plateau.

that goes "beyond" the instrumental. This actor was very excited by what the new curriculum was offering students on the level of inclusion and equity and spoke specifically about students with special educational needs. She remarked that:

I love the fact that we're now looking at the students who are working in Special School settings or in Special Ed settings within mainstream schools, and actually not seeing them as second cousin. That they are actually people who can make achievements. Who can actually develop and progress and whose progression can be recognised and rewarded?
(Policy Actor 13)

Data offered the growing realisation of a diversity of students of different abilities and needs and whose education needed to move beyond a uniform response. One policy actor highlighted that the curriculum should offer "a broader approach towards assessment that was more inclusive of the full range of student needs" (Policy Actor 6). The need to think deeply and reflectively about what equity means and how it is defined in relation to educational practice is a complex undertaking. In the wake of the success of the Level 2 Learning programmes, the importance of the continuation of these at senior level was of critical and urgent concern to the actors. There was a sense that there would be nowhere to progress for these students if this development was not immediately tackled.

Also, whilst actors embraced the idea of the curriculum placing the student at the centre, there was an interesting dearth of reference to social inequality in lower secondary education in Ireland. During the interview process in 2018, Ireland was undergoing a serious homelessness crisis for families with over three thousand children living in hotels or on the street around the country and yet there was little mention of the social inequalities maintained by the previous curriculum and examination process[83]. No one discussed how this

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[83] Ireland has a growing grind culture which supports students who can pay for extra tuition for the Junior and Leaving certificate examinations.

reform might improve the central educational needs of students in schools in the DEIS[84]

communities of Ireland. On analysis, the concept of diversity of students needs was limited in

the data.

The area of learning called wellbeing offered in the curriculum is connected to the

centrality of the student. There were clear concerns that the system as it was, did not offer an

educational experience that allowed all students to thrive and flourish:

If my children had gone into a school where they were measured by their academic potential as

decided by an entrance test or whatever, how would they ever get out of that mindset? How

would they ever think, well I'm average or I'm only average or I'm below average? I would

never allow my child to be put in that position ever. I would never choose a school that was

going to label him or her. It breeds arrogance if you're an 'A' student. Absolutely breeds

arrogance and breeds no understanding.

(Actor 27)

The ontological orientation of the assemblage has been dominated by a limited and narrow

understanding of success and progression. The assemblage desires to offer students a

different ontological experience. This is seen in its change to common papers, the attempt to

change assessment and the placing of four hundred hours of wellbeing on the timetable over

three years. The inclusion of wellbeing in the Junior Cycle framework is viewed by many as a

positive policy concept and is holistic in its aspirations (White, 2009)[85]. The actors

foregrounded an ontological theory based on the words "happiness" (Teacher Actor 33),

"confidence" (Teacher Actor 27), "well-rounded" (Policy Actor 3), "involved" (Third Level Actor

8), "interacting" (Business Actor 4). The "Guidelines on Wellbeing" (NCCA, 2016) offer a

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[84] DEIS stands for "Delivering Equality of Opportunity in Schools" and is a national programme aimed at addressing the educational needs of students and young people from disadvantaged communities.
[85] However, White also offers the hazards of the use of wellbeing in policies and states that "As discourses of wellbeing strengthen ideologies of individual choice and responsibility, they not only create a climate amenable to the increase of state interference and the reduction of state support, but also help construct 'citizen-subjects' who can be governed more effectively through their self-responsible, self-monitoring and their cultivation of appropriately flexible relationships" WHITE, S. C. 2009. Analyzing Wellbeing: A Framework for Development Practice. *Development in Practice* [Online]..

multiple approach to a student's wellbeing and this aligns closely with the aspirations of a rhizomatic curriculum. However, this is a space in the curriculum that needs vigilance to ensure that there is not a move to make wellbeing the responsibility of the individual alone and not society. The "Wellbeing Guidelines" propose that

> "Student wellbeing is present when students realise their abilities, take care of their physical wellbeing, can cope with the normal stresses of life, and have a sense of purpose and belonging to a wider community" (NCCA, 2016, p.17).

The actors in the assemblage were clear that wellbeing was about interrelationships not just the individuals own capacities. This concern has also arisen due to the scarcity of reference to ill-being in the documents. A critical lens needs to be held up to the concept of wellbeing in the Junior Cycle Framework and a watchful eye that wellbeing does not become the property of the individual alone, allowing the state to escape its responsibility.

Another concern within the data is a tension and pull between the wellbeing of the student and the needs of the Leaving Certificate:

They need competence. They need resilience. They just need to be able to actually cope with Leaving Cert because students do seem to manage to cope up to Junior Cert.

(Actor 33)

This thinking poses the question as to whether the presence of wellbeing on the curriculum is to scaffold skills so that the student can take on the Leaving Certificate? This would reduce this area of learning to a deterministic and narrow desire, allowing it to be sedimented into a striated space. Also, wellbeing faced conflict with traditional subjects as their time on the timetable was decreased in favour of hours for wellbeing. The data continues to demonstrate that the epistemological needs of the students were often favoured over the ontological and the shift to prioritising the wellbeing of students was a slow process.

I think it might get lost if you don't change the way the schools use its relationship with the students and what it's there for. If you don't go back to the whole idea that a school is there to help it's students flourish in life and I mean emotionally as well as academically, if you don't actually embrace that then all the curriculum syllabi that you have in the world doesn't make the slightest bit of difference. And that's what I feel the weakness is.

(Policy Actor 15)

The actor above emphasises the significant role that relationships within the school play in the area of wellbeing. He is clear that it is not enough to just offer a programme but cultural change must accompany reform. Despite this weakness, there was clear evidence that the assemblage at all levels were concerned about student wellbeing beyond the needs of the Leaving Certificate. However, there is a diversity of approaches to how wellbeing may be defined in this new curriculum.

In the Junior Cycle curriculum, students are being offered a voice in their own education. All focus groups of students declared that they were constantly asked for their opinion in their classes and some subjects offered greater opportunity for expressing opinion. They mentioned subjects such as English and history.

They are looking at ways in which students' voice can be enhanced through pedagogy as a form of assessment practice, feedback, listen to what students have to say. Their feedback to you as a teacher. Your feedback to them, encouraging that discussion. Questioning, self-evaluation, peer evaluation, all the business of formative assessment.

(Policy Actor 5)

The classroom is promoted as the space where the student can become an agent of their own learning and a place that offers the agency to dialogue. The dialogue between teacher and student are encounters whereby the student can become a curriculum maker as well as take responsibility for that making. One teacher commented:

It's making them a bit more responsible for their own learning. Like, they're going away and learning stuff by themselves. They're not depending on you to tell them this is true.

(Teacher Actor 32)

One principal actor strongly asserted the opportunity for student voice:

Certainly, student voice is far more active…..the students are engaged in most classes, more than they would have been. The passive chalk and talk would be very rare now.
(Principal Actor 28)

The student focus groups offered the insights as to what this encounter to promote agency might look like: 'Interaction', 'fun', 'everyone included', 'focussed', 'understanding', 'your point of view', 'how to fix it', 'on your side'. This agency connects the student to a curriculum which supports the desire of the assemblage – for the holistic development of the student. Nevertheless, the following quote offers interesting assumptions about the new curriculum and student agency:

I think it's producing well rounded competent students. People who are confident in who they are. That they go out into the world. They have all the skills to help them navigate through this very difficult world.
(Actor 3)

Is the role of the new curriculum about "producing well rounded, competent students"? How much agency is there in reality for the student if our purpose is to "produce"? The language used by some of the actors at times demonstrates a more determined and instrumental desire for education rather than using language that describes the opening up of possibilities so that they can become something new. Clarity about educational purpose in this curriculum continues to be required.

The student-centred curriculum proposes equity and inclusion of all students while offering schools the autonomy to create a 'running' space (Pinar et al., 2008) for students where their wellbeing can flourish alongside their cognitive development. This opportunity opened another molecular crack for lower secondary education in Ireland. This is a huge responsibility

for schools and the question of the capacity of schools to realise this inclusive and equitable space will need continued resourcing. This ontological shift proposes a new role for students in which they have their own voice, agency about their education and their future. As suggested above, the success in enacting this radical student-centred move is highly complex at many levels. It is entwined with the role of the teacher and how this role has been re-imagined also in the assemblage will now be discussed.

7.2.2.2 *The Role of the teacher*

7.2.2.2.1   The changing role of the teacher in the new curriculum

The biggest change proposed in the Junior Cycle was a move from individual to more collaborative practices for the teacher. In the previous curriculum at lower secondary, what happened within the "sacred space" of the classroom was primarily guided by the syllabus of the subject that was being taught and the end game was an examination, either the Junior or Leaving Certificate. The teacher was the deliverer of the curriculum but was autonomous in their classroom:

Teachers have been famously autonomous and there are two sacred spaces in education. One is the classroom when you close the door, that is your sacred space. The second one is the exam hall. Both those sacred spaces are now going to be challenged and rolled in and opened out as a result of this. So, really what we need to begin to think in terms of is, the group of professionals who have hither to been standalone.

(Policy Actor 7)

The Junior Cycle curriculum propose change to both these "sacred spaces". One of the biggest challenges to re-imagining the role of the teacher was through changing assessment practices. The framework proposed that teachers would mark their own students' papers for the state examination. We know from previous discussion in Plateau 3.3 that this created conflict in the assemblage. Data suggest that teachers' refusal demonstrates an assessment mindset that is a product of the system in which Irish teachers have resided. The following example offers an

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insight into this argument and it will be split into a description of an event that the actor attended and then their realisation and insight about the significance of culture in the role of the teacher:

Year 12 assessment in Queensland, Australia, is entirely teacher led and is the one that sends you to university. The Government had proposed introducing a proportion of central external testing at Year 12 and the room was incensed by this. So, the discourse was, what is wrong with my professional judgment? How dare the Government question my ability to evaluate and report on my students learning. I remember one guy stood up and said, I plan, I design, I teach, I evaluate, and I report. That is my job Minister, and don't undermine me in any one of these. And there's a huge cheer from the floor.

(Policy Actor 9)

The actor captures important issues which were being highlighted for the Minister of Education in Queensland, Australia: the importance of professional judgement; the ability to evaluate and report on students' learning; the lack of desire for central external testing at Year 12.

I went, hang on, is this real….I said, I have just come from a room full of teachers, really angry that the government is suggesting that they would use professional judgment and that would displace an essential exam. I showed them pictures of picket lines. I said, here are teachers on strike because they want external examinations and you're about to go on strike because you don't. I said which proves that it's how you are inducted into that system. It's how you define yourself as a teacher. And, so it is about teacher identity and how teachers are defined, and we are composed from teachers that are very much defined by that examination process.

(Policy Actor 9)

The system in Ireland did not encourage the development or the extended use of professional judgement in the craft of assessment for state purposes. Teachers had not marked their own students work for state examinations and operated from a restricted understanding of assessment. This was the culture - the State Examination Commission was valued and the mindset resided in state examinations being the property of the SEC. Any change to assessment

had to disrupt this cultural disposition and in complexity terms bring it to the "edge of chaos"

The following quote captures important insights into the complexity of changing thinking and behaviour around assessment practices for Irish teachers and why teachers continued to favour more instrumental practices:

They felt it was going to change the relationship between them and their students. I think it was a fundamental misunderstanding. I think our capacity as a teaching force in schools to envision assessment practice as something broader than what was established was not very broad at that time. As an inspector, my experience in speaking to teachers would have been, they were focused on the Christmas tests, the examinations at summertime and then ultimately the Junior and Leaving Certificate here for example. Sometimes you have to remind them that actually they had been assessing the children in the class you were observing. So, if you like that, the range of possibilities for assessment and assessment practices that teachers where engaged in were unnamed by teachers, I believe broadly speaking. So that their ability to engage with the notion of a broader notion of how assessment between teacher and student would transact at Junior Cycle was limited.

(Policy Actor 13)

Assessment practices were entwined with the relationship that existed between teacher and student and changes to the working of this relationship were viewed as non-negotiable. Some actors argued that teachers were using a broader approach to assessment (Policy Actor 18) and "doing assessment as learning methods coming in particularly from Scotland". However, data demonstrates that this was the exception rather than the norm and the culture within the assemblage encouraged the approach to assessment as summative in nature and the continued property of the State Examinations Commission.

Alongside the suggested assessment changes in the framework, lay a whole different approach to subjects, content and methodology which impacted on the role of the teacher. The revision and updating of many subject specifications were welcomed by the actors but the new specifications came with a fundamental change. They encouraged the agency of the teacher in deciding not only the content and methodology to be adopted but an invitation to connect these

to the 8 Principles, 24 Statements of Learning and the 8 Key Skills. It is important to state that teachers have always had agency to mediate the curriculum but the new framework was offering a different space from which a teacher might now operate:

I've taught in three quite different types of schools. I taught the same subject in each but I taught it quite in different ways based on what was likely to grab the interest of my students. And even within a school how you teach a subject can change based on the class in front of you or the year group in front of you and that's from year to year. So, in terms of the agency in terms of teachers being able to adapt the curriculum that's always happened. In terms of the individual teacher having a say in what syllabi or what specification is there in the first place. It's probably more difficult.

(Policy Actor 18)

Teachers themselves agreed that they did have agency in previous syllabi but that this agency was curbed due to the shadow of the examinations and this had huge impact on making decisions and adjustments. Curriculum was a product but with the Junior Cycle reform had become a process which needed a more collaborative engagement with other professionals in order to provide a rich, educational experience for all students in a school.

I would see the Junior Cycle as really pushing the concept of professionalism. Where it's really evident is in the very clear and deliberate decision by the curriculum designers not to include content. And to say to teachers you choose. Here's the outcome you choose. And teachers really struggle with that.

(Policy Actor 13)

The struggle lies in living in a culture that told you what to teach. This new approach assumes a deep knowledge and understanding of curriculum that might not exist for some teachers and therefore has assisted in perpetuating the liminal space of the assemblage.

Data offers a deep desire within the assemblage to change the current practice of teachers as deliverers of curriculum. The wish is for the teacher to engage in learning

themselves through reflective and collaborative practices. This is visualised by many actors in the two areas: the subject department and the Subject Learning and Assessment meetings:

The seed for collaborative working was set in the concept of a subject department. It speaks so much to the professionalism and the commitment of Irish teachers to do the right thing, that they accepted that concept and organised around it despite the fact that there was no reward in it. In a sense of there is no remuneration for it. Hopefully people did find it professionally rewarding and professionally beneficial.

(Policy Actor 13)

The real magic moments in this are around teachers working together formally for the first time in the Subject Learning and Assessment Review meetings.

(Policy Actor 7)

The Junior Cycle curriculum is based on the teacher making pedagogical judgement and choices around new Learning Outcomes, content, methodology and assessment practices. The framework is requesting teachers to look at their subject now with new eyes. The threshold to renewing their understanding of their subject has been offered in the framework by the new specifications[86]. Different specifications offer a different number of strands and elements, but the teacher has the agency to decide how these Learning Outcomes are realized through their pedagogical approach to/in the classroom. There is a call to approach these specifications differently. The difference proposed is a renewal of their relationship with students so that the whole learning environment is transformed. The shift is a move from rote learning and notes dependence to offering students agency and voice. Actors in the assemblage see "teachers as key agents of change" (Policy Actor 6). This idea was contrary to some of the comments from actors because often it was suggested that teachers were victims of the system and 'the analysis for years has been that we have been put upon, kind of victimology if you like' (Third Level Actor

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[86] These specifications offer a rationale for the subject and the specification is broken down into strands and elements. The elements are further divided into Learning Outcomes.

8). For teachers to be agents of change, the assemblage is proposing they renew, recharge, regenerate their relationships with students and subject and embrace a more collaborative identity whereby the teacher becomes the driver not the passenger (Policy Actor 14) of the curriculum. Agency is made when this change is resourced in space and time:

It's about professional conversations that require space and time. The research shows when you give them that, they run a mile with it.

(Policy Actor 11)

Teachers themselves suggested that the Junior Cycle had encouraged them to "come out of my comfort zone".(Teacher Actor 25), and that they had been "stuck in a rut" (Teacher Actor 29), "getting stale" (Teacher Actor 25) and "doing the same thing repeatedly" (Teacher Actor 29). This teacher explains that "there's definitely more choice and more scope to do different things and we work well together like that….Then we put everything on share pointers, share around the different ideas" (Teacher Actor 29). The pathway to a disruption of these "stale" experiences for teachers is an exploration of pedagogy – a reappraisal of how they are approaching their students and subject through the encounter of teaching, learning and assessment in the classroom. The new curriculum has particular ontological influences on the way a teacher now becomes. If, as a teacher you have existed in certain "sacred spaces" (Policy Actor 7) in playing out your role, and these are now changed beyond recognition, then you are faced with certain professional judgements about how you travel forward in that role.

The Irish teacher delivers the curriculum. You deliver it. You do actually. You deliver it and you deliver it to the system called the Leaving Cert. Whereas we want our teachers to be the reflective learning practitioner, who operates in a learning community.

(Policy Actor 16)

Teachers have said to us that it has been the first time for many years where they have had a real space and a resourced space and opportunity to have conversations about their perceptions of student learning.

(Policy Actor 6)

The Junior Cycle curriculum offered teachers a potential pathway to move from the closed system outlined above to a more open, dynamic system. What this meant was a relearning and renewing the craft of becoming a curriculum maker. As the actor above outlines, it had been a long time since teachers had the space to talk about students' learning. However, the process of moving teachers into this new role was a highly complex journey and it was perhaps the difficulty of understanding curriculum concepts and developing a literacy around this new curriculum that brought real challenges for teachers in the ontological space.

The study found that the complex process of communicating the new message and mindset of curriculum maker failed from the beginning which then generated a curriculum literacy dilemma. In no way am I suggesting total illiteracy here but rather that what was proposed offered a whole new lexicon of words about teaching, learning and assessment, words and concepts that had not been touched previously upon by leaders or teachers. Not only could the teachers or leaders not think the concepts or talk the language, but they could not see how they were to actually fit into this curriculum. The two most important elements of an open, complex system: communication and connectivity were absent.   How teachers fit into a curriculum in Ireland was through their subject and how this was examined, contrary to the proposed new curriculum. The process of moving teachers beyond the word "examination" and into the territory of "assessment" was an important strategy if the Junior Cycle was to make any headway:

I'd begun to work with people working in Assessment for Learning. That was beginning to take off, that whole sort of, building teacher's capacity and confidence and in many ways, I thought

that was a really good thing for Ireland to be involved in, because clearly, we were not going to

move the debate around Junior Cycle forward, when teachers, particularly at second level,

could not discuss assessment in a way without using the word examination.

(Policy Actor 9)

From data, teachers outlined that they had not been prepared for it in their undergraduate studies and they did not speak the language in their day to day conversations with each other. However, Policy Actor 13 was very clear that teachers do engage in assessment but rather it is a more subconscious approach:

That it's not the teachers are not engaged in assessment and that they're not engaged in

formative assessment. They are, but because they're not consciously engaged in it they are not

then engaging with the structures, the philosophy, the rubrics of that mode of assessment

sufficient to be able to amend it or adapt it and be responsive to learning situations as they

unfold. So, I think it would really wrong for me to communicate any sense that teachers are

not open to this. It's just the language is something they don't speak and if you don't have the

words then you can't actually explore the concept properly.

(Policy Actor 13)

The challenge of the new curriculum language was expressed across the different levels of the assemblage. The problem lay with 'semiotic flow' (Deleuze and Guattari, 2003) and it ensured teachers remained in the liminal space between the old way of curriculum delivery and the new approach to curriculum making. They had difficulty developing the agency that would help propel them towards thresholds to move them from this space. It was only when the language was decided and worked on, that the flow in the assemblage semiotics became more dynamic. From the following quote, it is clear that teachers were not the only ones struggling with semiotics:

So, getting an agreement on a list of key terms. We're going to use the term "learning

intention" because there is a bit of a history behind it. It stops the confusion with learning

outcomes which was coming into the language. So, learning intentions, learning outcomes,

success criteria and all the other associated language of assessment, we sat around a table

over in the Department for an afternoon and we thrashed it out. We got agreement and it was

agreed with the main partners, that this language would be used by all of us and there were

some terms and phrases that they might not be happy with, but we're going to stick to it.

(Policy Actor 5)

The data offered many examples where the actors were confused by what was meant by the concepts offered in the new curriculum. The following actor outlines a narrow understanding of English as communication. He agrees that English should touch the life of the student but doesn't understand how Shakespeare could open up the classroom to more than application to real life:

Again, I would say one of the issues with our English programme is that there hasn't been an

application of English to real life… You don't need a year doing Shakespeare or two years or

three years to be able to communicate with people quite well. In fact, it can be very limiting

because you are using up all your energy, engaging with something that really doesn't touch

you in any way.

(Policy Actor 16)

This response connected with a building picture of a very fragile curriculum culture when it comes to imaginative and professional practice. One macro actor remembered the previous curriculum reforms whereby teachers continued to teach the same content without being told to do so. She explains that teachers said "they had to do the 'Boy in the Striped Pyjamas'. Who said they had to do the Boy in the Striped Pyjamas?" (Policy Actor 13). What is of concern here are the three reasons that are offered by the macro actors for this self-organisation: intellectual laziness, lack of imagination and lack of willingness. What is highlighted is that curriculum culture in Ireland does not encourage 'the professional responsibility to be a curriculum designer' (Policy Actor 13). The result of this is the continuation of 'superficial change' and the lack of richness that the educational experience for students might be.

However, there are moments emerging in the data that demonstrate that teachers are finding footholds in this new space and are thriving in the experience that it is offering. The new specification have become lines of flight for English, business and science teachers who are embracing the new specifications – "science teachers with enquiry-based learning" (Third Level Actor 9) and business teachers have at last an updated specification which now belongs "in a different age" (Third Level Actor 9). Actor 9 believes "those were big moments". English teachers are becoming comfortable with their Learning Outcomes and have engaged in trying new texts and approaches (Teacher Actor 25). This leads to one of the most useful findings in the study for future curriculum development. Curriculum making comes about through engagement. This engagement in the assemblage for teachers happened when their subject specifications were rolled out. There was little engagement before this. With this knowledge about the behaviour of Irish teachers, subjects can act as springboards into further exploration of the curriculum space. It can encourage not just powerful knowledge for teachers but a way of becoming a teacher through crafting a curriculum to the needs of the students. There is an element of moving into a landscape that is not well-trodden and poses risks for the teacher. It is a role where the teacher now becomes the learner:

So, I think it's just, it's a learning curve, I think it's, you know. You're not going to go in and know exactly what is going to work and what's not going to work. You're going to tweak things all the time, but you know, definitely I would be very flexible.
(Teacher Actor 35)

7.2.2.2.3   A new professionalism in the role of the teacher

The macro actors were adamant that building a curriculum culture amongst leaders and teachers demanded structures that scaffold and support the learning that is needed. For more imaginative horizons to open, the macro agents offered the Junior Cycle for Teachers as a resource and personal time to teachers. Leaders were offered resource time also to manage

and lead the changes. Data highlighted the difficulty that faced teachers in taking on a wider professionalism.

1. Teacher training at post-primary had been only a nine-month induction but has now moved to a two-year master's course. Whilst there are significant concerns about the expense and time such a master's places on student teachers (Third Level Actor 12), they are educated in a broader range of knowledge, skills and pedagogy. However, unless the structures and system change to accommodate the wider understanding of curriculum that they have explored, they will set back into the culture of the system that favours examinations (Policy Actor 11).

2. Time – until recently teacher contracts of twenty-two hours allowed for no time within the school day to reflect or plan. All planning took place outside the school timetable. This had a detrimental effect on collaborative practice if it was suggested and facilitated the continuity of solo teacher planning. In September 2017 the Department of Education initiated a change to the contract of teachers by timetabling forty minutes pro rata planning time for every teacher:

   I think one significant thing that people don't see, I haven't seen much reference to yet, is the notion that the teacher contract has changed. Irish teachers are very unusual….Irish teacher contracts have relatively high periods of student-teacher contact time, but the overall teacher contract is short by comparison say to a teacher in many European countries. The teacher contract in those jurisdictions builds in a specific period of teacher-student contact time, but also other teacher professional time which is for school planning for curriculum development, for assessment and all of that work.
   (Policy Actor 2)

3. The need for ongoing CPD both within and without schools became an issue – for decades CPD had been restricted to teachers leaving schools for a day and then returning to apply what had been learnt. This approach has changed with the Junior Cycle reform. The JCT

has initiated whole school in-service and cluster days where teachers from different schools meet to discuss the subject specifications and this has been welcomed by everyone across the assemblage. This positive experience was also found in offering staff in-service from teachers within the school itself (Principal actor 25) who said that he "didn't sell the Junior Cycle" to teachers, but rather other teachers did.

The data offers a distinct desire for teacher professionalism to shift its boundaries and for teachers to take more agency around curriculum. There is a frustration that teachers do not see the holistic elements of the reform or have a deeper knowledge of the components of curriculum. Repeatedly in the data, frustration is voiced about how teachers only continue to concentrate on their subjects: They waited for the CPD to come before they'll take anything on board' (Teacher Actor 33). But one principal suggested that it is up to him to begin to scaffold curriculum learning for his teachers:

We haven't started, to be fair, in pointing them in the direction of research and say this is an article you can do……..But even instilling that culture and making that available to them.
(Principal Actor 25)

The mounting voice throughout the interviews was the need for a deep "onto-epistemological" understanding not only of the Junior Cycle curriculum itself, but its purposes, concepts and language. Whilst there was a great sensitivity within the assemblage to the work that teachers have done in a narrow structure and system, there is clear evidence that teacher professionalism is being projected towards a different space. The acknowledgement of new structures, resources and CPD to facilitate the changes were highlighted as vital but there was a concerned voice about their continuity if the boundaries of curriculum culture are to be stretched:

I think that a successful Junior Cycle in this school is going to be based on how competent the teachers teaching it are. It would be of massive importance for me that management bear that

in mind. That perhaps in two years' time when you know someone is coming straight out of college and coming in, they haven't had the level of CPD that we have had, and I think to continue it on, that needs to be there.

(Teacher Actor 24)

Ontologically, the Junior Cycle curriculum has offered both students and teachers a different space to run (Pinar et al., 2008). This space is now focussed on the runners involved and how they can accommodate this approach. What is proposed is a new agency where student and teacher become curriculum makers in a more collaborative world of education. This poses many difficult challenges as there is evidence from the data that they are both feeling stuck and directionless in a liminal space. The movement to the thresholds which offer a different way of becoming demand a professional judgement that will take time, training and space.

7.2.3   Axiology

The axiological values and dispositions emerging in this research have arisen not as a separate discussion but are embedded in the data on all components of the curriculum. In discussing the epistemology and ontology of the Junior Cycle, we saw actors focussing on the importance of inclusive education and wellbeing. We noted that engagement and participation were crucial in the educational experience, expansion and development was priority not delivery. The recurring values in the data are:

- The quality of relationships

- The teaching-learning encounter

- Desire for creativity and innovation

What this section of the plateau will offer is to advance two particular insights:

a. The richness of values that are operating through/in/within the curriculum.

b. The question of responsible responsiveness

The call for absolute clarity as to what it is we value and what the Junior Cycle should promote was evident in the data. The actors proposed a holistic and developmental curricular approach for every student:

Junior Cycle programs which should be more child development focused, stressing the social, emotional, physical and aesthetic developments of the child as well as cognitive development".
(Business Actor 4)

Alongside this desire, the data has consistently shown the continued wish that students would achieve to the best of their potential and promotes the value that all students could aspire to realise that potential. The Junior Cycle now offers the space and scope for this to occur. They acknowledged that 'teachers are in teaching to help kids to do their best' (Third Level Actor 8):

They have done their best and I don't care if they get a pass or if they get a distinction once it's their personal best. That they have achieved as high as they can.
(Teacher Actor 35)

Students also agree that one of the important values in the system was that they were being challenged to do their best and that this was supported by their teachers through the encounter in the classroom:

They just want to know how well you're doing. It's like they genuinely want to know your progress in class and maybe you should go back and revise somethings.
(Focus Group Actors 31)

This is a shift in understanding and challenges the work of the curriculum maker to engage in integrating a response to this holistic approach.

Discussion about values brings us into the terrain of socialisation (Biesta, 2015b) and the data corroborates that there is an understanding that education is nested within and influenced by the values of society:

Education is a social enterprise. I mean schools are social institutions. Education itself is a social institution……So, the schools don't need to necessarily mirror society but because they are embedded in society, they do need to move, and education needs to move.

(Management Agency Actor7)

The quotation above suggests that the school is nested within a particular society, which is nested in a global order and "that education is very much predetermined in the society which it works through" (Policy Actor 4). Each school is challenged to disturb the multiplicity of normative mindsets, behaviours and values. The Junior Cycle offers the 8 key principles as the foundational values of this curriculum and they have been accepted by all actors without any query or conflict. It was the only area of the curriculum that did not generate much discussion and debate and whilst such harmony is commendable, it also begs the question as to whether these values have been unpacked and deeply interrogated by the assemblage. There seems to be a sense from the various actors that these values were already in the system but as discussed, the previous system needed major disruption and interruption to the culture therein and thus the values and assumptions that lie beneath that culture. More engagement with the 8 Key Principles might begin a different conversation in schools around the axiological response to the new curriculum. The following actor voices her concern about values and their relationship to professionalism. She urged the application of values in a responsive way so that they can be lived out in the day to day life of the school and classroom:

The other thing that I think is really important is, a personal value for me would be the whole business of the professionalism of the teacher. The whole notion of what is professionalism and how is professionalism enacted. I suppose the things that everybody would have in common would be the notion of a set of skills that are very particular. The capacity to reflect on those skills and to apply them in a responsive way rather than in a mechanistic way and the autonomy to make decisions based on the reality. They would be the kind of principles that I would very definitely adhere to, but I also know the reality in schools is that teachers lived professionalism is different from espoused professionalism because of the shadow of the exams. (Policy Actor 13)

The ideological concepts suggested by the proposed principles and values of the new curriculum are the acquisition of a set of skills to help develop reflective practice and responsive decision making. The question of the quality of professionalism and the reality of the quality of such professionalism has been now foregrounded by the macro actors. These values and principles will have a huge influence on the self-organisation of the system as it moves through the different phases of reform. The values of the new Junior Cycle however as suggested by Policy Actor 13, may be threatened by the lurking presence of the Leaving Certificate exam. What is required is a responsible responsiveness and the use of professional judgement. As such it invites the agency of the whole assemblage to be reflective and vigilant.

7.2.3.2   *Responsible Responsiveness*

Correct implementation of these values placed huge responsibility on all involved in the design, development and enactment of the curriculum. There is an ethical warning offered by one of the actors about the need for precision in these aspirations:

Education reform, you are dealing with young people's lives and it's important that you don't screw up or screw up as little as possible because, they can have lifelong consequences.
(Business Actor 4)

There are two areas within the data that demonstrate that this ethical consideration needs much more attention.

1. The union's response to the new curriculum

2. The resourcing of this reform.

It is not in the remit of this thesis to go into the history as to why the unions, particularly the ASTI union, took the route that they did in relation to the Junior Cycle curriculum. The series of highly complex reasons and a multiplicity of events can only be acknowledged. However, it provides a useful signpost for the deep enculturation of assessment issues in the Irish landscape as evidenced in the quote above on the Australian system. We can internalise a stance and

forget why we have done so until we unsettle the system. What is of interest is that for many actors at the macro and meso levels, this industrial action was seen as immoral and consisted of bad educational judgement as the curriculum itself was not an industrial relations issue:

What I do regret is their loss of moral mission in this particular attack. They bolted on Junior Cycle resistance in a very contrived way on to other recession agendas……I think Junior Cycle should have been put on to a higher plane of action and a higher plane of consideration by the trade union rather than bolting it on as an IR issue which it absolutely was not. It's an educational issue pure and simple.

(Management Agency Actor 7)

Curriculum making for actors demands an ethical call and a responsible responsiveness because it is concerned with humanity and the world in which humanity nests. The history of the enactment of the Junior Cycle shows that this was not the response of some of the actors. In a very interesting development as the industrial action continued, many teachers transferred to the TUI and whole schools took this decision to move union:

A lot of the teachers are in the ASTI simply because they had to. When they started to lose money, some of them transferred over to the TUI, even though in a way there's an in-house rule within Congress that you don't poach members from another union. Poaching members is one thing. Providing refuge to refugees is another.

(Policy Actor 17)

This very interesting quote shows how the different unions had shared values about poaching but these values needed to be expanded to further ethical considerations during the reform. The image of refugees connotes the complex problems that existed for the actors.

In order to bring all these values of the Junior Cycle curriculum to realisation, this reform needed major resourcing in money, time and space. This perhaps might have been the area that the unions mainly concentrated on, but it got lost in other narratives about assessment. The findings show that resources were one of the major problems in enacting a curriculum. If the

assemblage valued a student-centred curriculum and they understood that this meant a seismic shift, then the resourcing of this change has ethical implications. It is not that resources were not pumped into the reform, the difficultly lay in the way these resources were managed. The framework – the what and the why – were clear as we shall see in the section on the framework of Junior Cycle, but the how these desires were to be resourced was unclear for a considerable time during the curriculum enactment.

And what we seem to do in so many areas of life in Ireland anyway, is to conceptualise a reform, to legislate for the reform and then only afterwards to begin to put the resources in place. Whereas all that needs to be done concurrently.
(Management agency Actor 23)

The changes proposed by the Junior Cycle demanded an epic resourced response. Perhaps beginning such a monumental change trajectory during a recession was not the best judgement and a different approach to offer schools their own autonomy in how to use the resources is suggested by the actors. However, whilst there was political will to bring about curricular reform, the data suggest there was not enough financial will in the initial years of change. In 2015, the ratio to GDP of government expenditure for education varied by more than one percent to two across the EU Member States. Overall, 18 of the 28 Member States recorded a ratio of 5% or more. At the lower end was Romania (3.1%), followed by Ireland (3.7%). There is a call from many of the meso and micro actors for more autonomous resourcing of the reform. The demand for time and space were specifically requested by leaders and teachers. We are reminded that Deleuze and Guattari (2013) included these vital elements into their definition of "becoming".[87] The assemblage will find becoming and emergence in curriculum reform very difficult if not impossible without a deeper understanding of how time plays out in the lives of schools, teachers and students.

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[87] Plateau 1.3.3 offers an understanding of these concepts.

The new ideology proposed by the Junior Cycle initiated a disturbance to the assemblage of lower secondary that had enormous repercussions. Knowledge was proposed as a multiplicity, the role of the student and teacher moved to becoming curriculum makers and this demanded agency, professionalism and autonomy. The values of the curriculum promoted a student-centred approach, accompanied by the holistic development of every student. This was new territory for many in the assemblage and a complexity of reasons extended the liminal space whereby the actors found it hard to make the transition and caught between different mindsets. It is the findings of this thesis that some actors have self-organised and entered new thresholds to embrace the new curriculum. These lines of flight will be discussed in the next plateau. However, others have in made little progress through the liminal space or have remained in the old Junior Certificate space giving total allegiance to the Leaving Certificate.

7.3 THE FRAMEWORK OF JUNIOR CYCLE

Framework for Junior Cycle 2015 (NCCA, 2015) depends on the *2012 Framework* (NCCA, 2012) to outline in detail its main educational philosophy but as a structure and framework, the three main elements of the curriculum: 8 Principles, 24 Statements of Learning and Eight Key Skills, did not change. It invites autonomy, agency and flexibility for schools to respond to the central needs of their students. It had to ensure that assessment and accountability did not continue to drive the curriculum. The framework is the material flow of curriculum. What arises from the middle of the data is a matrix of four components that are significant for understanding the assemblage's response to the framework or model of the Junior Cycle:
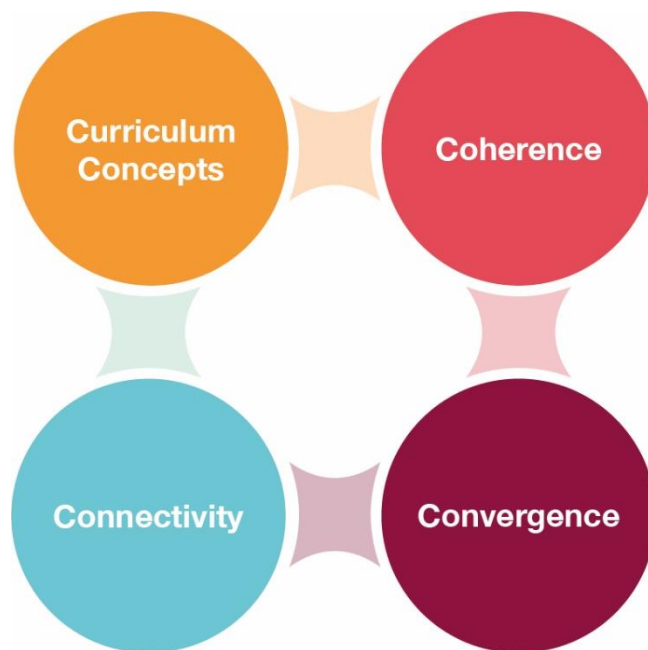
Figure 25: Four responses to the Junior Cycle Framework from the assemblage

7.3.1 Curriculum Concepts

For many of the actors in the assemblage, the new framework suggested that they must now become involved in the making of curriculum. It introduced the major curriculum concept of autonomy and suggested this offered schools and teachers a new agency. There was no longer a full scripted syllabus to tell schools and teachers what to do and they now had to become actively involved in a curriculum beyond their subject. Curriculum had evolved from product to process and it was not enough for a teacher to move from syllabus to specification but they must now navigate and understand the whole framework:

This is where it gets very interesting, because now you have the system and the state saying to the profession, we have confidence and trust in you to begin to develop not a free for all, not a blank space, off the templates developed by the NCAA, but certainly at putting more responsibility and more confidence in the teaching profession to take curriculum to a space where it is as relevant and as meaningful as possible for the learner.

(Policy Actor 11)

Whilst the framework might be offering schools and teachers autonomy, schools developed agency at a very slow and considered pace. They dressed themselves in caution and made very few radical changes as evidenced in the following insight from a principal:

But at the moment our curriculum doesn't look that different in terms of subjects. We have our Wellbeing. We have a short course in P.E. Other than that, nobody's been completely discommoded. But gradually you know there are so many possibilities down the line….that you'd like to think that people would be happy eventually doing 8 subjects for the exam and having all these experiences, but they wouldn't have been ready for it this year. Maybe not for a few years down the line, to be honest.

(Principal Actor 34)

The data showed that these two concepts, autonomy and agency also involved other concepts to be navigated such as trust, capacity, flexibility, collaboration, networking and all those new ideas related to teaching, learning and assessment. The framework does offer many possible routes to a broader educational experience and it is evident that there is an emerging hope that the Junior Cycle may prompt actors to reimagine curriculum. Nevertheless, whilst many of the actors embraced the reform, simultaneously, they have played it safe within their schools and are taking a more cautious reform trajectory.

The assemblage was aware of the enormous challenge this framework offered teachers and the challenges it posed. Data suggested that perhaps a study should have been carried out which mapped lower secondary schools' curriculum capacity. Student disposition had been well mapped by the longitudinal studies captured by Smyth (December 2011) but the same understanding was not processed about teacher disposition. The rationale as to the teachers' approach to curriculum needed greater depth of understanding before the reform began:

The biggest, most difficult piece to reform is the teaching, the actual art or process of teaching in the classroom. We are talking about a cultural change and we don't turn the titanic overnight and you don't change the cultural skills overnight. Getting teachers to change their classroom practices is probably the most difficult part of the reform.

(Policy Actor 22)

Whilst the model of curriculum offered huge potential for schools to take autonomy, the agency of schools was restricted due to a lack of capacity not only to understand the concepts suggested[88], but many were caught in a system whereby 'you are still dealing with the legacy of your old timetable, your existing teachers, your existing subjects, and redeployment issues' (Principal Actor 21). The new curriculum has to accommodate what is already in existence and bring it step by step to a renewed understanding. Deleuze and Guattari (2003) have explained that the rhizome may be part of the tree and its arborescent thinking. This understanding may help schools accommodate ruptures with patterns of thinking that are linear and deterministic and move to explore more expansive spaces. This step also depended on a more collaborative and professional learning community and this concept was not present for many of the schools.

It is really going to demand a professional community working together to look at who's coming in their gate. To look at what they believe their purposes are. To look at how we can deliver and to look at how do we know we have delivered. Those four pieces of conversation need to become a part of the staff room chat which is up to now been very transactional.
(Management Agency Actor 7)

The complexity of these concepts that emerged in the data offered interesting, unexpected difficulties. Whilst all in the assemblage welcome a culture of trust in the professionalism of teachers, this trust is self-organising into a culture that perhaps moves beyond what might have been envisaged. The data show that the schools encountered challenges where the agency of teachers becomes an individual focus and does not connect to a more collaborative culture in the school. The following principal outlines her feelings about the new concept of trust and the problem of agency:

The management of professional time. The haziness around that. The high trust and if I hear that again I'm going to scream, the high trust model which has been translated by the TUI into,

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[88] This was discussed in detail in Plateau 3 The Assemblage.

it's none of your business. That's a huge challenge and that absolutely has been translated into how dare you ask. The lack of time to meet as a staff because the thirty-three hours[89] has become twenty-three hours and a significant portion of that is taken up with things that must be done like parent-teacher meetings. And the time, even though on paper we have twenty-two hours plus ten hours, you're not allowed ask anything and you are not allowed put on whole school activities, according to the TUI.

(Actor 27)

Offering teacher's time to accommodate the new changes to the framework is an urgent necessity and in response they have been offered professional time for the first instance in their contracts. According to Priestley et al., agency must be one "where agency is seen as emerging from the interaction of individual 'capacity' with environing 'conditions' (Priestley et al., 2015, p.22). In other words, it is important for the teacher to connect with the world of the school to build capacity in their agency. If there is no flexibility in how this professional time is managed and it becomes an industrial relations concern, then it will be impossible to move from curriculum implementer to curriculum maker. Without flexibility from everybody, the collaborative conversations that will deepen the knowledge and understanding of the framework cannot happen. Actors within the assemblage would desire that trust does not become a destructive line of flight, particularly as it has the capacity to really open smoother spaces for teachers and schools.

At present, teachers have been projected way out of their comfort zone - "The curriculum's design is predicated on major change in every aspect of learning" (Third Level Actor 12). For the majority, the step by step or "big build" approach has been a wiser course of action. Another reason for reluctance is the changing nature of the model from the 2012 version to the

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[89] Teachers in post-primary schools in Ireland must offer thirty-three extra hours after school time which are called the "Croke Park" hours. Ten of these hours are given for teachers individual preparation. More of the hours go to parent-teacher meetings, subject department meetings and the rest are for the staff to meet together to plan for School Self Evaluation and teaching and learning. The reality is that there is little time left, for full staff collaboration. https://www.education.ie/en/Circulars-and-Forms/Active-Circulars/cl0048_2017.PDF

2015 framework and some early adaptors felt that they had made major changes but then the projected reform was altered. However, as the phased roll out of subjects continue, there is less angst being experienced by the teachers of these new specifications. Yet, the focus at times is still at the stage of trying to understand the changes in curriculum, with little hint of actual curriculum making:

I think I was quite lucky because I'd had so much CPD that the learning outcomes were driven home .
(Teacher Actor 26)

Whilst agency was experienced by this teacher in engaging with lots of CPD, the last thing this framework would wish is that it is "driven home" and there would be little agency on offer as a result. The macro actors believe that if only teachers trusted the framework, they will experience not only a more fulfilled and liberating professional experience, but better outcomes for the students. The findings show that teachers are adjusting and slowly self-organising to accommodate the concepts proposed by the framework. This will be discussed further below in the section on pedagogy.

7.3.2 Coherence

The curriculum model works as a coherent, holistic framework. The three components of principles, statements of learning and skills, interlink and work in relationship rather than as separate components and form the curriculum. Initially, schools and teachers did not see how the curriculum flowed and connected through these domains and they often concentrated on certain elements such as unpacking the 24 Statements of Learning without looking at the underpinning principles or the key skills.

They need to look at everything. Sometimes they're only looking at it for the Science lines or the French lines and they say that's nothing got to do with me. And trying to convince them that this is a holistic thing, that's I think more than anything else, they're beginning to get it.
(Principal Actor 25)

The voice above reminds us again that as long as teachers only think in terms of their subject, the Junior Cycle as a holistic framework will not emerge as a coherent model. The curriculum constantly disturbs the preconceived notions about teaching, learning and assessment and teachers are finding it hard to recognise where they are situated in this change. Yet when schools move beyond that space, into for example the Level Two opportunities, a new thinking and behaving begins to evolve and where the focus centres on the needs of the student:

Yeah, we have one student who needs the level 2 programme. The teachers now are beginning to understand. We've had about three or four meetings about this one child and people now understand that it is differentiation at its best really. It looks like it's a great outcome for this girl.
(Principal Actor 34)

The above example offers insights into the working of the three main components of curriculum – key principles of inclusion and integration into the mainstream classes; the willingness of teachers' skill in learning to learn about differentiation and collaborating on best practice, the flourishing of a student, all demonstrates that schools and teachers can move into the space where this curriculum finds coherence and clarity.

7.3.3   Connectivity

As schools began to see a coherence within the components of curriculum, they began to make connections with how to work the multi-layers of the framework. ***Appendix 10*** offers a table of some of the connections that the data offer as the teachers make curriculum. The following map **Figure 27** offers a quick glimpse at how some of these connections are working for one area - formative feedback.
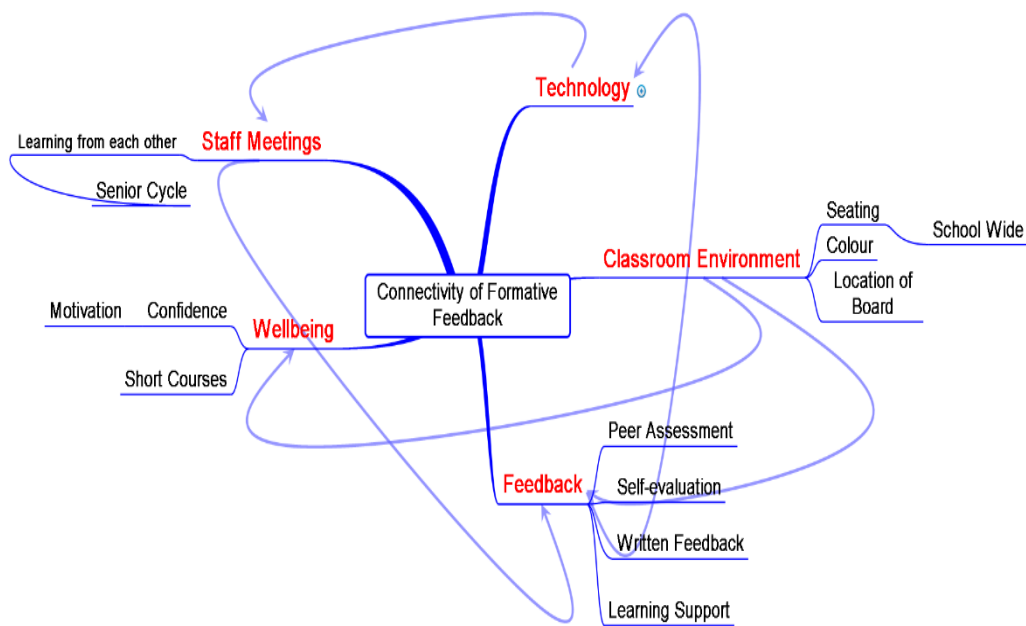
Figure 26 Map of the emerging connectivity occurring in Formative feedback practices

There is evidence that areas of the multiplicity of curriculum, the where, why, when, what and how of curriculum, have taken on a rhizomatic landscape. Molecular lines such as assessment, how the classroom was laid out, subjects, staff meetings and modes of communication are being deterritorialised and cracks have ruptured to allow new thinking and new practices to emerge. Teachers were making curriculum, not within their subjects alone, but connecting with the many elements of the curriculum and seeing inter and intra-relationships between them. What was becoming in lower secondary, was that the approaches to how these courses were being taught was different – there was an emerging pattern of a new onto-epistemological space.

7.3.4   Convergence

Within the data what was converging was an understanding of the holistic nature of the curriculum framework, the significance of relationships and how all this centres itself in the classroom:

Everything needs to be taken forward through the lens of "So What", so what difference does this make to classroom practice and I think quite a lot of our effort could be diverted towards that connection to classroom practice.

(Policy Actor 19)

There is clear evidence that through working with this curriculum model that the relationships right across the assemblage have changed to a more collaborative system. There is a recognition that the assemblage is a 'network' (Policy Actor 13) and that all partners within this network must work together. The threads of this network are all connected "like pulling 'Jenga'" (Policy Actor 13) and "moving to a space where you explicitly take more ownership of it" (Policy Actor 11). Working with/in/between this framework has opened up networks and relationships beyond the staffroom to building and sharing with other schools

X had brought hens and chickens into Naas. We went down. We had a look at that and we said that would be fantastic. I loved that idea of schools that had great ideas or other schools coming to us and say, oh we'd really like to do that. Or again tailoring it. Yes, I really like that, and our staff are very keen to be innovative and they were really keen to get involved in other things, other learning experiences.

(Principal Actor 28)

However, it is the voices of the teachers and students that really offer the changing behaviour and practice that is converging in the assemblage of lower secondary and despite all the setbacks and the initial hesitancy, there are clear signs that lines of flight are emerging and becoming. The Junior Cycle Framework has been a catalyst for new imagining and new behaviour. Lower secondary is beginning to self-organise and it is finding its best fit in the offer of a broader, non-linear and dynamic curriculum:

1\. What was the topic?

34\. It was Marketing. They invented a new chocolate bar. They were really into it and they got a lot out of it. Then I was the Dragon, you know. I was going to invest in one of the companies that came up with the best idea and all of that. So, but they were very

good, and it was just even the first group you know, I said to them, and what about your costs. This is how much you are charging for the bar and you said your costs are this. So, you are not making a profit. Then all the other groups, they learned very quickly from it, they had all kind of missed a step that they had to make sure they were making a profit. Whereas they knew they had to have the right price. It couldn't be too expensive but they kind of forgot the whole profit element you know.

The students and the teacher not only enjoyed this learning experience together but they both demonstrated agency and flexibility as they moved through the encounter. The methodology allowed the teacher to offer formative feedback in such a way that the students immediately learned and addressed the problem. The learning was scaffolded for the students and they were clear as to what was expected of them. The groups and presentations built social capital in the classroom and the concepts connected and were relevant for life in the twenty-first century. During the interview with students, they were very vocal about this class and remembered the importance of branding. The teacher also demonstrates reflective practice as she thinks about how it might work for other students but also how she would 'tweak' it and change it to suit their needs.

The findings relating to the Junior Cycle framework itself highlights that the two main emerging challenges in enacting this framework for the assemblage were autonomy and agency. The framework of Junior Cycle curriculum offered a process not a product and this change posed challenges for the assemblage in the curriculum concepts offered and in the understanding of the cohesion of the framework[90]. However, when the model was engaged with, it demonstrated the beginning of real agency as connections began to emerge. A clear movement towards collaborative practice is one of the biggest changes within the assemblages curriculum making. Initially there was a certain fragmentation of the framework but there are now patterns emerging that highlight that schools are beginning to make connections with the main

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[90] How the framework works in the processing of concepts is captured in **Appendix 11.**

curriculum concepts and are making considerable inroads to understanding the cohesion and alignment of all the elements of the model. Autonomy is beginning to be embraced and agency is emerging as it connects to the empowering intra and interrelationships that are happening.

7.4 Curriculum Pedagogy

The ideology and framework of the Junior Cycle supports a centrifugal emergence and for this to become a reality for lower secondary, the pedagogy that is practiced by the assemblage must also align with this purpose and process. The pedagogy chosen can either play the role of opening up the educational space for the student and teacher so that it becomes the space of the possible, the unpredictable, the not-yet-imagined or it can close it down. Junior Cycle pedagogy is mainly constructivist in its approach. It offers an active contextualised process of constructing knowledge, understanding, skills and values. It encourages dialogue and connection between the personal, the social and the world. It is the social flow of the curriculum in lower secondary education. This section of the plateau will explore how the Junior Cycle curriculum is becoming through its approach to teaching, assessment and learning. In relation to these three intra-connected areas of pedagogy the data offered three main concerns:

a. Why the classroom encounter should become an unpredictable learning process?

b. How has teaching, learning and assessment become a multiplicity?

c. Why collaborative practice encourages a strong educational emergence?

The underlying hope of Junior Cycle pedagogy was to breathe new life into the curriculum and offer a liberating experience for all in the assemblage.

7.4.1 Why the classroom encounter should become an unpredictable learning process?

To enter into the threshold of reappraisal, the data presented a highly complex move that the teacher must perform. They must let go of control. What I found in the narratives is

the understanding that the teacher has been an authoritarian figure, the one who controlled the knowledge, planning, the use of time, voice, activities, pedagogy, seating. They taught a particular discipline, used chalk and talk as methodology, worked from a particular textbook, produced notes and tried to their utmost to predict what was coming up in the examinations. How a teacher taught was highly deterministic and very often a good teacher was one who maintained discipline and controlled their classroom. This description does not preclude the deep care and compassion that teachers have shown students in their work or that some teachers have been highly creative in their approaches to their subject, however, this description of control offered is presented from the perspective of many actors at the different strata.

The Junior Cycle pedagogy wishes to open up the classroom to re-imagining how control is shared and how it offers the space to allow a response to the unpredictable. It wishes to create a space where the teacher and student can move beyond a minimalist response to the curriculum and seize the agency to discover a smoother landscape, to let go and become nomad. This shift is a fearsome landscape for both student and teacher because it is not an environment that either are used to inhabiting. There is risk to stepping into the unknown. However, the new curriculum is based on a trust in the professionalism of the teacher and in their ability to adapt and learn. It trusts that a teacher will use the learning outcomes as springboards to myriad possibilities and different opportunities. The findings demonstrate that many of the teachers are taking this leap into unknown territory and are discovering that when they let go of the control, they actually like it as evidenced in the following teacher's response to whether they were comfortable with the new approach to learning and teaching:

I wasn't at the start but now I'm kind of going, ah yeah, why not? I think it's the letting go of the control somewhat. It's the control, yeah. I think I would have always been quite diligent when it came to time keeping. My class would be planned out to every five minutes. I'd have a plan and I'd move through the class and this is what we will get at this point and it went through. Now you just have to have an outcome at the end of class and then you have to

figure out how they are going to achieve it. There may not necessarily be that tight plan that

you had. It's a bit looser.

(Teacher Actor 32)

What is interesting in this excerpt is the role of time in a classroom. The teacher's role was to control the use of time – moving every five minutes – right up to the end of the class whereby it was hoped that the aim would be successfully achieved. This is a cultural shift, a "different form of thinking that's required" (Third Level Actor 12). Letting go of control faces many challenges. The concern about a minimalist response from teachers appeared repeatedly in the data and was expressed through the frustration of one principal as she asked 'how do you change what teachers do in the classroom? Teacher X, how do you get her….she is in there with the textbook. The kids are saying this is boring….how do you get her to change? (Principal Actor 21). What the data suggests is a move from looking at content and textbooks to a more holistic approach where the intrinsic worth of knowledge becomes the catalyst for a broader and more unpredictable educational experience. According to the data, teaching now must 'engage' the students through more active methodologies, provoke their thinking and problem-solving capacity, render questions that elicit higher order thinking, but most importantly activate the students' own agency and responsibility for their own learning and development of potential:

I think a classroom where there's activity, a classroom where students are kind of confident

enough to take control, where it's been completely turned around in terms of whose where, the

teachers and the students. It's lovely to walk into. I mean the atmosphere is good. People are

happy. Happiness is really important you know, to see students happy in school.

(Principal Actor 34)

According to the actors, the pathway to this type of classroom occurs through the pedagogical choices of the teacher. The first choice that is suggested is to let go the control of the classroom learning trajectory and to allow the unexpected into that space.

I think it's less me talking and it's more them doing. Little things like when we're doing poetry

and I would obviously have to teach them the little techniques that are in each poem. But

instead of me going in and saying okay lads this is the poem we are looking at. There is the

metaphor. There is the simile. I now say, okay guys in your threes, you spot the techniques and

you tell me where they are. So, it's them telling me what's in the poem rather than me telling

them all the time.

(Teacher Actor 26)

Moving into this new space in the classroom brought about a re-structuring of the

timetable and the amount of time that made up a class period. The data offered the experience

of leaders grappling with the moving from forty-minute classes to sixty-minute classes to allow

for this more engaged and broadening of possibility. The complexity of this process is captured

by a principal as she offers the challenges to bringing about these changes:

We consulted with the student council, as to whether we should move to one-hour classes and

they weren't in favour of it at all. The key reason was they felt that extending the class from 40

minutes to a one-hour class didn't mean that teachers would change their methodologies. And

that for teachers who were basically teaching from the textbook, they would continue to do it

for an hour or they would tag on 20 minutes of work for the students. There were quite

traditional teaching methods that wouldn't change just because the structure of the timetable

had change.

(Principal Actor 21)

The beginning of this excerpt offers a different way of engaging in schools by consulting with the

students. The wisdom of their response highlights an important caveat in enacting curriculum

reform. Change needs to be thought through and the reforming landscape needs to be

scaffolded by CPD in order for real transformation to happen. The data are clear that for a

teacher to be a curriculum maker whose craft encourages a classroom which leads to a smoother

space, deep knowledge of their subject is a requirement and engagement in practices that make

that exploration possible. Actors spoke about the move towards agency and autonomy as 'a

tsunami effect' (Policy Actor 24) and 'overwhelming' (Teacher Actor 30) but they also described

'eureka moments' (Teacher Actor 33) and moments of 'epiphany' (Third Level Actor 8) when they realised what happens in the educational encounter when the space opens up not only for the students to learn, but also for themselves as teachers to be comfortable learning new things about their subject and to be open to the unpredictable:

I was in the computer room a couple of weeks ago for the microscope. They had to learn the research about the first microscope and find out all the parts about it. They were telling me all the information. So, it was good. That's the thing you genuinely find now, a lot of the stuff I don't know….and I am going why not.

(Teacher Actor 33)

The pedagogical shift in the new curriculum challenges teachers' mindset about how they control and manage the classroom. If everything is determined and planned, there is little space for the new and the unpredictable. The Junior Cycle suggests a different way of becoming teacher and student. This is not about the loss of control in a disciplinary way, but rather the control emerges between the student and teacher as both engage in teaching and learning. Repeatedly the data offer the wisdom that this can only be accomplished through robust CPD for teachers, leaders and students. Teachers are moving towards making new pedagogical choices and are finding that the experience is rewarding for themselves and the students. These choices make a difference in the lives of the students every day in the classroom:

When I think of all the good teachers that I have, teachers that like teach and we go in and actually learn something from like every class. I think that they actually interact with their students. Like, my old Irish teacher, my Geography teacher, my English teacher, they all like know everybody on a personal level. And I feel like they are teachers who teach the best.

(Focus Group Actor 31)

7.4.2 How has teaching and learning become a multiplicity?

One of the rich discoveries in the data is the value of the pedagogical approach that is chosen by the teacher for the curriculum to come alive in the classroom. What this multiplicity

of approach actually looks like is now further developed in this section. The following two excerpts are offered from the perspective of two students. One student offers an example of a good teaching experience during the preparation for the Junior Certificate exam and the other student describes their experience of a classroom-based assessment from the new Junior Cycle perspective:

My Business teacher is really good because she gets us to take down notes, but it always goes into your head because she explains it all really well. We've a test on each chapter like, when we're finished it and that kind of helps me to study for it.
(Focus Group Actor 36)

I don't particularly like speaking but I found that it helped me afterwards because I wasn't as afraid to maybe even just ask questions and I did mine with one of my friends. So, we were able to work on it together. So, I wasn't doing it on my own and I did it on landmarks and like the diversity between countries. It gives you more confidence in general, just in life because you will think back, right I have done a speech in front of my class; therefore, I can do it again. And I can just talk to other people now because if you can talk in front of a class, you can talk to some other person that you don't really know.
(Focus Group Actor 32)

The first quote from Actor 36 really appreciates the skill of the teacher in getting things 'into his head' and the methods for doing this remembering is the giving of notes, explaining in detail and testing at the end of the block of teaching. The craft of the teacher in getting students ready for the exam must be acknowledged, however the approach allows for little agency from the student who is dependent on the teacher for his learning. The other quote describes the classroom-based assessment in English, but it moves beyond the acquisition of knowledge alone and encourages the more affective side of learning – the student has been changed by the experience as he now asks questions in class and will bring this learning into his life and his future – 'I can do it again'. Horizons have opened up for him that might have remained closed through this classroom encounter. He can now talk to people he didn't talk to before and his confidence

has grown. His experience of a classroom-based assessment has moved beyond knowledge to more powerful knowledge about himself and his world.   This onto-epistemological shift suggested by the pedagogical approach to the classroom has now become a challenge for the actors in the assemblage.

Teachers have embraced a range of new approaches to learning and teaching such as active methodologies, the use of ICT, group work and particularly there was distinct evidence of a deep understanding of formative assessment practices. This emerging narrative has shifted the nature of learning which engages with the world and life, is relevant for the students, offers a new agency for teacher and student and builds skills, knowledge and understanding that responds to the holistic development of the student. These practices are underpinned by a deeper understanding of the theory of learning and assessment. One teacher reminisces when she was at college and she was introduced to a theory of learning but until now had not been able to apply it:

With Junior Certificate everything went back to the syllabus. So, when I was in college there was a massive emphasis on a constructivist approach. That we should take students prior knowledge and we should try to figure out what they know, to make them find what they should know rather than directing them. Whereas, we've moved to different ways of looking at a statement and deciding what experiment would you do? And how would you do it?.......And even when it comes to experiments, we're not set with designated experiments anymore. We can do what we like. It's going really, well.
(Teacher Actor 33)

Understanding the theories of learning, liberates the teacher in their approach to the classroom encounter and provides support in helping them get to where they want to go. One teacher explained that she had never known about formative assessment two years ago and "now you're trying to incorporate it into every lesson" (Teacher Actor 30). The main focus for the teachers were: learning intentions, success criteria, questioning, feedback and peer assessment. The methodologies chosen by the teacher were in response to the need to ensure

that formative assessment was taking place. This perception was not only voiced by teachers but students who stated that "They give you like two good things you did about let's say the work sheet or the homework and then they say one thing they want you to improve on. I think that really helps (Focus group Actor 32*).* What is emerging from the narrative is the movement towards a threshold of change in teaching, formative assessment and learning. Teachers are learning. They are learning new approaches and are beginning to embed these methodologies. One actor spoke about how teachers were moving beyond their subjects as discipline which he believed to be a "very military concept", to using "a very different kind of language" (Actor 8). This language is more professional, constructive and sees the student and teacher in 'relationships of learning' where the teacher begins with "look, we are here about sharing a love of English, a love of mathematics" (Policy Actor 16). This experience of liberation is expressed metaphorically by Policy Actor 17 when I asked him whether the Junior Cycle liberates the teacher:

Without question, it is the big liberator and educator, it's to think for yourself and then to be able to sort of say I have changed my mind, or this doesn't work anymore. The nearest in some respects that you can get to it is, it's not unlike cooking. You're all the time tasting and sampling to see is in fact what you were trying to cook coming out the way it is you know and if it's not it needs more salt or more liquid or too much liquid or whatever. So, you're all the time coming and going.
(Policy Actor 17)

This quote captures the multiplicity of movement, physically, emotionally, socially and mentally of the new role that the teacher takes on through the adaptation of the pedagogy suggested by the Junior Cycle. It proposes that the creative cook or teacher can employ a diversity of ingredients to bring about a dish. The Junior Cycle offers the teacher the liberty to employ the methods that best suit the needs of their students. In summary, the multiplicity of approaches to teaching and learning now suggested by the data are a move to a more dialogic relationship

in which both teacher and student are engaged in a discovery of knowledge, understanding, skills and values.

7.4.3   How has assessment become a multiplicity?

Assessment is integral to the process of teaching and learning and it is now difficult in the new curriculum at Junior Cycle to discuss it in isolation. There was a huge dis-ease in the assemblage about the changes to assessment however one actor explained that assessment is now 'a very different animal' (Policy Actor 22). What is clear is that assessment in the Junior Cycle offered a broader range of skills and abilities, beyond just pen and paper. There is a move to ensure that assessment alone does not drive the curriculum but creates a synergy with teaching and learning to safeguard that the purposes of education are promoted. Momentum has been built through the classroom-based assessment and the conversations taking place during the Subject Learning and Assessment Review meetings that follow. Despite teachers' reluctance to assess their own students, the classroom-based assessments have been overwhelmingly successful for all who were involved. This is borne out by the following narrative by different actors who were asked to give an example of where they saw the Junior Cycle working successfully – Policy Actor 7 suggested that "I think it has been a very powerful example of what is possible": Policy Actor 24, who added that "in the main the positives came out of CBA's certainly" and student 32 who affirmed that "it gave me a bit more confidence". The CBA's offer assessment at a point in time for the students but what seems to be emerging from the data is the building of collegiality for all who partook in the process. There was overwhelming agreement that they had been an enormous success for both teacher and student and there is a hope that "the momentum through classroom-based assessments starts to cascade into practice more generally" (Policy Actor 5).

Nevertheless, some actors had systemic concerns about the CBA's and believed that they are "potentially one of the things that will cause a big chaos in the system in five years' time" (Management Agency Actor 23). They foresee that they will be too many subjects to plan

for and too many Subject Learning and Assessment review meetings to schedule that there will be a timetabling log jam and "when all the CBA's collide, how are we going to manage that?" (Principal Actor 28). They speculated also about replacing the usual Christmas exams now that the CBA's are happening and the problem then that students might not have a formal examination since the end of first year (Principal Actor 28). Actors also pointed out the human element of students and teachers leaving things to the last minute (Policy Actor 18) and this will build up pressure not only in schools but on students and families also. This concern is also voiced by teachers who are anxious about whether all students will be able to manage the workload: "I think there is going to be a huge level of project work on them" (Teacher Actor 26). Another teacher was also concerned about quiet students who find the oral component so challenging and highlighted that this is a more public arena than a pen and paper exam and we need to consider this for future discussion. Despite these concerns, the CBA's have changed the approaches to teaching, assessment and learning in the classroom and assessment is now emerging as a process not a performance. In a discussion about whether assessment has changed in the new curriculum an actor summed up the radical innovation that has happened:

I think people are doing a disservice to the entire project when they say nothing much has changed. English is still English, and French is still French. The word in current use is flip. The whole educational enterprise at lower secondary has been flipped by this.
(Management Agency Actor 7)

The CBA's will need development to overcome some of the issues, but on the horizontal axis of the assemblage, they are clear lines of flight that have cut through the striated approach to assessment and present as a very positive innovation for the whole assemblage.

Within the data, and connected to the classroom-based assessment, the Subject Learning and Assessment Review (SLAR) meeting has brought about most momentum to change. What it offers is the threshold for professional dialogue and conversation that did not exist in the system. The experience for teachers has been rich, transforming and liberating.

First of all, it's amazing to see the collegiality that has come out of it. But when I saw teachers going into those SLARS, who would have been reserved, cynical, they came out of those SLARS going we should do this every week.

(Principal Actor 25)

The experiences of engaging in the SLAR have been 'real magic moments' (Policy Actor 18) and they are now viewed as a key or lever for teacher collaboration and the development of a professional community of practice in the school. The extent of this magic is explained by the following actor who also sees the SLAR as a 'real prize' because teachers now "have to sit down and talk about standards of learning" (Policy Actor 16). The SLAR meeting has moved pedagogical practice from the individual and private sphere, to a collaborative and semi-public arena of the school. In the system, the examination has always been the driver with backwash effects on teaching and learning. Now, the assemblage is viewing the SLAR as having its own positive washback on the system and changing the mindset that has been so dominant for so long. From the perspective of teachers, SLARS have offered a major learning curve in building their capacity in assessment practices and building professional identity. The NCCA have scaffolded this learning through offering models, descriptors and rubrics. What teachers are learning is not only reflection on their own professional practice in the classroom but how to work as a collaborative team to ensure that the educational experience for every student stretches boundaries and opens to the possible. Policy Actor 13 tells us that the 'door is broken' on the classroom and there is no going back:

So, you could hopefully see in the future real connections being made between the SLAR which is very focused on the learning outcomes for the child. You know that bit about, she's a tough marker and he's an easy marker. I'm actually going to have to learn am I the tough one? Am I the easy one? And I'm going to amend my practice or not, depending on what kind of person I am. So, I see it as, I think there's real potential. I think that's transformative. The doors of the classroom are broken open whether we like it or not. So, I can do the thing like the door might be broken but I ain't coming out. But the door is broken.

(Policy Actor 13)

The SLAR holds up a mirror to practice both on an individual and collective level that has never been experienced in lower secondary in Ireland.

The Assessment Task has made little impact on the assemblage and the ten per cent of the total component of the examination got barely a mention during all the interviews. There is a general feeling that the Assessment Task was inherited from the negotiations around assessment with the unions and a sense "there was something woolly and a lack of clarity" and 'over time if it went up to 30%, 40%, 50%, that might be a good thing (Principal Actor 21). This increase in percentage is not to be taken on by the State examinations but by teachers. There is the expectation that when teachers get their confidence in assessing students for the CBA that there will be a natural move to wanting to take more control of assessment. One student when asked how the Assessment Task had gone replied: "I was really prepared for it and it came very quickly, and it didn't feel like the Junior Cert" (Focus Group Actor 38). The assemblage's disinterest in this component hopefully will precipitate a quick exit or a re-imagining for the Assessment Task in the near future.

There is confusion for the actors when it comes to the state examination that is held for students in the third year of lower secondary. It remains 90% of the marks and yet the macro actors are telling the rest of the assemblage that this examination is no longer the driver that it used to be. Teachers grappled with understanding that not everything covered on the curriculum is to be examined in this state examination.

So, there are things students are going to be studying that are not going to be tested in the exam. Things that were large elements if you like of the old system…In terms of the exam itself then, there are things we are saying for example, that higher levels students have to study Shakespeare, have to study a full Shakespearean play but there may not be a question of Shakespeare in the paper every year.

(Policy Actor 19)

The Department of Education had been clear from the beginning that this state examination would not test the full range of skills and knowledge that were tested in the old Junior Certificate examination. This allows for "more time and space in the classroom for teaching rather than drilling for the examination" (Policy Actor 19). There was a favourable reaction to the first English terminal examination in June 2017 and the actors could see how the paper linked with the Learning Outcomes in the specifications(Policy Actor 2). This essential message is very hard for teachers to understand and initially when teachers and students looked at the exam paper they did not grasp this approach. They had forgotten that assessment now in lower secondary had widened to include the CBA's, Assessment Task and other areas of learning. Assessment was a multiplicity of components, a process which runs over the three years not just at the end of the cycle. The state examination was 90% of one assessment amongst many. Students themselves highlighted that the change in this new examination was predictability which "will make the exam a lot harder. You are going to have to know the whole course, in and out" (Focus Group Actor 36). The assemblage is beginning to see that yes indeed, assessment is "a very different animal" (Policy Actor 22).

At the time of the interviews, the Junior Cycle Profile of Achievement, the new report for the three years of Junior Cycle had not been created. However, many of the macro actors had been attending meetings to negotiate what the final document would look like and some were very excited that when parents, students and teachers saw the profile, they would understand that the Junior Cycle was a holistic approach to the education of students.

You see the Profile is seen to be a significant lever in that shift of perception….to develop that
skill to see the value in it, to see that spending time writing this commentary is really
important. It is part of the culture change.
(Policy Actor 5)

The value of feedback for the student is one of the main motivations for this new Profile of Achievement. It is the challenge to teachers to really think about the students' learning needs

and how they can help point them to further this learning through the report. There was general agreement that the previous reports from post-primary school did not serve the student or parent in their learning. This report now proposed offering students a more holistic profile of their learning over the three years of lower secondary and the effective feedback therein outlined a map of potential travel for the student in the future.

One of the surprises that rocked the assemblage was the lack of distinctions when the first English results were published. Up to that point many schools were used to getting many 'A's' and there was a dearth of 'Distinctions' in English. Initially, this was a real upset for the teachers, but one principal outlined how they had come to understand this as a school:

Now where are all the distinctions gone? And then it hit home. It's ninety to a hundred. I'm glad we're back in that place because this idea of the Irish Independent taking photographs of the twelve kids that got thirteen A's, you know you're missing the point. So, the fact that you know it would take a momentous effort to get that distinction, that's the way it should be. It should be something elusive, that is exceptional.

(Principal Actor 25)

This narrative brings home the shift in the approach to assessment for lower secondary. Teachers will not be defined by how many 'exceptionals' they get because that grade will be a rarity. Students will have achieved knowledge but also many other skills and components. The system will not be driven by grades alone and the achievements of the students will come, not through rote learning but through diligent focussed work. There was such hope in the data that the Junior Cycle Profile of Achievement would shift everyone's attitude to the real purposes of that stage of education. I think the following quote really captures the aspirations voiced about where the JCPA could possibly go in the future:

Wouldn't you love to think that, that the state exam grades is a preliminary thing that comes out in September and the real celebration at home where granny is rung is around the JCPA? Wouldn't you love to think that? That would be transformational. And God, I mean they noted

that he was a member of the student council and that they knew that, that meant that he had

leadership qualities or whatever. Wouldn't that be transformational?

(Principal Actor 28)

Assessment in the Junior Cycle is a multiplicity of components and all these connect back to the teaching and learning in the classroom. However, this time it is not a minimalist approach but rather assessment now offers an expansion t of what knowledge, understanding, skills and values are offered. The formative element of assessment has changed the classroom encounter. The passivity of students is now disappearing as they are challenged to think deeply, work hard and engage with their own agency in the learning process. The classroom can become holistically active as the drivers for education are the needs of the students not the examination alone. Assessment is no longer at the end of the process of teaching and learning but comes up through the middle. It connects teaching and learning in what the actors are beginning to see as emerging lines of flight, a becoming for lower secondary.

7.4.4   Why collaborative practice encourages a strong educational emergence?

The pedagogical practice that is proposed by the Junior Cycle Reform demands a collaborative and collegial shift throughout the assemblage. We noted above that the Junior Cycle Framework encourages teachers to move from autonomous individual practice - "teachers in Ireland have been working in their classrooms with their hands around their work so that nobody sees and won't even share resources with their colleagues"(Policy Actor 10) – to professional learning communities founded on collaborative and reflective practices. Andy Hargreaves spoke at a NCCA conference in 2017 and he suggested that the problem in the assemblage was the lack of social capital. Deleuze and Guattari would call this a problem with "social flow" (2003). To encourage social flow the structures of the Junior Cycle Framework in assessment, CPD, leadership and wellbeing all promote collaborative practice. The pedagogical practice that it promotes in the specifications and other areas of learning demand inter and

intra-action between teachers and teachers, students and teachers, students and students, parents and teachers and management with all the above. The policy actors are so adamant about this move, that they have reinforced the building of a professional learning community by offering a supporting framework called "Looking at our Schools 2016" (DES, 2016). This document promoting school self-evaluation, connected itself to the Junior Cycle curriculum under the domain of leading teaching and learning. The assemblage is supporting pedagogical change through a variety of policy approaches and this is captured by the following actor as he explains the connectivity of all these agendas:

I suppose there were wider strands of that policy going on. You can see the same thing in the school's self-evaluation. That's why there's collaborative review there. You have it in the Droichead[91] programme as well where you're putting people discussing their practice.

(Policy Actor 2)

The set of skills that collaborative practice demands are promoted for the teacher, student and the school as a community in the following possible experiences in **Table 12** below:

Table 12: Collaborative practice in the assemblage of lower secondary

Junior Cycle Curriculum		
Collaborative Practice		
Teachers	**Students**	**School**
Subject Department meetings	Groupwork/group methodologies	Whole school CPD
Subject Learning & Assessment Review	Classroom Based Assessment	Staff meetings
CPD Clusters/ Teachmeet/WhatsApp groups	Peer Assessment	School Self-evaluation committees
Team Teaching	Student council	Management teams
Classroom Visits -peer sharing	School exchanges	Networks with other schools
Action Research	Mentoring/leadership teams	Extra and co-curricular teams

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[91] The Droichead programme is a mentoring programme organised by the Teaching Council for new teachers beginning their careers in a school

From the table, the system is offering teachers the possibility of meeting with colleagues to discuss not only subject knowledge but to dialogue about how learning, assessment and teaching practices are working for each teacher.

The real magic moments in this are around teachers working together formally for the first time in the subject learning and assessment review meetings. ..that those meetings were going to be a major lever for teacher collaboration and the development of a professional community of practice in the school.
(Management Agency Actor 7)

Subject departments had already moved to more collaborative practice with the introduction of subject inspections but the type of agendas that focussed these meetings were definitely changing. The agendas had moved from housekeeping to teaching, assessment and learning (Teacher Actor 33). The pattern showed far more openness to professional discussions, sharing of resources and common tests and as one teacher explained "the doors are much more open now to coming in and out then they would have been previously. I would have never known what's going on inside X's classroom" (Teacher Actor 33). One actor highlighted that they have 'mini Subject Learning and Assessment Review meetings' (Teacher Actor 30) to discuss how the students fared out with common tests throughout the year. In all schools there is a pattern of the development of team teaching, mentoring and what one teacher called "cooperative teaching" in which the mentor seems to be learning as much as the student teacher: "I laugh every time I say I'm going to rob that idea" (Teacher Actor 30). The cluster meetings provided by the JCT were a particular eye opener for staff and the learning about standards and descriptors for a classroom-based assessment offered one English department a major lesson on the importance of continuing connections with colleagues outside their own school:

The video showed that they thought at the SLAR, that a student was exceptional . And he wasn't deemed exceptional by the majority of people who were looking at the training video.

(Principal Actor 28)

This excerpt highlights an encounter with difference at both levels of degree and kind[92]. Teachers learnt by collaborating and networking with teachers from other schools. This was difference in degree – they encountered "not sameness" - different cultures, thinking, methods etc.. But they also encountered an understanding of difference in kind – this played out in understanding that the process of what made a student exceptional was not about comparison but lies with the student offering something new and novel that had not been there before (Deleuze, 1994a). This encounter with difference allows the teacher to question, adjust and reflect on the normativity of their own practice. Difference disrupts preconceived ideas and the example above was a powerful learning experience for the teachers involved.

The data shows that there are many examples where the system is learning and the teacher's collaborative role with colleagues is now also been translated into a more dialogic and collaborative pedagogy in the classroom. It was evident from the student focus groups that many teachers were now engaging in group work which they found to be much more helpful in their learning (Teacher Actor 30) Initiating new methodologies such as group work and more collaborative and collective practices amongst teachers and students requires a set of skills and without this craft it can be very unproductive. The sharing of knowledge and skills with other teachers assists in that deeper understanding and collaborative practices in the classroom can move to the space of possibility rather than being an end product in itself.

From the classroom to the staff meeting, to the new middle and senior management teams, there are many spaces of possible encounters in collaborative practice which allows the social flow of the assemblage a more fluid, organic and dynamic emergence.

Yeah, but I think what we have to do is look at a new paradigm. A paradigm where people work collaboratively. Teachers with teachers. Teachers with students. Students with students

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[92] See Plateau 1.3.3.2 – definition of difference in Deleuzian and Guattarian terms.

and whereby doing this more and more we get better outcomes for the learners and more

professional satisfaction for ourselves. That to me is the challenge of the system

(Policy Actor 10)

The data drew attention to changing the preparation of new teachers to understand and partake in more collaborative practices if the new paradigm is to take effect. The cultural shift that is needed must begin with a quality initial teacher education (Policy Actor 11) but there was clear agreement that this was only the beginning of a process of lifelong learning for a teacher. The development of Cosán and TRex by the Teaching Council which promotes on-going research and professional development for teachers is just one of the supporting changes in the system. The Department of Education (Circular 0003/2018) has also introduced new structures for leadership in the school which begins by a collaborative audit by staff of the schools needs and builds a management team based on that collaborative process. Leadership has emerged as a vital component in the building of collaborative practice and distributed leadership is offered by the assemblage as the possible direction for the building of a professional learning community. As one actor explains "unless we have leadership at all levels in the system", there can be no real "understanding and taking it forward" (Actor 5). This is a vital insight and the day whereby the principal was the only leader in the school is gone. However, data also suggest that for many principals they were not leaders but managers and administrators due to the fact that there was no leadership structures in the organisation of the school:

In a very large school, a principal can very often be just bogged down in the day to day

administration of the place and not be in a position to dedicate the time that needs to be

dedicated to developing the teaching and learning aspect of the school.

(Management Agency Actor 23)

Leading teaching and learning is such a complex job that it was clear from the assemblage that everyone now had responsibility for leadership: "The absence of a good management and leadership structure in schools is one of the crucial things that I see. Everything hangs on that"

(Actor 10). Repeatedly, the data highlight the cultural shift necessary to engage in the new curriculum. It proposes that every teacher is a leader of teaching and learning in their own classroom but may also be encouraged to become part of a bigger team to promote the changes. There is now the emergence of an accountability and ownership piece for teachers and leaders and this connects itself back to the classroom. One actor described this very starkly when she spoke about offering new assessment and feedback practices:

When you are assessing your own students and when you are providing feedback to students on learning, there is nowhere to hide. So, there is an accountability and ownership piece that you can imagine some teachers are reluctant to take. I mean inspectors will talk about having conversations with teachers in primary or post primary, where teachers will say, that child has real difficulty reading. Well what exactly are you doing about it?

(Policy Actor 9)

The final sentence here places us back into the classroom and asks what is happening there to support every child's learning. Perhaps what the data offer is not the centrality of the student but the centrality of the classroom and the educational encounter that becomes in that space between the teacher and student. What pedagogical practices are you working with that promotes the educational development of all students? Junior Cycle Reform proposes a whole series of new pedagogies to open up possibilities, but this connects to the building of new structures of support throughout the assemblage. Pedagogical change cannot happen if teachers remain closed within their classrooms and continuing with the mindset that they occupy sacred space. What the assemblage now proposes is a new space where there is "nowhere to hide" (Policy Actor 9) and what has been private is now balanced alongside the public and what is individual also finds a balance with the collective. Pedagogical reform comes up through the middle of this shift and it is understandably a very fearful endeavour. Change, unpredictability and multiplicity are the territory of the pedagogical response to the Junior Cycle. It is a very different way of becoming for the actors in the assemblage.

7.5   (BE)GOING THOUGHTS

The three areas under consideration: Ideology, Framework and Pedagogy, have all built momentum to realize curricular change in the assemblage. Under the domain of ideology, there are clear indicators from the data that point to a changing understanding of knowledge as a centrifugal emergence. Ontologically, students and teachers are embracing new roles and relationships as curriculum makers and there is a definite shift to a merging of these two domains into an onto-epistemological intra-relationship. However, the axiological domain has had the least impact with serious questions about the assemblage's responsible responsiveness to the needs of the students at lower secondary. Thus, this diminishes the influence of ideology on the curriculum enactment and highlights an area that needs to be developed and revisited in the assemblage.

The Framework of Junior Cycle encourages the development of autonomy and agency and the three areas of 8 Key Principles, 24 Statements of Learning and Eight Key Skills have had positive acceptance throughout the system. Whilst there is a slow uptake to move from subjects to short courses and other areas of learning, there has been great momentum around the area of wellbeing and level 2 learning programmes. The area of assessment whilst initially a major source of conflict and tension, has offered very serious changes and lines of flight to learning and teaching. When this domain is nested within the pedagogical landscape, the findings offer a multitude of new approaches to curriculum making for teachers, leaders and students and the flourishing of a craft of new skills and knowledge, of new roles that were not ever imagined in the old system.

The domain of pedagogy is a highly influential area which has built its own path dependence and momentum throughout this reform. However, what I have learned from the voices of the actors in the assemblage is that pedagogy without ideology or a framework cannot sustain reform as it tries to make inroads against the molar lines of the Leaving Certificate exam.

Whilst thresholds are opening up to help teachers transition through the liminal space they find themselves within, these thresholds can close very swiftly if there is a lack of connection between theory and practice. Deleuze and Guattari have suggested that every assemblage works on semiotic, material and social flow. The three domains of curriculum; ideology, framework and pedagogy are the flow that makes curriculum realise its purposes. Ideology is the semiotic flow – the concepts and the language of curriculum. The actors have grappled with these, but they are beginning to find where they belong in this new terrain. The framework is the material flow – it outlines what matters for the curriculum in the assemblage and offers the challenge of professional judgement to work with the autonomy and agency proposed. Pedagogy is all about social flow. It is about the roles and relationships in the classroom. It moves from the private arena to the public and from individual practice to more collaborative learning communities. Each area is nested within the other, each offering an influence in trying to drive change and endeavouring to open up the educational possibilities that are not yet imagined. Curriculum has become a multiplicity, a rhizome.

Plateau 8 Discussion

8.1 (Be)coming Thoughts

This thesis has concerned itself with the question "**How is curriculum becoming in the assemblage of lower secondary education in Ireland?**" It has combined Complexity Theory with concepts from Deleuze and Guattari (2003) to develop a theoretical lens in which to explore the highly complex landscape of curriculum reform. In the previous plateaus, three important components that are essential to answering the question posed in the thesis were studied through the insights of academic literature and the voices of the actors within the assemblage.:

1. The assemblage of lower secondary education in Ireland.

2. The assemblage's purposes and desires for education.

3. The process of curriculum creation and making in the assemblage through the reform of the Junior Cycle curriculum.

Each of these three components entwine, combine and are nested within each other so that the findings within this thesis are a 'middle' of the inter and intra-relationship of all three. In the following discussion, whilst each of these areas will be discussed in terms of becoming and emergence, it is important to remember that they synergise and converge to bring about indications as to what is (be)coming to light for curriculum in the assemblage of lower secondary.

8.2 Discussion of the becoming of the assemblage

Exploration of the assemblage of lower secondary offered layers of complexity in its structure, culture, history, social relations and politics. Whilst remaining sensitive to these initial conditions, one important finding within the research to be discussed was the disposition of the assemblage to maintain a closed, fixed and static identity rather than engage in a process of dynamic expansion, flow and movement. This disposition offered certain patterns of behaviour

to thinking, social relations, language and expressions within the assemblage and encouraged the system to retain its equilibrium. The assemblage constantly (re)set itself back to the patterns of behaviour it had engaged previously and change to curriculum and the purpose of education faced many challenges and oppositions. In Deleuzian and Guattarian terms, the assemblage constantly desired to retain arborescent ways of operating and thinking, favouring fragmentation, repetition and reproduction of traditional and normative ways of doing and knowing. The data demonstrated that change within the assemblage could only happen, through a process of knowledge making in which all the domains of the assemblage - macro, meso, micro and nano – connected and communicated as open and nested systems. For the assemblage to change, it had to learn (Stoll et al., 2006). Without this connectivity and inter and intra-relationships across all domains of the assemblage, each component or domain remained closed to becoming and emergence. There was clear evidence that dialogue, discussion and debate generated a deeper knowledge and understanding of the complexity of the assemblage. Without the flow of feedback loops and communication, the assemblage could not become.

What was evident throughout this research was the lack of an "ecological literacy" (Bak, 1996, Capra, 1996), amongst the actors (See Plateau 6.4.1). Ecological literacy is an understanding of the whole of life, human, non-human and more-than-human, as webbed, connected and meshed. Understanding the assemblage as an ecosystem which is connected together as a complex adaptive system was at times a challenge for the actors in the assemblage. The lack of this ecological literacy slowed and at times restricted the flow of energy in the process of curriculum change and reform in the assemblage. For the reform to become and emerge, engagement at the individual and collective levels was encouraged in a process of re-arranging, re-patterning, and re-relating knowledge, social relations, behaviour and dispositions. How this process worked to encourage emergence and becoming for lower secondary education will be critically considered in the following discussion.

8.2.1 The Assemblage – fixed, static and linear.

8.2.1.1 *The Context and Structure of the Assemblage*

The assemblage of lower secondary education in Ireland has maintained a Newtonian and rationalist approach to thinking and knowledge and this has encouraged a closed, linear and static understanding of the assemblage's structure, relationships, knowledge and behaviour. This approach insists on breaking down the assemblage into separate parts and silos and refusing to understand lower secondary as an ecosystem of combined parts, all inter and intra-connecting in a continuous process of expansion and movement. As discussed in Plateau 3 on the assemblage, the four domains of the assemblage were dominated by an autocratic system of top-down management from the Department of Education which created a highly dependent and reliant system. Hargreaves and Shirley (2009) warn that such autocracy distracts us from what education should be about and retains a path to encouraging more political interference in education based on instrumentalism and measurement (p.24). What the data suggest is that a hierarchical system does not encourage rich intra and inter-actions amongst the components of the assemblage and welcomed a more distributive system. Rather, the best way to think of this would be to say that there should be structure within all domains of the assemblage, and more interaction between different structural components (Cilliers, 2000, p.26). Despite all efforts at consultation that the NCCA encouraged in the initial stages of reform and all the actors being represented at the consultation table in the NCCA, this consultation remained at the macro domain and didn't infiltrate the structures at meso, micro and nano levels. Data repeatedly stated that the teachers felt they were not consulted. This oversight encouraged the continuity of separation and fragmentation throughout the assemblage.

Communication between the actors of the assemblage was extremely poor. The hierarchical system promoted the importance of the macro consultation and whilst the NCCA did engage with pilot schools at the different levels and tried to develop an on-line network, this

seemed to further divide schools from what they perceived as the inner circle of knowledge (Plateau 3.2). It was perceived as more top-down prescription. Piloting a framework suggests that it is a finished product that just needs tweaking and not a process that is evolving. The whole assemblage should evolve with the process. Whilst the holistic approach of bringing curriculum change might take longer, the lesson might be learnt from the reform process that engaging parts or segments of the system may be even slower. At the micro level, gatekeepers for the teachers shut down feedback loops and demanded the continuance of closed structures. At the meso levels, leaders were caught between engaging with the macro actors and alienating their teaching staff. Students particularly received little communication about curriculum change from the macro actors but neither did they get it from the meso and micro actors with which they were in close proximity. It was evident from the data that students were the outliers of the system and the desire to make the assemblage student-centred was an aspiration that initially seemed like the eternal Sisyphian task of rolling the stone uphill and making little progress. It is not a new finding that the structure of the assemblage was fragmented (Gleeson, 2010, p.281), but through the lens of Complexity Theory this fragmentation is understood as the inability of the assemblage to appreciate the holistic and webbed connectivity of the whole system of lower secondary education. This lack of ecological understanding about the assemblage places a restraint on becoming. Becoming cannot emerge in a system that closes its boundaries and builds classified and restricted segments with little possibility of the connectivity of semiotics, material or social flows. Becoming happens in the middle of the interrelationships of all the domains. Whilst the assemblage will always be made up of a multiplicity of fragments, the problem lies in their closure to each other which impedes the process of reform. The data demonstrated that a disposition to such a closed structure encouraged the stagnated state that emerged in the assemblage.

8.2.1.2   *The Culture of the Assemblage*

As a closed system, the culture encouraged individualism and competitiveness, mindsets which were fed by the deterministic and instrumental nature of assessment. What was valued in the system was what was measurable. An important insight from the data came from understanding the history of this mindset. According to Complexity Theory in order for a system to change, it must learn. To learn, it must remember.   However, learning and remembering unfolds over the many components and individuals in the system (Davis and Sumara, 2008). Each domain has its own historical memory. Morin (1999) reminds us that there is often a predominance of fragmented learning in a system (p.1) and this was certainly a real concern for the assemblage. At the macro domain, the historical memory contained the learned refrain that no matter how they changed curriculum, if the approach to assessment was not changed, then nothing would change. What teachers remembered was that curriculum reform means no change despite all the promises. The last major curriculum changes were offered in 1989 and again in 2000, but essentially, what the actors are suggesting is that the system set itself back to the previous behaviour which was determined by both Junior Certificate and Leaving Certificate examinations. At the meso domain, leaders remember negotiating strikes and industrial relationships and despite all the angst, then nothing changed. This thinking within the assemblage needs to be challenged because lower secondary education has not remained as static as the historical memory is suggesting. Yes, the assemblage learning is fragmented as the different domains do not connect learning memory at one level to that of the whole system and the process of grasping assemblage learning within their context, their complex and their totality (Morin, 1999) is incomplete. For the assemblage to learn and self-organise, something different needed to happen that connected learning at all domains of the assemblage so that it could not return to default mode.

Thus, one of the important insights the study offered was that any system engaging in curriculum change needs to question whether it has the potential to learn as a total system.

Engagement is required with what the system has learnt in its previous attempts at change, what it is learning now and how it may open spaces for the yet unimagined in the future (Davis and Sumara, 2008). Learning in the assemblage of lower secondary was dominated by the transmission of a history that told a narrative of reform failure and inadequacy. Complexity Theory suggests that to change such learning there needs to be disruption and interruption in this learning so that there is a movement from order to complexity and the edge of chaos. It is in this movement between order and chaos that self-organisation of the assemblage can occur but it must engage with every level of the assemblage so that change emerges from the ability of the group to evolve from within. Reform of the curriculum emerges as the assemblage works together to bring about their educational purposes and desires. Mason (2008) argues that for change to occur in education there must be intervention at every level and at every angle so that sufficient momentum is generated in a particular direction to displace the inertial momentum of the current disposition and to create a dominant inertial momentum for the desired policy. Piecemeal change is simply ineffective.

8.2.1.3   *Consultation is not inclusion*

Engagement at every domain did not happen in the process of curriculum reform at lower secondary. Complexity Theory offers the insight that the closer one moves towards the edge of chaos, the more creative, open-ended, imaginative, diverse, and rich are the behaviours, ideas and practices of individuals and organisations, and the greater is the connectivity, networking and information sharing (content and rate of flow) between participants (Stacey et al., 2000, p.146). This can only happen when the system engages in and is characterised by highly non-linear phenomena. In the study of the assemblage, there is evidence that the macro domain engaged with numerous trajectories of national and global insights, themselves highly non-linear phenomena, but again this remained at the macro domain. These trajectories built a tapestry of narratives about the reality of the educational experience of lower secondary education in Ireland. This tapestry disrupted and interrupted the thinking of the macro actors

and elements such as the Longitudinal Study (Smyth, 2009) and the 2009 PISA results did filter down into the meso and micro domains but without continued rich and dynamic communication loops, it failed in bringing it to the edge of chaos so that something new could be learnt.

When the mirror of the educational experience of students was held up to the teachers, they were moved and concerned, but despite this evidence little changed and it did little to interrupt or disturb the practices that were set and fixed. The interruption only came in the form of the Junior Cycle Framework. No matter what might be said about Minister Quinn's decision to take away the examination element of the Junior Cycle in 2012, his announcement certainly brought turbulence throughout the whole system so that it could never reset on transmission of previous learnt behaviour. What he announced was a seismic shift in curriculum reform and the proposed changes filtered very quickly right into the classroom. Something novel had been born and the assemblage which had embraced conservatism for so long, learnt slowly that there was no return to a previous setting or order.

The data offered varying bifurcation points at which the macro domain of the assemblage made monumental decisions. These may be described as potential 'jumps' within the system to new ways of operating. These 'jumps' in the assemblage for the most part operated at the macro domain. The following **Figure 28** offers some of the bifurcation points experienced by the macro actors of the assemblage:
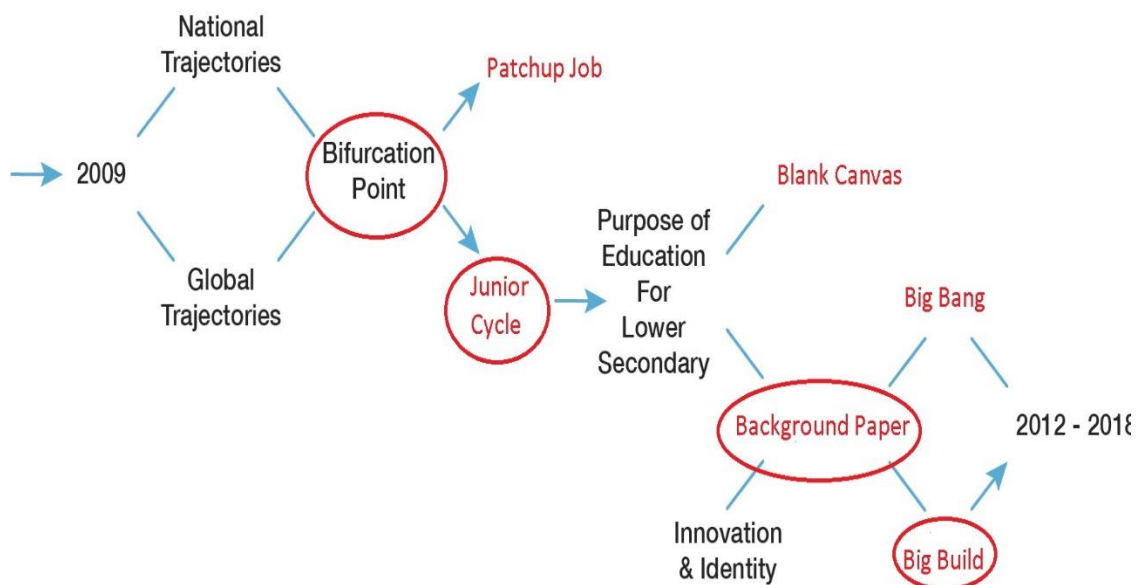
Figure 27 Bifurcation points in the process of curriculum reform in lower secondary in Ireland

The first bifurcation point was experienced as a developing narrative on the national and global fronts about the type of educational experience that was on offer in lower secondary education and the evidence that it was out of synchronization with international practice. The choice for the assemblage was to offer a patch up job or a full overhaul of curriculum. The choice of the full overhaul was encouraged by the previous reforms which had brought about little change. Each bifurcation point offered possibilities for the assemblage and whilst the background document "Innovation and Identity" (NCCA, 2010)[93] was an excellent outline of the purposes for education at lower secondary, and all domains of the assemblage were represented at the NCCA table, the data shows that consultation with all stakeholders at all domains of the assemblage needed to take place from the moment the reality about lower secondary began to emerge. Choices made at the bifurcation points did not include the voices of the micro and nano domains of the assemblage and the lack of this dialogue ensured the continued disabling of the micro and nano domains. Knowledge and sense making as a result remain limited, disjointed and

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[93] This document was discussed in Plateau 3.3.1

precipitated the sense of exclusion. What is clear from the study is that consultation is not inclusion. For inclusion to happen, actors must be engaged with/in dialogue from the start and not be represented at a level that does not offer thresholds for positive communication and rich feedback. Biesta (2013, p.3) explains that education is about establishing opportunities for dialogue with what or who is other. And a dialogue, unlike a contest, is not about winning and losing but about ways of relating in which justice can be done to all who take part. The macro level of the assemblage engaged in at least three major bifurcation points in the process of curriculum reform without real dialogue and engagement with the other actors. However, to add to the complexity, the data also noted that teachers would not engage in curriculum dialogue unless it was related to their own subject. The complexity lay in a pattern of continued closure by the actors to connecting with other domains of the assemblage. Stacey (1996) offers three vitally important parameters that drive complex adaptive systems: "the rate of information flow through the system, the richness of connectivity between agents in the system, and the level of diversity within and between the schemas of the agents" (p. 99). We know that information flow throughout the system was poor, there was little connectivity between the different agents and an anomaly within the Irish system was that for the most part nearly all the twenty-five stakeholders at the NCCA table were actually teachers at one time or other. The issue of diversity within and between the agents was thus also absent. The assemblage continued to operate as a closed system and change was stunted and slowed.

Complexity also lay in promoting fixed and static identities for the actors in the assemblage. There was little agency within the assemblage structures. Priestley et al (2015) support the understanding that agency isn't about individual capacity alone but that "the achievement of agency also depends on existing cultures of thinking, working and doing and on wider structural issues" (p. 35). Given that what mattered most to the assemblage lay in the promotion of two examinations, then it is not surprising that the identities of student, teacher and leader responded to this context by the playing out of determined and linear roles. Actors

were trained to be compliant, dependent and agency or autonomy was not encouraged within the assigned roles. Teachers were deliverers of a curriculum that was a product prepared for them and handed down to be taught and transmitted. The function of a teacher was to prepare students for the examinations to come in the future and the role of the student was to achieve the highest grades they could. With little distributive leadership across the assemblage, leaders often engaged in the role of manager. The actors perceived that these identities were promoted at teacher training and encouraged the segmentation of knowledge into subject silos and the understanding of professional often lacked creativity and innovation in their approach to the curriculum. Curriculum was a product and not a process to engage in/within and agency was not part of the role agenda.

8.2.1.4 *The Liminal State of the Assemblage*

The liminal state of the assemblage was the passage of transition that lower secondary education was experiencing between the approach to curriculum as a product and moving to an understanding of curriculum as a process. The feelings of stagnation was created by restrictions and limitations to the semiotic, material and social flow of the assemblage. Perhaps the common pattern within each flow is a problem of literacy and understanding. In the discussion above, the idea of an ecological literacy was connected to an understanding of the webbed structure of the assemblage and how emergence occurs through an openness to the inter and intra-relationships between the different domains of the assemblage. This lack of ecological literacy impacted on the social flow, on the structures, cultures and social relationships within the assemblage. Aside from this, the data also offered the need to improve the semiotic flow of the assemblage through a greater literacy in curriculum concepts. What the Junior Cycle curriculum proposed for leaders, teachers and students was a different skill set, a different way of thinking, behaving and relating. If the purpose of education and thus the curriculum was no longer terminal examination orientated, then new concepts, ideas and a language had to be negotiated. It was an ontological and epistemological shift and moved the student to the centre

not the examination. It suggested the teacher was the agent of change and demanded high levels of professionalism and technical expertise. In order to critically engage with this new policy, teachers were compelled to make sense of new concepts. These included new constructivist approaches to learning which was very different from the transmission approach that they had engaged with over their careers. Assessment now proposed a dual orientation, both formative and summative which encouraged new teaching methodologies to be engaged. New professional relationships with students and colleagues and more responsibility for their holistic development was now encouraged. This was such a transformational proposal that the assemblage stuttered. Actors did not have the language or have total understanding of these concepts. The data offer the evidence that the majority of actors had little or partial knowledge of the policy and were often confused about its meaning.

The Junior Cycle framework as a document locates itself within the material flow of the assemblage. The complexity adding to the difficulty of transition was the continued culture of disinterest and cynical views around engaging in reading documents and academic papers on education and curriculum change. There was also a mindset which showed an outright lack of interest in learning the theoretical rationale for the changes despite the radical ideological changes at every level of curriculum development. Teachers gave responsibility to the unions to keep them informed on the new policy but as discussed, the unions had their own agendas and the data suggest that the ASTI engaged in the circulation of falsities and untruths and closed the gateways of communication. Without this engagement with material flow, critical encounter with such concepts as teachers as agents of change and the move to a student-centred orientation were not challenged and went undisputed throughout the reform.

The idea that teachers are not part of a learning profession is one that has emerged within the data. Actors in all domains acknowledge the work of teachers as individuals but the problem they perceived was their ability to emerge as a professional learning community who

understand the complexity of curriculum and reform. Data suggest that this intellectual poverty allows the collective of teachers to be manipulated and controlled. Despite the best efforts of the JCT, the unwillingness and counterculture to expanding concepts and language from teachers perpetuated a closed and inflexible mindset. The actors were caught in transition, caught between the desire for change and the iron clad grip on changing nothing. The challenges and constraints to reform the curriculum at lower secondary creating an extended liminal space in the assemblage as discussed can be summarised by the following map:
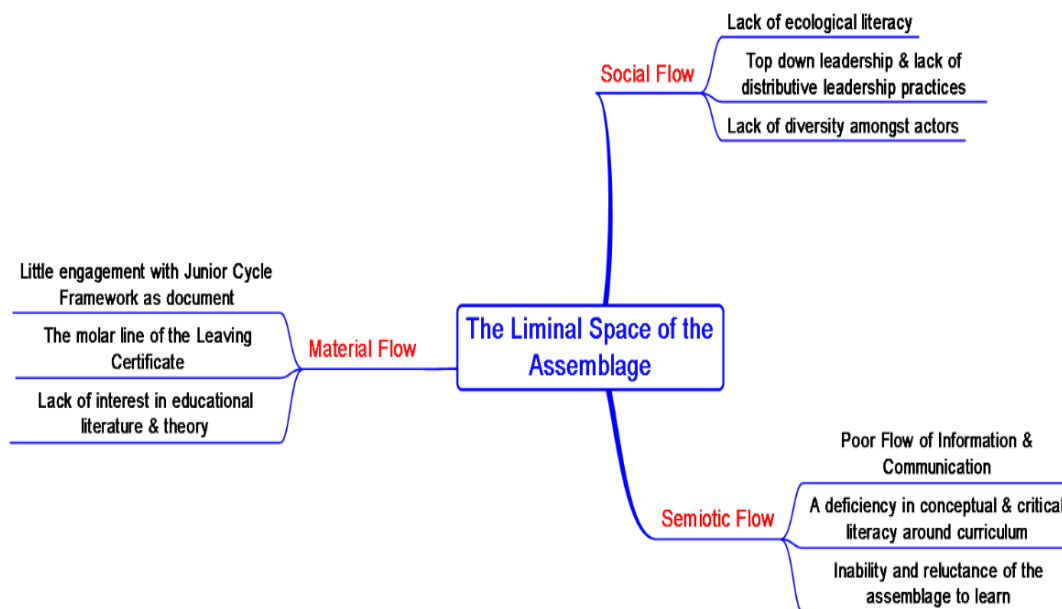
Figure 28 The Liminal Space of the Assemblage

a. Social Flow:

- A lack of ecological literacy about how the assemblage of lower secondary operates as a webbed and connected system.

- The lack of distributive leadership and the promotion of autocracy and top-down management style constrained the agency and autonomy of all actors in the system.

- Lack of the level of diversity within and between the different agents of the assemblage in the process of curriculum reform.

b. Semiotic Flow

- Poor flow of information and communication throughout the assemblage.
- - A deficiency in conceptual and critical literacy around curriculum and change.
- - Inability and reluctance of the assemblage to learn.

c. Material Flow

- The molar line of the Leaving and Junior Certificate encouraged the maintenance of a linear, deterministic and static mindsets in approaches to structure, culture, social relationships, knowledge and education.
- Little engagement with the Junior Cycle Framework as a document
- Lack of interest in educational literature and theory

Each of the above points, paints a highly complex landscape that emerged during the reform. For many, instead of the transition being a time of high creativity and the assemblage moving to the edge of chaos, many of the actors became stagnated within the process of passage. However, whilst data mapped the molar and molecular lines, the semiotic, social and material flows of the assemblage, it also mapped the expansion of these lines and the emergence of a best fit for the assemblage, through lines of flight. These lines of flight opened up thresholds to spaces of the as-yet-imagined for actors who took the agency that this liminal state offered. We will now turn to discuss the possible lines of flight that were evident in the structure of the assemblage despite the challenges, constraints and mindsets that wished it to remain as it was – unchanged.

8.2.2 The Assemblage – lines of flight and emergence

What novel and new thing occurred within the assemblage to disrupt and interrupt its momentum as a closed system? Complexity Theory offers the insight that when we seek to change human systems, our tendency is often to try and "restructure" and "design" systems from the top down. Complexity Theory suggests rather understanding the local rules that we would need to change that would then drive change in shape and dynamics. This would also encourage us to understand in particular those rules that will keep the system on the "edge of chaos" where it is most able to adapt, learn and grow. The research offers three significant lines of flight which ruptured the molar and molecular lines of the assemblage.

1. Structural, cultural and political changes to the assemblage which opened possibilities and agency for all actors.

2. The evolution of collaborative practice within and between the levels of the assemblage.

3. An expansion of the conceptual understanding about curriculum and pedagogy.

These lines of flight brought a new perspective and energy to the assemblage and what became very obvious in mapping this deterritorialization was that small changes can make a significant impact within the system. Changes to the striated space of the assemblage and to the rules that order it, can often bring unexpected, unplanned and unpredictable events that allow the emergence and becoming of curriculum and education.

8.2.2.1 *Changing Structures, Culture and Power*

The challenge for the assemblage was to find thresholds and gateways through the closed and fixed boundaries of each domain so that the actors could experience their own agency through their engagement and connectivity with others. The macro actors chose the offering of **autonomy** as a way to disrupt and change the disposition of the assemblage. For strong emergence to occur, the assemblage structures needed to be flipped from a top-down

autocracy to a bottom-up democracy and the encouragement of a more distributive type of leadership to evolve. Hargreaves and Shirley (2009, p.31) suggest that the pathways of autocracy and technocracy limit professional growth and responsibility. This change of structure needed to offer autonomy and responsibility, rather than accountability, to the meso, micro and nano domains of the assemblage whilst also encouraging a "steering" (Hargreaves and Shirley, 2009), from the top or macro domains. It is important here to acknowledge that this steering role is vital as schools need the assistance of well thought out policy and the goals and directions that it can offer. Expecting that bottom-up policy innovation alone without some steering could provide a curriculum might engender chaos rather than the edge of chaos. Actors in the meso and micro domains might not have the capacity to question the deep assumptions and beliefs about educational purpose and schooling (MacDonald, 2003). Thrift (2000) highlights the difficult process that this offers: "For to see what is in front of our eyes requires thinking and thinking about thinking in different ways" (p.216). The question for the reformers was how to assist in getting the assemblage to think and behave in a different way. The Junior Cycle Framework suggested structural changes that were not a total flip of structure but which had the potential to impact on the contextual, environmental and cognitive flow of the assemblage. It was more a "coming up through the middle" approach.

The offering of autonomy to schools to make curriculum was a dramatic structural change to the way the assemblage worked. It was a vote of trust from the macro actors to the schools, teachers and students, that they have the craft to expand knowledge, skills, understanding and values. It offered an empowerment and agency to voices that had been silent in the assemblage in the area of curriculum making. However, bringing this concept of autonomy to life for schools needed resourcing and time. They set up a new organisation called the "Junior Cycle for Teachers" with the remit to develop and facilitate in-service for leaders and teachers in the hope that they would learn and buy into the new vision and purpose for education in lower secondary. This new structure was innovative in the way policy was to be

communicated to teachers. It opened up the possibility of helping schools imagine what

autonomy might look like within their context and supported schools at an individual and

collective level. The structures they engaged in, such as whole-school days, cluster meetings

and the growth of a contingent of associates from schools and classrooms, promoted a holistic

approach to change that had not been experienced in previous reforms. This new continual

professional development structure was viewed as a powerful line of flight for rethinking

education in the assemblage.

However, changing organisational structures within the assemblage was far more

complex and whilst offering a novel approach to in-service, it did not embrace more significant

aspects of change. This limitation was clearly messaged as the industrial dispute affected the

work momentum of the JCT. Teachers from the ASTI union were mandated not to engage with

any teacher in-service offered or the invitation to autonomy. A key insight from the study was

that new learning in curriculum reform cannot be restricted to in-service but belongs to a

network of approaches. More strategic thinking and planning around how to change culture

within the specific context and environment may open a threshold to change. This insight was

evidenced in the data through the effect of offering teachers professional time for collaborative

and individual work and practice. This was a change that was hard won by the unions for

teachers and should have been available from the beginning of the reform. In-service without

time and space restricts reform. It initiated a bottom-up cultural change that opened up a

significant line of flight. It allowed teachers to engage in conversations and dialogue around the

reform that unfastened avenues of new understandings and experiences and assisted in

collaborative planning that broke the isolation of the teacher (Stoll et al., 2006). What the

assemblage learnt was that agency is ecological, not something people can have but something

people can do or achieve:

> Actors always act by means of their environment rather than simply in their
> environment … the achievement of agency will always result in the interplay of

individual efforts, available resources and contextual and structural factors as they come together in particular and, in a sense, always unique situations (Biesta & Tedder, 2007, p. 137).

The evolving understanding that space and time for collaboration transforms the cultural disposition was evidenced in every domain of the assemblage. Initially, collaboration took place within the different domains of the assemblage but over the six years of this research, this connectivity has extended to promote inter and intra relationships between the domains. Changes in the rules in local domains perpetuates change throughout the assemblage. Collaboration began to emerge at macro level as the different agencies began to build a policy around the new framework. The DES worked closely with the NCCA, SEC, JCT and a myriad of others in order to enact the curriculum. What was learnt quickly was that without dialogue, on-going conversations and continuous meetings, there would be little momentum built. Actors at the meso levels, who were now the leaders of learning and teaching, began to build collaborative networks as they met with the JCT at various fraught meetings (Plateau 3.2.2). Collaboration came about through a need to understand the language of the new curriculum and what it meant for each individual school. Large, small, special schools, all debated and argued about how to make this framework successful. Teachers who could engage with the framework, began to develop their own in-school networks through the Subject Learning and Assessment Review meetings, in-house in-service, but also through Teachmeet and on-line networks. Data evidenced that these collaborative networks generated momentum around the understanding of the language, concepts and practices that the reform was offering. The study presented the need for a different approach in the future to how curriculum is designed, developed and enacted. A more ecological role as curriculum creator would respond to the complexity of curriculum reform and encourage a widening and expansion of approaches to change.

Alongside structural and cultural changes, the data expressed the need for political structures to also change within the assemblage. The conceptual idea of leadership as a more distributive attribute throughout the assemblage has developed during this research. The Framework encouraged a shift in power and how power was negotiated in the assemblage. The DES has, on the one hand promoted School Self-Evaluation, a new middle management system and the addition of second and third deputy principals to partake in a senior management teams. On the other hand, it continues to manage the assemblage through its very prescriptive circular letters. Circular letter 0003/2018, a highly complex document called "Leadership and Management in Post-Primary Schools", outlines the Department's vision for leadership. However, the structures they use and the expectation of compliance does not suggest a "steering" role but rather a continuation of autocracy. The DES is in a liminal state about their vision of leadership. Biesta argues that one of the important constituents of an educational relationship is trust without ground. He explains that

> Trust is about what is incalculable. Trust structurally and not accidentally entails a moment of risk (2006b, p.25).

Whilst the offering of autonomy, the support of the JCT and professional time and space encouraged lines of flight to a different becoming for leadership and actor agency, there is much work to be done on taking the risk with the relationships within the assemblage. What possibilities might emerge if the structures alone were based on trust without ground? As the different domains of the assemblage self-organised into collaborative networks, this momentum began to build to a new and novel way of operating. The silos were being dismantled and a more connected assemblage began to emerge. The framework was becoming through engagement, dialogue and forthright honesty from all the actors. Fullan (2010) suggests that if you want to change any relationship you have to behave your way into it: "Trust comes after good experiences" (p.97) but the initial years of reform were not a good experience for many. Nevertheless, autonomy encouraged a more democratic approach to change as every teacher

was requested to be part of the process of choosing a curriculum for the needs of the students in each school. Some teachers welcomed the opportunity to act. Creativity and innovation emerged in the development of new short courses, different approaches to assessment both formative and summative, innovative modules on wellbeing, re-appraisal of transitions, subjects and resources. The lines of flight can be traced in the reduction of subjects, the deepening of knowledge and skills but also the liberation from individual competitiveness that was encouraged in the culture of the assemblage. What was different was the building of authentic collaborative communities rather than the more contrived committees in response to top-down agendas.

8.2.2.2 *Expansion of Conceptual Sense-Making*

The building of collaboration pushed open the threshold for greater understanding and sense-making in the assemblage. There was notable evidence within the data that actors were moving away from "policy speak" and using language they didn't understand. With the publishing of the glossary of terms, there was a sense that progress was being made and decisions about framing the language of the educational concepts gave a new momentum to the assemblage. This led to the development of different tool kits for assessment that began to explicate aspects of the framework. The assemblage began to concretise the concepts and in doing this made them more immanent for the different levels of actors. Deleuze wrote that "concepts are not waiting for us ready-made, like heavenly bodies" (Deleuze, 1994b) and as the assemblage began to recognise that concepts are multiplicities that need to be brought into a process, new lines of flight began to emerge. Processing concepts encourages the cross-fertilization and catalysation of ideas. The questions and sense-making that emerged allowed the assemblage to throw open gateways from the liminality within which they were caught.

So, what has changed? I think what has changed here is, it's actually not about the sort of assessment we are doing, it's about what's happening in the classroom and among teachers within it. There are no big complaints about specifications anymore and I think as each

specification comes on board and if it can continue to breathe new life into the subject. That is where you meet the teachers and the students desire. The student wants more engagement, the teacher wants it to be more relevant, more attractive, more enjoyable to teach. I think that's happening.

(Actor 19)

The assemblage of lower secondary had maintained a closed mindset encouraging fixed and linear structures, culture, social relations and particular assumptions about education and curriculum. What is novel about this research is the offer of a structural vision for the assemblage of lower secondary education that is open, non-linear and dynamic. What has been mapped is a process of change during a period of profound transformation. With the introduction of the junior cycle framework, there are the beginnings of a greater dynamism and connectivity in the system through certain changes in the structures of the system and of the flow of collaborative practices across all levels of the assemblage. It is encouraging the development and evolution of a conceptual literacy and this has begun to change the behaviour of the assemblage. There are the beginnings of a greater dynamism and connectivity in the system through certain changes in the cultural and political structures of the system and of the flow of collaborative practices across all levels of the assemblage. These changes have connected the assemblage with the vision of education that flows in the framework and is opening up the curriculum to new possibilities and spaces for becoming new. The concepts which flow through the new structural vision for lower secondary education in Ireland and the main lines of flight which have encouraged deterritorialisation and self-organisation in the assemblage, are captured in **Figure 30** below:
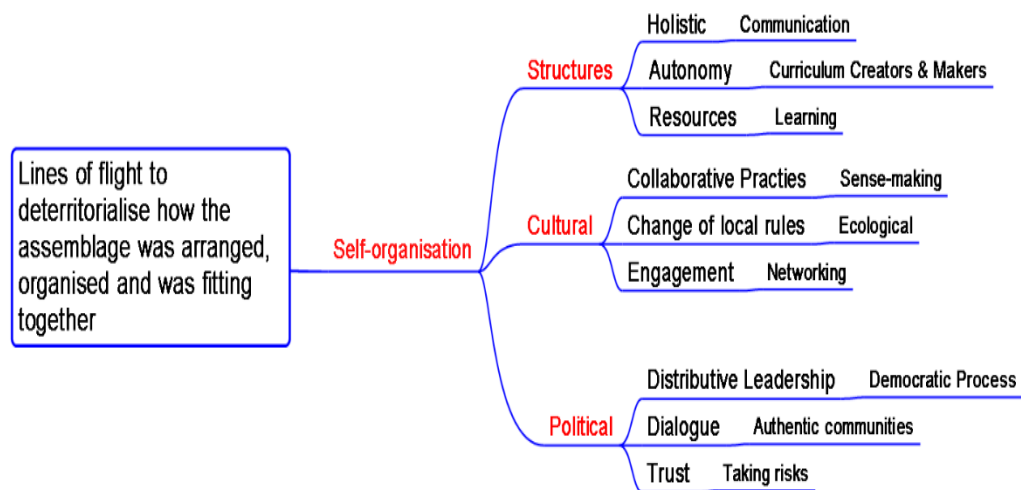
Figure 29 Lines of flight to deterritorialise how the assemblage was arranged, organised and was fitting together

8.3   Discussion on Education as Becoming and Emergence

This thesis proposes that ***education works as an expanding, non-linear process of strong emergence and becoming.*** It argues that education is not a linear process of progression and development in which the sole outcome is a qualification. Rather, it proposes a different educational space which offers a multiplicity of new epistemological, ontological and axiological purposes and desires. These purposes emerging from the data may now be defined as ***an on-going process of encounter that fosters human becoming through the enabling of difference and connectivity between others and the world.*** This educational space is made up of a multiplicity of concepts that create a new flow and energy in the assemblage. The data highlight that the molar lines of the assemblage must now expand to include the idea that education is transformative, liberating and an interplay between the human, non-human and more than human world. It suggests changing the nature of the molar lines away from a total focus on an instrumental and deterministic purpose. The following discussion, will place a critical lens to this educational space by asking three questions:

1. How is the purpose of education working in the assemblage?

2. Is this purpose educational?

3. Is this purpose desirable?

The space where this purpose emerges also suggests that a new professional space for the actors needs to arise within the assemblage. In the "Plateau on Education as Becoming in the Assemblage", it was stated that this space *is located in a dynamic intra-action and relationality between the human, non-human and more-than-human world which demands a responsible responsiveness.* The components and concepts that make up this professional space will also be critically explored in the following discussion. In summary, the data offered the following insights:

> *Education is an expanding, non-linear process of strong emergence and becoming. It is an on-going process of encounter that fosters human becoming through the enabling of difference and connectivity between others and the world. It is located in a dynamic intra-action and relationality between the human, non-human and more-than-human world which demands a responsible responsiveness.*

8.3.1 How is the purpose of education working in the assemblage?

From the data offered in the plateau "Education as Becoming in the Assemblage" it was evident that what the assemblage sought was a new purpose for education. In theory, the actors at all levels of the assemblage wished for liberation from the narrow and instrumental focus of the molar lines of Junior and Leaving Certificate, however, when this desire suggested change to practice, it was a complex and different story. To map the lines of flight in the assemblage to a more centrifugal approach to educational purpose, the three functions of education and three domains of purpose offered by Biesta (2010): qualification, socialization and subjectification, will be used as they propose the terrain where we can view how this expansion works. This

discussion will also seek the lines of flight that reterritorialized into black holes in the assemblage and where expansion did not work to open the purpose of education to greater possibility.

The assemblage was now seeking a broadening out of knowledge offered within and without subjects. There was little cross-curricular or co-curricular connection of knowledge between any of the subjects and this created a curriculum that had little cohesion or synergy. What the assemblage was seeking was to "bring knowledge back in" (Young, 2007). This statement might seem strange given that the previous curriculum was knowledge and subject based. However, the breadth of subjects to be accommodated on a timetable and their instrumental function, constrained the depth of knowledge. In phase one of the reform (Plateau 3.3.1), the NCCA did table the desire to move knowledge to a more rhizomatic approach. This approach was refused due to concerns about equity in every school- would all schools be able to create an innovative framework for their students? Also, from the subsequent experience of conflict in the assemblage, some of the macro actors believed that this was a wise decision. However, I believe that whilst the scope of taking such an action would have perhaps sent the assemblage into a more dramatic tailspin (Plateau 3.4 -the Liminal State), with proper resourcing and an understanding of an ecological and holistic approach to change, this blue-sky thinking might have moved lower secondary education beyond the continued restrictions of subject silos. It has allowed the continuation of walls and boundaries around knowledge and confines it to these parameters. Subject silos are closed systems and continue to thwart energy and flow by bounding information and matter. The decision to retain a subject-based framework, alongside the key skills, whether eight or ten subjects, and not venture into more expanded knowledge territory, has limited the lines of flight and the possibility for an expanding, non-linear process of strong emergence for the framework. It restrains and restricts the possibilities of change and reform and limits becoming in lower secondary education in Ireland.

Whilst initially knowledge and understanding were being remade and were encouraged to become something different in the assemblage, there were strong forces that opposed this remaking. The question as to what it is that we want the students to know in the first three years of post-primary school had been examined and found wanting and whilst the assemblage sought something more, the original message about the holistic understanding of the expansion of knowledge and understanding got subsumed into partial narratives about the importance of certain subjects. The question of what core subjects were selected and why some subjects were optional in the curriculum took the place of the bigger discussion of what it is that the assemblage wants a student to know and understand. How it worked was that knowledge was reduced to segments and once again became object based. Instead of a centrifugal response to knowledge, the assemblage was once again caught in a linear, fragmented and unconnected understanding of knowledge. There was no sense of an ecosystem of knowledge to be offered by the school. The lines of flight that began to emerge, reterritorialized into a black hole of the "weariest kind of thought" (Deleuze and Guattari, 2003).

Alongside knowledge and understanding, what the assemblage was enacting was a skilled student body who could adapt and find their home in the world. This is an acknowledgement by the actors in the assemblage of the unprecedented growth of global interdependence and globalization. It is a recognition that for equity, justice and fairness, students need to be able to acquit themselves with skills to cope with living in a flexible, changing and digital world and 'to take up the challenges of further study in senior cycle and beyond' (NCCA, November 2011, p.19). There is a focus now not only on knowing but also on doing. Data do not offer a desire to downgrade knowledge (Wheelahan, 2010) but rather in addition to expanding knowledge, the assemblage was concerned with integrating three main applications of skills: to life, work and learning. For the most part, the integration of key skills is a response to making the purpose of education in lower secondary relevant to the world of the student.

However, the assemblage's focus on introducing key skills needs to be critically analysed for there are a number of concerns. The impetus for introducing key competencies to promote human, social and economic capital has been prioritized by governments across the EU, as witnessed in the reformed curriculums in countries such as Scotland, Finland, Belgium and of course Ireland. Salhberg highlights that "citizens' knowledge and skills are commonly viewed as key success factors for economic development and social well-being. Education is the vehicle to enhance human capital and preserve cultural unity as Europe integrates" (2007, p.165). There is a requirement from countries in the EU to develop 'learners'[94] with positive transferable learning dispositions rather than 'knowers' who can absorb and reproduce received information (Claxton, 2006). At the same time, there has been criticisms about the neoliberal tendencies of the goals of educational systems which are cast in narrowly economic terms and which highlight reform based on the needs of the marketplace (Apple, 2006). This thinking brings many questions to the discussion of how the purpose of education works for the assemblage. Questions arose as to whether it was the purpose of education to enhance human and social capital to preserve cultural unity in Europe or in the world? There might be a query as to why we would even consider asking such a question as it is common sense to ensure a skilled workforce for sustainability and a society that can live and relate together in peace and prosperity. The OECD writes that:

> The development and maintenance of human and social capital represents an important factor for societies to not only generate prosperity, social cohesion and peace, but first and foremost to manage the challenges and tensions of an increasingly interdependent, changing and conflictual world (OECD, 2019).

There is wisdom to this statement, however, is it the purpose of education in lower secondary to ensure such a function? Biesta (2015b, 2012b, 2013), repeatedly argues that education

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[94] Biesta has written at great length about the 'learnification' of education and whilst there is no problem referring to a student as a learner, he argues that education is more than learning – it must be about learning something, for a purpose and from someone. He believes this language encourages individualism rather than a language that is more relational BIESTA, G. 2012b. The Future of Teacher Education: Evidence, Competence or Wisdom. *Research on Steiner Education,* 3**,** 8-21.

should have its own agenda, not societies (2012b, p.11). He worries that the discourse on competencies is beginning to monopolise the discussion around teaching and learning. His concern lies in the 'learnification'[95]of education, when such a discourse becomes hegemonic and without critical analysis or lens, the system begins to adapt to this way of thinking. Through Complexity Theory we know that diversity is essential for energy and movement in a system and Biesta believes that such a monopolisation about competencies is narrowing and reducing the diversity of our educational systems.

A pattern of agreement about the importance of key skills emerged throughout the assemblage and students particularly focussed on the key skill of learning to learn. What was missing however, was any reference to developing digital literacy. It just didn't seem to be on the horizon for the majority of actors. The meso and micro actors were caught up still with the literacy and numeracy initiatives and at the beginning of this thesis there had been little resourcing of digital technology within schools[96]. Each of the Eight Key Skills have digital components and the lack of early resourcing of ICT in lower secondary education has contributed to inequality and a divide between the ability to integrate key skills in the curriculum. Many rural areas are still awaiting the arrival of Wi-Fi. In desiring the addition of key skills to the purpose of education, the question that must be continually asked is how is it working for the students? While seeking a skilled student body for life, work and learning, how it might work for the assemblage is to apply knowledge and skills to these purposes to critique creatively how they are reterritorializing and becoming in the assemblage. Are these purposes educational? They are not educationally desirable if they narrow and restrict, rather than

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[95] Biesta suggests that the problem with the focus on learning are the discursive shifts such as the following: Education = teaching and learning; Students= Learners; Adults=adult learners; Teachers=facilitators of learning; Schools=learning environments or places for learning; Adult education = lifelong learning. (BIESTA, G. 2013. *The Beautiful Risk of Education,* USA, Paradigm Publishers.

[96] There was the roll out of 100m/bit broadband but many schools continued to wait for funding for the Wi-Fi infrastructure to be able to use this asset.

expand and broaden the educational possibilities for every student. Without the proper resourcing to realize their purposes, the lines of flight that are emerging will find themselves stunted and impeded. The qualification might continue to remain in striated space.

8.3.1.1.2 Socialization

In discussing the domain of socialization, the assemblage were confused about what traditions and practices they wanted to foster in the students. On the one hand they wanted to pass on a valued cultural and educational heritage that they believed to be important but on the other hand they desired that these would unfold into more creative and imaginative spaces for students. There was a recognition that the existing ways of doing and being might not now answer the needs of the student or society in the twenty-first century. The value of previous types of assessment, methodology, subjects and approaches to discipline etc were all under scrutiny in the new reform and there was a sense that traditional approaches needed renewal. This renewal included a revisiting of the values passed on about the Leaving Certificate examination. What was interesting in the data was the focus of the assemblage on the importance of survival. The human being emerging in the data needed the support of socialization so that they could survive the world they inhabited. For many of the actors the function of education was to ensure students had the ability to negotiate a highly complex landscape that was global, technological and pluralistic. Survival for the actors means developing a cognitive ability that can respond to high-order questions, problems and solutions. This works through the fostering of wellbeing, resilience, confidence, flexibility and responsibility. These were seen as essential values and dispositions to be enabled and encouraged.

The complexity of socialization was also seen by the actors through the recognition that a student was nested within a multiplicity of communities but that each was part of an ever moving and changing world. This emerging understanding of the nestedness of the individual

within society encouraged the need for conversations, partnerships, relationships that recognised the humanity of each individual but also the common good. MacIntyre (1985) writes that what is handed on through tradition must be "continuously argued for; discussed and challenged in a conversation between generations". Silence would no longer do and a more dialogical approach to education was encouraged as the new way of operating both within the classroom and staffroom. How this encounter or interplay worked, rested on the assemblage's hope for education which they called a "higher level mission" (Policy Actor 6). The lower level mission was viewing Junior Cycle as a trial run for the Leaving Certificate. They wanted the opening up of a higher, different and more liberating educational space that would ensure the survival of each student and society in the future. The purpose of education sought, demanded not individualism, but a turn to the importance of the other and who is other in the assemblage. The turn to diversity will be discussed below but it is important to highlight the conversations within the data about inclusion and equity of all students and the insistence of that greater mission for the first three years of post-primary.

There was a definitive shift in the ontological desire of the assemblage. The data evidenced a strong desire for the student to also have a disposition that promoted democracy. The democratic disposition according to the actors was very much tied up with intellectual and rational capacity. The words that sum up the desires of this purpose are: independent thinker, self-direction, independent ownership, personal empowerment, control of their life and learning, and making choices. There are unmistakable tendencies to defining the human being through its rational autonomy in this understanding of what it means to be a democratic citizen. Whilst the move away from a disposition that promoted subservience and compliance is lauded, this understanding of how democracy functions can be seen to be limited and mechanistic. It reflects a highly individualistic approach to democracy and seems to be suggesting that democracy is about the acquisition of a set of characteristics that can be possessed by an individual. The question that must be posed to this desire is whether it is the role of education

in lower secondary to develop these characteristics for a student's future participation in democratic life? The assemblage seems to be suggesting the type of student that they wish to produce and have fallen into a deterministic future orientation.

However, data also portrayed a tentative move beyond the rational application of democracy and also suggested "a sense of activism" (Policy Actor 3). Dewey (2010) argued that "a democracy is more than a form of government; it is primarily a mode of associated living, of conjoint communicated experience" (p.87). The central idea emerging from the writing of Dewey on democracy was the importance of interactions and social connections. He espoused social intelligence and this is further developed by Säfström and Biesta (2001) who define democracy as "our ability to live together with those who are not like us". This moves education from preparation of a list of characteristics to be achieved in the future to engaging in educational spaces that are pluralistic and embrace difference. The assemblage was tentatively asking about where these spaces might emerge but here again there was a tendency at times to think of democracy as something to be acquired. This might be mapped particularly in the turn to the subject of Civic Social Political Education (CSPE) as a way of educating *for* democracy . Actors also recognised if democracy is to be sought as a purpose of education, then the school itself must offer spaces for students to become and take initiate, to act in a world of diversity and difference. Biesta (2013) suggests that such a world is not child-centred but action centred, one that focuses *both* on the opportunities for students to begin, and on plurality as the condition under which action is possible. Biesta in summing up his explanation about what are the purposes of education states that "education is not just about how we can get the world into our children and students: it is also and perhaps first of all – about how we can help our children and students to engage with, and thus come into, the world" (2013, p.5). The assemblage suggests that what is being sought are spaces were students can engage and interact with others so that they can take initiative and connect with each other and the world in a way they have not done before. As one actor suggests: "Sometimes rational works but

sometimes doing works"(Policy Actor 10). This is the liberation of socialization that is glimpsed within the data and is sought as a purpose of education. What lies between however, is *how* this disposition to democracy and liberation will play out within the curriculum and whether the assemblage understands how to open up imaginative spaces for students. This will be explored further below in the section on curriculum. How socialization works is through continued reflection and vigilance and whilst the purpose of a new approach to socialization is desirable, the constant question that must be consciously engaged with is, is this educational?

8.3.1.1.3 Subjectification

The domain of socialization is primarily concerned with identity and what am I? Subjectification explores who am I and how am I becoming? Data offered substantial evidence in the assemblage for the search to renew and re-position the understanding of the human being and how they were becoming. On one level, the student was the human who was placed at the very centre of this curriculum. However, there is a clear move to understand the centrality and importance of all actors in the assemblage in their roles as curriculum creators and makers. How all human being are (be)coming "into presence" (Biesta, 2006b) in lower secondary education was viewed as a process of unfolding potential and possibility. What was becoming for the assemblage of lower secondary in Ireland were the spaces of encounter where the singularity of each person could emerge into the world. These spaces were spaces of dialogue, collaboration, connectivity and encounter. These encounters acknowledged difference and diversity and encouraged the actors to expand their connectivity within the assemblage. They were evidenced as encounters in which a student finds their voice for the first time through the encounter with another. That other is the teacher and in the learning-teaching encounter there was a depth of magic to be found, a conductivity that knows no bounds (Deleuze and Guattari, 2003). How this teaching-learning encounter works for the actors is through a holistic approach to the student and it has opened spaces of possibility for growth on a physical, mental, emotional, social and spiritual level. The actors explained that physically they wished the students to be fully alive and

active in their learning through dynamic engagement with each other, active methodologies and stimulating their brain.

The assemblage is beginning to understand the axiological call and the responsibility 'is to make sure that there are at least opportunities within education to meet and encounter what is different, strange, and other' (Biesta, 2006b, p.69). Everywhere we turn, this focus on relationships is central and thus the assemblage is not accepting a student-centred focus but instead it is concerned with how it is working through the inter-connectivity of the relationships of the actors, particularly the student-teacher relationship. This is an important insight for the assemblage and aligns with the move to more collaborative practices that we discussed above in 8.2.2.2.   The line of flight is also moving its trajectory away from producing a list of characteristics that the student would acquire to a realisation that the human being in all their uniqueness, emerges through the *event* of encounter. In the language of Deleuze and Guattari, the purpose of education is coming up through the middle of things. How subjectification might work for education in the future is to open up as many spaces where the presence of each student and teacher, cannot be substituted and so allows for a unique response of subjectivity to become.

8.3.1.1.4   The Overlap of the Domains of Purpose

Within each of the domains of purpose, the assemblage is seeking a more centrifugal process and from the data there is evidence that there are some strong patterns emerging:

1. The desire for deeper and more relevant knowledge and understanding

2. The acquisition of skills to enable student *to do* and act.

3. The renewal of norms and traditions to ensure the survival of the student in the complex world of the twenty-first century.

4. The need for a more dialogical disposition to education.

5. The possibility of liberation through democracy which is living together in diversity.

6. The holistic development of the student

7. Becoming as a unique person through the educational encounter and event.

From the data, these are the desires for the purpose of education for lower secondary education in Ireland. What becomes important for education is the meaningful balance of these desires. The domain of qualification has dominated the assemblage and thus to change this domain to expand to stronger emergence is one of the biggest challenges for it. Whilst the debate about what knowledge students need has been striated into a discussion about subjects, when the data is inspected closely, there is an expansion in the desire for different cognitive development of the students which moves beyond knowledge. In Plateau 5 there was also evidence that teachers were adapting their subjects and through the 24 Statements of Learning, they were expanding knowledge in a centrifugal process. In the overlapping of domains, we can see the need for the growth of critique which is needed for survival in the world of the twenty-first century, but also activism through democracy requires a similar mental critique and judgement. There is also the requirement of subjectification to respond to the singular events that calls a subject to uniqueness and this also encourages an expansion of the cognitive capacity.

What was most interesting was the central place in all domains of the human being. There is a very loud cry emerging from the assemblage about renewing and rethinking not only how a human being is defined in education, but how they are treated and allowed to become. The intersections of the different domains offer insights into what exactly the assemblage wants for this human being. Between the qualification and socialization domains, there emerged the desire that the human being would be able to find a home for themselves in the world – through the knowledge, skills, traditions, norms and understanding that would be offered. From the intersection of socialization and subjectification, how this home in the world was to be created was through a turn to the other. The assemblage was turning democratically to the other in all their diversity and difference. However, it was in the intersection between qualification and

subjectification that the space where this happens became clear. ***The human being finds their home within the world by turning to the other in the teaching and learning encounter***.
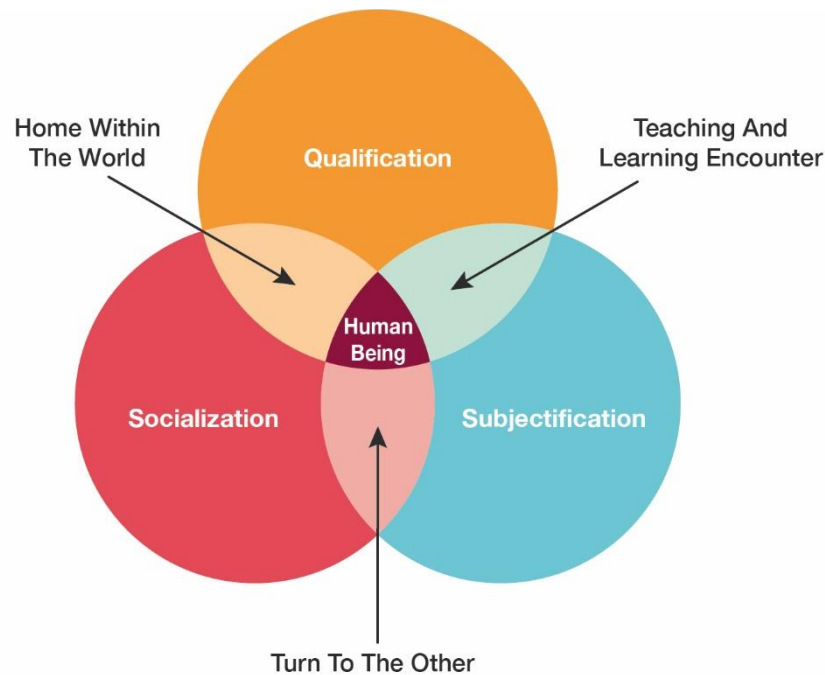
Figure 30 The intersection of the three domains of purpose

Here is the connection between all the domains of purpose and functions of education in the assemblage. However, whilst it might seem that once again the human being takes the central position within the world, what is very clear is that this human being is centrally connected to life, the world, the other. Braidotti (2013) suggests that the human being belongs to "multiple ecologies of belonging" (p.193) and are in constant outer movement and connectivity with others in order to become. The purpose of education as proposed by the actors has moved far away from the sole instrumental and deterministic purpose to one which now calls for thresholds to open up to allow for the dynamic emergence of the actors in the assemblage of lower secondary education in Ireland. The desire of many actors in the assemblage is beginning to crack through the molecular lines of knowledge, skills, values and dispositions and move from the narrow concern of survival alone, to embracing the bigger entity of life itself. This desire has confronted contradictions to this purpose but this growing

understanding places responsibility not only on the teacher who will call the teaching and learning encounter into becoming, but on the whole assemblage to offer the teacher the ability to respond to such a mission. All levels of the assemblage are responsible.

8.3.1.1.5   Professional Judgement

The data highlighted that how such a purpose for education works is through the use of professional judgement. If the purposes of education area a multiplicity, then professional judgement is vital to navigate these purposes and make choices. This theme that emerged in the data is a highly complex field and much has been written about it in the educational literature[97]. What was noteworthy about this discussion in the data was the different perspectives on what professionalism was and how it was to be enacted. For the macro level actors, they saw teachers and principals as offering a public service and with this comes an ethical dimension or code of practice[98]. They expected a high level of expertise in knowledge and skills and what was new was the expectation of teacher agency. West-Burnham (1999) argues that professionalism arises from the exercise of judgement in context rather than the application of formulaic techniques. This requires an ethical judgement. What is at stake according to the macro actors is for teachers to take up the responsibility of this ethical judgement through internal regulation and their own the agency and capacity to act for the best interest of the student and the common good. They understand this requires a new set of knowledge, understanding, skills and values that embrace the vision of the new purposes as outlined above. However, the macro actors are also suggesting that they trust the teachers' knowledge and experience to make these decisions about curriculum and education and promote this professional responsibility.

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[97] Solbrekke and Englund, Sugue, C. Biesta, West-Burham

[98] In 2016, the Teaching Council introduced a professional code of practice called "Standards of Teaching, Knowledge, Skills, Competence and Conduct". It highlighted that the role of the teacher is to educate and was based on four central themes: respect, care, trust and integrity.

From the perspective of the teachers, they have been used to conformity and compliance with a set of externally determined standards. A teacher's professionalism was linked to the results from the Junior and Leaving Certificate and their observance of the national standards. In the discussion about the liminal space of the assemblage (Plateau 3.4), it was noted that teachers found difficulty with negotiating the new language and concepts of learning and assessment and thus their capacity to act was restricted. Teachers had been used to what Englund and Solbrekke (2011) call professional accountability rather than professional responsibility. The process of inspection from the DES has also promoted this perspective and whilst the DES encourages school self-evaluation and reflection, an inspection by the Des brings a school into spaces that are highly striated, segmented and classified.

It is argued that we need to 'bring professional responsibility back in', to ensure that moral and societal responsibilities become the driving force for professionals while accounting systems support the overall purpose of professional work. Whilst the macro actors are very sure that professional responsibility lies in the remit of the teacher, the teacher is still caught in a system that has Leaving Certificate standards to be met. It also has an examination at Junior Cycle that is corrected by an outside agency in the form of the State examinations and even though the Junior Cycle has tried to move it from a high stakes status, there is a very real expectation from students and parents that a student will be measured by how well they do on an academic level. Whilst the system at the beginning of the curriculum reform understood that assessment had to change so that teachers accountability would change, this was not understood by the teachers themselves or sometimes by those who negotiated the changes to the framework. The system still holds the teacher accountable in the 2015 Junior Cycle Framework and this does not promote agency to take up the practice of using professional judgement or responsibility. The molecular line of standards has a backwash effect on the agency of teachers and leaders in the assemblage.

How the purpose of education works in the assemblage is through the balancing of the three domains of qualification, socialization and subjectification. This research has found that in each of these functions, there are lines of flight gathering momentum which point to a more centrifugal emergence and becoming of purpose. What is new is the capturing of the voices of the assemblage during a reform process which request a distinct move to liberate the purpose from a limited view of knowledge. It maps their reimagining how the student can take their place within the world of the twenty-first century through a turning to the other, specifically in the learning and teaching encounter. Such a reimagining demands a curricular response that enables and empowers the assemblage to make that encounter an educational space of becoming and emergence. The following **Figure 32** offers the map of the concepts discussed on the purpose of education and its becoming in the assemblage and the lines of flight that are beginning to emerge.
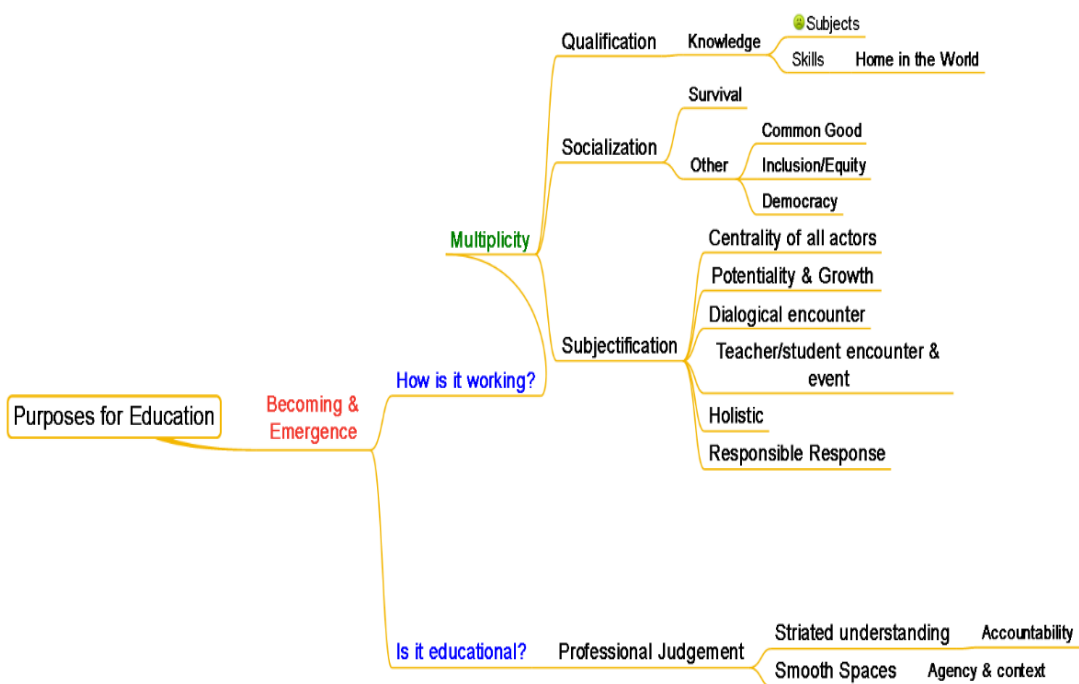
 Figure 31 Map of the discussion of the purpose of education in the assemblage

8.4 Curriculum as Multiplicity and Rhizome

Biesta defines education as "a creative act" (2013, p11) by which he explains that he is interested in education "as an act of creation, that is, as an act of bringing something new into the world, something that did not exist before". This thesis has aligned itself to this thinking by proposing that: ***Education is an expanding, non-linear process of strong emergence and becoming. It is an on-going process of encounter that fosters human becoming through the enabling of difference and connectivity between others and the world. It is located in a dynamic intra-action and relationality between the human, non-human and more-than-human world which demands a responsible responsiveness.*** Curriculum is the process by which this understanding of education becomes and emerges. How curriculum in Ireland at lower secondary education is becoming ***is as a multiplicity – as rhizome***. Its molar, molecular and lines of flight are expanding and changing in nature. Curriculum is now stratified, organised and territorialized by a map or framework which opens thresholds to allow it to flee and become to a more expanded educational experience for all actors in the assemblage. These lines of flight are the assemblages process of self-organising to accommodate the new thinking around the purpose of education. This becoming is a real onto-epistemological shift and has been accompanied by great fear, misunderstanding and anguish. The lines of flight that can be mapped from this reformed curriculum are:

1. The human subject is becoming in a holistic way.

2. Knowledge is becoming as a tentative centrifugal experience.

3. Professionalism is becoming in response to the call for responsible responsiveness.

4. Roles and relationships are becoming through collaborative practice throughout the assemblage.

5. Pedagogy is becoming by opening up spaces of the possible and as-not-yet-imagined.

6. Democracy is becoming in autonomy, agency and flexibility.

From reflection on educational literature and the data presented in this study, what comes up through the middle of all these inter and intra-relating dimensions are two distinct roles: the curriculum creator and the curriculum maker. The function and purpose of these intra and inter-connected roles is to bring about a curriculum that offers an educational encounter which encourages the becoming of something new and something that did not exist before. This is the educational territory that was proposed by the actors in the assemblage.

However, before discussing the emerging roles of curriculum creator and curriculum maker, it is important to note that whilst there are definite lines of flight to be mapped in the Junior Cycle curriculum, the enactment experience continues to be fraught and contested. Various actors are conflicted in their response between the linear, instrumental and deterministic call of the Leaving Certificate and the smoother spaces of the reform. The work of the curriculum creator in Junior Cycle Reform is stunted by this examination and cannot totally liberate an educational space for itself without reference to this mode of assessment. It is stunted by the continued focus on segments such as subjects, standards and timetables. The role of curriculum maker is impeded by restrictions in understanding curriculum ideology, framework and pedagogy and remains within a liminal state. It is clear from the data that the axiological response to this curriculum demands a more responsible response from all actors in order for the students to experience an educational encounter that is "a creative act", a purpose that is the deep desire of the assemblage. The response necessary from some of the actors in the assemblage has not offered the commitment that this new curriculum needs to become.

8.4.1 The Curriculum Creator

The curriculum creator and curriculum maker create a curriculum, not out of nothing, "ex nihilo", but through the process of understanding curriculum as a multiplicity of ideology, framework and pedagogy. The role of the **curriculum creator** is to create the building blocks of

the ideology and framework of a curriculum. The **curriculum maker** creates and innovates the pedagogy that connects the ideology and framework. The roles of the curriculum creator and maker are nested, combined and connected together. The process of curriculum creation works by using the three flows that have the potential to bring change and movement within the assemblage: semiotic, material and social flow. They ask what flows are slowing down thinking and change in the curriculum multiplicity and why this might occur. They are also interested in what might speed it up and encourage an exchange of energy, information and matter. The **semiotic flow** focuses on ideology and how it offers the educational language and concepts within and without the assemblage. There are a diversity of ideologies flowing through the assemblage; understandings of knowledge, the human being, the world, values and principles such as freedom, equality and democracy. These ideologies are scrutinised for the molar, molecular and possible lines of flight within the concepts. Most importantly, these lines begin to evolve and expand through connection and piecing together an ideology from the inter and intra-relationship of the many actor domains within the assemblage. This process of fitting together an ideology is underpinned by a deep understanding of the educational context, culture and cognitive practices and processes within lower secondary education in Ireland.

The actors voiced very clearly that this cannot be done by a representative consultation but through a deep engagement with all actors in a process of dialogue during the creation stage. The **social flow** encourages conversations, discussion, debate, questions and answers, which begin to inform, develop and evolve the curriculum conceptual vision and framework. The assemblage in this creativity and innovation begins to self-organise to find the right fit for education at lower secondary education. One of the teachers spoke of the macro actors as "higher beings" which she believed were so "disconnected from us" (Teacher Actor 26). The use of the words "higher beings" is absolutely opposed to the role of curriculum creator. Distributive leadership practice defines the energy of the creators as they connect in a process of interrelations within the assemblage and the building of the framework. However, the creator's

connections and intra-relationships do not remain within the assemblage alone, but also interact with other assemblages in Ireland, Europe and the world. The connectivity within the assemblage as it creates curriculum is centrifugal. They draw on these insights and learning from other assemblages to enable and expand their professional acumen, their understanding and thinking about education and curriculum. They do it to disrupt their thinking and bring it to the edge of chaos. They build a framework that organically emerges from their connectivity within/through/in the assemblage and world. The framework emerges from the ground up as an eco-system, a multiplicity of relationships, roles and connections.

The **material flow** assists in fabricating the framework. What matters for curriculum in the assemblage is the educational encounter and this is assisted through curriculum materials and documents such as: the subject syllabi or specifications; frameworks; texts; research etc. Materials encompass technology, Virtual Learning Platforms, but also includes the material space including the classroom and school environment: seating; whiteboards; water coolers; heat etc. It incorporates the integration of colour, sound and the senses but for many in the assemblage time may also be placed into the material flow as it is often viewed as a linear commodity. These different flows work together in tandem and the complexity lies in their overlaps. For example, the semiotic flow will contemplate the concept of knowledge but the material flow will suggest the subject areas that will realise this knowledge, whilst the social flow recognises how that subject connects to the world and the assemblage. In Plateau 7 we discussed the importance of the subject to the teacher's social standing and identity (Plateau 7.2.1.2) and the complexity in bringing change to this mindset Working with these three flows offers an understanding of the human being, knowledge, values and dispositions which are connected to the arborescent roots of the old system but begin new connections and possible ruptures now as rhizome. There is the simultaneous movement of convergence and divergence in the building of the framework. For the assemblage, the main function of the curriculum creator would be to ensure that the curriculum as rhizome offers the possibility for the

emergence of the Subject -something new coming into the world. Whilst the understanding of the role of the curriculum creators in the design, development and enactment of this framework could be expanded and more nested within the assemblage, there are indications that curriculum in Ireland for lower secondary education is emerging and becoming as a more holistic and expanding education.

Data suggests that this holistic approach is emerging through changes to its semiotic, social and material flows. The following discussion will map these changes by answering the following 6 questions: – who, what, why, where when and how. These questions will then be applied to three different curriculum sources within the assemblage.

1. The first source offers the definitions which describe the evolving purpose of the Junior Cycle from the three main documents prepared by the NCCA on the Junior Cycle curriculum.

2. The second area derives from the research and scholarship visited during this thesis.

3. The final source is drawn from the voices of the assemblage on curriculum as offered in Plateau 6.

The lines of flight are early, tentative trajectories and hopefully they will build momentum as the assemblage self-organises to accommodate the new curriculum and the new way of thinking. It is early days in a journey that was caught in continued delay and change due to industrial action. The following **Table 13** presents a snapshot of how these three sources will help progress our insights into how curriculum is becoming for lower secondary education. It will help indicate the variations and patterns that are emerging and help navigate the following discussion:

Table 13 Key themes from the assemblage, research and scholarship and Junior Cycle documents

	Assemblage	Research and Scholarship	Junior Cycle Documents
Who	Student-centred Democratic	Nested subject	Learner/Shared understanding
What	Knowledge	Powerful knowledge	Experiences, Achievement,
	Skills	Process	24 Statement of learning,
	Problem solving	Currere	Pedagogy
	Learning to learn	Lived Experiences	
	Self-regulation		
Why	Respond to the needs of students	Transformation	Economic, Social, cultural development, student needs
		Complexity and chaos	
		Relational	
When	3 years of lower secondary	Emerging	Past and the Future Childhood to adulthood
Where	In the classroom	Mangle of life	?
How	Curriculum makers	Centrifugal	Strong disposition, enjoyment of learning, quality, inclusive and relevant education
	Craft of new skills	Richness	
	Autonomy	Recursion	
	Collaboration	Relation	
	Letting go	Rigour	
		Diverse/eclectic/pluralistic	
		Hermeneutical	

To begin to capture and explain these lines of flight proposed by the curriculum creators, we begin with the definitions which describe the evolving purpose of the Junior Cycle from the three main documents prepared by the NCCA. These definitions are offered below:

1. Innovation and Identity (NCCA, 2010),

Junior Cycle should essentially be about ensuring that learners have experiences that build on the advances they have made in primary education and, in the process of passing from childhood towards adulthood, develop a strong disposition towards and enjoyment of learning (NCCA, 2010, p.15).

2. Framework for Junior Cycle 2012 (NCCA, 2012)

To enable learners to achieve their full potential and contribute to Ireland's economic,

social and cultural development (NCCA, 2012, p.1).

3. Framework for Junior Cycle 2015 (NCCA, 2015)

The Framework for Junior Cycle 2015 incorporates a shared understanding of how teaching, learning and assessment practices should evolve to support the delivery of a quality, inclusive and relevant education that will meet the needs of Junior Cycle students, both now and in the future (NCCA, 2015, p.6).

Each of these definitions from the NCCA is tabled below **(Table 14)** under the five 'w's and the 'h'. They will be discussed as follows:

- Who – the human subject is becoming in a holistic way.

- What – Knowledge is becoming as a tentative centrifugal experience

- Why, When, Where, and how – professionalism is becoming in response to the call for a responsible response

Table 14 Evolving purpose of the Junior Cycle from 2010 – 2018

Curriculum?	Innovation & Identity	JC Framework 2012	JC Framework 2015
	1	2	3
Who?	Learners	Learners	Shared understanding
What?	Have experiences	Enable achievement to full potential	How teaching, learning and assessment evolve
Why?	Build on advances made	Contribute to Ireland's economic, social and cultural development	To support the needs of the students
When?	From childhood to adulthood		Now and in the future
Where?			During Junior Cycle
How?	Developing a strong disposition and enjoyment of learning		Through a quality, inclusive and relevant education

8.4.1.1 *The Human Subject Is Becoming In A Holistic Way*

The complexity arises for curriculum creators in challenging the ideology of the human being contained within the molar lines of the assemblage. For over a hundred years the system,

structures, processes and practices all converged to determine a particular type of human being, one that is passive, disciplined and awarded for their memory capacity. The data offered a desire to change the nature of these molar lines by making the curriculum student-centred and presenting the human being as a multiplicity of possibilities: physical, mental, emotional, spiritual, aesthetic, political, social etc. This holistic approach to the human being challenges previously held notions of the student and specifically who they become, what they need to know, understand and do, where and when this should take place and how it should happen. This shift is understandable given that the focus had been on assessment, however, in complexity terms there should be no central feature in the web of curriculum. The question that now arises is how the Junior Cycle curriculum defines the human being and does it capture the purpose that was desired by the assemblage?

In the first two documents (column 1 & 2), the human being is defined as "learner". This concept reduces the ideology of the human being and curriculum purpose as suggested by the data and this choice of concept by the curriculum creators is one of the weaknesses of this new curriculum. Biesta (2004b) regrets the move to the word learner as he believes it has facilitated a re-description of the process of education in terms of an economic transaction. It views the student as consumer, the one who has certain "needs" in which the teacher or the educational institution is seen as the provider. Their role is to meet the needs of the learner and where education itself becomes a commodity – a "thing". Curriculum thus becomes a transaction and not transformation. By positing the human being as a learner, the Junior Cycle reduces the concept of human being and all is changed. Learning whilst essential in a curriculum, is only one element of a web of the multiplicity that make up the curriculum space. This choice of concept to denote the human being causes a huge gap in understanding as to the educational purpose that was desired by the actors in the assemblage. It has weakened the message about exactly who this curriculum is about and has reduced the educational encounter to a transaction.

Davis and Sumara (2008, p.120-121) ask us to think what might happen if the classroom collective rather than the individual student were understood as the locus of learning – (the learner)? They point out that the problem is that the individual is considered as the sole site of cognition and hence, all pedagogy is oriented toward the development of personal competences. The focus of the Junior and Leaving Certificate examinations have encouraged individualism. In definition three, we see a move towards a broader orientation. There is a definite shift to understanding the 'who' of the curriculum to be a multiplicity – it is about a collective and 'shared understanding'. The Framework in 2015 has an emerging understanding that curriculum must be run, not alone, but in relationship. This 'shared understanding' suggests a process of interconnectivity and collaboration in curriculum. It suggests later in the document (NCCA, 2015) that the student cannot be separated from the teacher and the "role of the teacher and the dynamics of the student-teacher relationship will evolve (p.26). In complexity terms they are nested and in rhizomatic terms they are embracing a more pluralistic understanding of the who of curriculum rather than the unitary, static and object mode of the previous documents. This understanding of the learner opens up smooth spaces and possibilities for powerful and rich connections with students, teachers, parents and leaders. Therefore, one of the distinct insights that this thesis has discovered is that in order to expand the nature of the molar and molecular lines, there is the need to move away from a focus on the individual to a focus on the collective, on the encounters and connections that interrupt the individual and encourage them to (be)come into presence (Biesta, 2013). In the 2015 framework, the curriculum creators offer a line of flight to this understanding and captures the educational need to understand the human being in relation to others and not alone. This needs to be developed further and is a message that would be of significant interest for the actors who are engaged in Junior Cycle curriculum making.

8.4.1.2 *Knowledge is Becoming as a Tentative Centrifugal Experience.*

Pinar was clear that currere was about running through/in/with the experiences of our lives (2008), and it is interesting that column 1, the answer to '***what***' does the curriculum offer, has a very succinct answer –'experiences'. This answers the first tentative understanding of what curriculum should offer that is not product orientated. The hope of lower secondary education was to move away from curriculum as solely focussed on examination so the answer of 'experiences' really is a step-in understanding curriculum ideology in response to the assemblage's desire. ***What*** the assemblage now want the students to know and understand is different and this will have fundamental implications for pedagogy. The Framework in 2012 outlined the reasons why the curriculum should change and suggested that "the experience of many third-year students is dominated by preparation for the Junior Certificate examination where the emphasis is on rote learning and on rehearsing questions for the examination" (NCCA, 2012, p.1). In 2012, column 2, the 'what' has moved to encompass the idea of enabling achievement to full potential, an expanding of what curriculum might become in Ireland. However, what does achievement mean? Is it short-term, measurable achievement or does it open up to spaces that cannot be measured in numbers, statistics and a final examination? Does achievement encompass the toward the as-yet-unimaginable and is it exploring the current spaces of possibility (Davis and Sumara, 2008)? By changing the "what" of the curriculum, the macro actors are stating that what was previously offered in the curriculum is no longer enough and schools and teachers must rethink the content of curriculum that they are offering. This was a line of flight that posed huge challenges for the assemblage.

The "what" of the Junior Cycle curriculum is offered in 8 Principles, 24 Statements of Learning and Eight Key Skills. However, Priestley (2011a) critiques how present curriculum models have turned to learning outcomes and generic skills or capacities instead of a detailed specification of knowledge and content in the new models of curriculum and he challenges the educational experience that is being offered. He believes that this model is "driven by a narrow

instrumentalism based upon economic imperatives – in other words, soft skills required for the workplace rather than the sorts of powerful knowledge required to critically engage with the world" (p.223). He highlights the lack of criticality in recent curricula as one of its major flaws. This critique is taken up by many others who point to the widespread expansion and emphasis on learning outcomes in curricula across Europe (Kellaghan and Greaney, 2001). This development has moved the focus from traditional input indicators to outcome indicators (Fuller, 2009) and a striving for better and better results. There is concern about how learning outcomes have become the territory of policy control and have a restraining influence on the autonomy of teachers (Au, 2011). It is argued that new curricula have a high level of output description and prescription in the curriculum policies (Priestley and Biesta, 2013), and Young (2009) argues that the role of the teacher has been repositioned and reformulated in these new curriculum polices. The major shift in curricula has been to provide the clear outline of what an educated person might know, understand, value and be able to do and thus "framing education in terms of learners and their development, rather than in terms of what is to be taught" (Priestley, 2015, p.4). There are concerns about this shift as it suggests that the goal of education and thus curriculum is to create a certain kind of human subject, with a certain kind of knowledge, understanding, values and skills. As Todd (2014) suggests 'the economic metaphor of outcomes sets up a quality of relationality whereby the teacher is to focus primarily on results or products of 'learning' instead of on its processes or its connections to the student herself' (p.234).

This type of outcome-based learning is exactly what the actors in the assemblage have tried to overcome. Are Learning Outcomes merely another disguise for focus on results and assessment and are we back to the ends-means approach? Learning Outcomes are defined in the Framework as "statements in curriculum specifications to describe the knowledge, understanding, skills and values students should be able to demonstrate after a period of learning". The 24 Statements of Learning in the Junior Cycle Framework are framed as high-

level, generic statements of intent and have not yet spiralled into specific lists of statements in linear or hierarchical levels of progression. This openness to autonomy and agency offers a better alignment between the expectations of curriculum creators at the macro level and those of curriculum makers at meso and micro. It offers possibility for a multiplicity of approaches to teaching, learning and assessment and concentrates not on content alone but on shaping the possible experience for the student. The wisdom in this approach offers a line of flight for knowledge in the curriculum to become more than a ends-means approach but moves to thresholds that inspires teachers to look beyond their own subject knowledge to the multiplicity of possibilities that are available.

Thus, the challenge for curriculum creators lies in viewing knowledge as a multiplicity and not just confined to the previous array of subjects. It requires a broader and deeper approach to knowledge and encourages cross-curricular and co-curricular exchanges in which knowledge situates itself within the world in which the student lives and is responsive to their needs. However, knowledge is not mentioned in either three of the initial purposes in the documents and we might begin to agree with Young (2013) that knowledge is being stripped from these new frameworks of curriculum. An understanding or discourse on how knowledge is now viewed is absent from the framework. In the discussion on "Education as Becoming"[99], knowledge is visualized as in endless movement and process and it is not about accumulations of knowledge and progress towards a foreseeable endpoint but knowledge is framed more in terms of expansiveness and outward movement (Davis and Sumara, 2008, p.57). It is centrifugal (Osberg, 2008). Curriculum responding to this understanding of knowledge making should begin with life and the dynamic connectivity of the human, non-human and more-than-human world. For a curriculum to be educational, it should have the 'strong emergence' of meaning making and human subjectivity (Osberg and Biesta, 2010).

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[99] See the plateau "Education as Becoming" (Plateau 4.3).

Knowledge and the Subject are somewhat hidden in the Junior Cycle curriculum. Knowledge is not one of the 8 Principles that underpin the Junior Cycle curriculum and when it is mentioned, it is located in the realm of learning. Learning has priority throughout both the 2012 and 2015 documents and "the learning at the core of the Junior Cycle is described in 24 Statements of Learning" (NCCA, 2012, p.v). These 24 Statements of Learning define what a student will know, understand, value and be able to do. Yet, knowledge is only mentioned three times in the statements: in relation to mathematical knowledge and knowledge for sustainability. The planning for these learning experiences as outlined in the 24 Statements is then translated into subjects, short courses and 'other areas of learning'. The first time that knowledge is mentioned in the 2015 Framework is in relation to 'subject knowledge' (NCCA, 2015, p.7). This fallback to subjects is very disappointing, but nevertheless, knowledge is not limited to subjects. There is an array of other sources of knowledge and the introduction of Short Courses, Wellbeing, Priority Learning Units and 'Other Areas of Learning' could be seen as centrifugal. They expand on subject knowledge and offer a breadth of knowledge that should be acquired.

> The inclusion of short courses in a Junior Cycle programme will also allow schools to broaden the learning experience for students, address their interests and encompass areas of learning not covered by the combination of curricular subjects available in the school (NCCA, 2015, p.21).

The 2015 Framework has the tentative beginning of an emergentist idea of knowledge, but knowledge and the new understanding of it as nested, meshed and pulling on all aspect of life, in all disciplines, nature, culture, technology, politics etc, seems absent and vague. It takes up the linear and sequential approach and the open space of an ecological understanding of knowledge-making through a network of cross curricular, thematic and inter-disciplinary understanding, has been once again restricted and value and hierarchy given to certain subjects: Mathematics, English and Irish (NCCA, 2012, p.11).

8.4.1.3   *Professionalism is Becoming in Response to the Call for Responsible Responsiveness.*

When the question of *'why'*, *'when'*, *'where' and 'how'* are added into the mix, the curriculum creators propose a different level of professional responsibility and response from the actors of the assemblage. The professionalism that we are talking about is "extended professionalism" -the development of knowledge, skills and values through collaborative engagement (Evans, 2008, Hargreaves, 2000). It moves from an outside and imposed accountability to a moral obligation assumed by oneself to act for another. It ensures that moral and societal responsibilities become the driving force for professionals while accounting systems support the overall purpose of professional work. The curriculum creators are suggesting to the assemblage that a different kind of professionalism is needed and this is played out in the roles and relationships within the assemblage. These roles have a new purpose and way of acting -a new ***why***, ***when, where and how.*** The "why" of the document "Identity and Innovation" outlines the hope of progression from what has already been achieved in primary school and "build on advances made". The new curriculum nests the development of the student into an understanding of the importance of the past educational experience and building on that in the present, with hope for progression in the future. Previously, there was little connection between the curriculum in primary schools and post-primary and Smyth's "Longitudinal Study" (2009) offered the picture of first year students covering the very same material as in primary school. However, is this suggesting a linear continuum for the development of the student rather than the expansion that is needed. The 2012 framework also suggests certain expectations that could restrain, limit and reduce the process or currere of this curriculum. The purpose of the curriculum is so that a student must 'contribute to Ireland's economic, social and cultural development'. Here again are instrumental expectations that Priestley (2013) has highlighted in many recent curricula. This was not the only purpose of education proposed by the assemblage and confines the curriculum to a narrow and instrumental version. Who is determining what social and cultural development? What seems to be suggested is that the

curriculum enters the political arena where politicians guide the selection of content, knowledge and values (Young, 1998, Ball et al., 2012). Priestley and Biesta (2013, p.4), in discussing the new curricula that are being advocated around the globe, offer a warning that the language of curriculum as process [100] advocated by Stenhouse (1975) and Kelly (2009), might suggest progressivist approaches. However, this might be that this is simply part of a long-standing process whereby neo-liberal discourses have assimilated progressive language while maintaining technical-instrumental goals for education. A curriculum in order to be educational must move beyond such goals. The 2015 Framework however revises this tendency and focuses their motivating purpose as 'supporting the needs of the students'. This brings the curriculum back to the arena of the school and the classroom and a focus on the runner and their needs in the running. The professional teacher and leader begins with the runner's needs,(and moving beyond their consumer needs) which at times might not align with political and societal desires.

Focusing on the runner, grounds the curriculum into the present and shifts its focus from the future alone. The **when** of curriculum is no longer about the future only but is a convergence of past, present and future – an expanding process from childhood to adulthood but particularly responding to the needs of the student in the now. This time shift is very significant and suggests a change of mindset from the actors to make curriculum relevant to present needs and not for some instrumental desire for the future of Ireland. The "where " of curriculum is strangely absent in the documents, as if the curriculum creators took for granted the place and space of the educational encounter. However, the "where" is vital if this curriculum is to make the onto-epistemological shift that it suggests. The "where" is about connection and encounter between people – in the classroom, the school, the community and the world during the three years of lower secondary education. This is an important space in its own right – a "where" during which some of the most important growth and development happens for a student.

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[100] See Plateau 6.3.1

The axiological dimension of the Junior Cycle curriculum occurs in the outlining of '***how***' they expect to bring their proposals to realization. Both column 1 and column 3 have clear ideation as to what this should look like: developing a strong disposition and enjoyment of learning and through a quality, inclusive and relevant education. Within the documents there is a move to understanding that autobiography (Pinar et al., 2008) and the inner becoming of a student (disposition) take on important consideration. The value of the coming into the world of the student as unique and different is glimpsed in this desire of the curriculum. The enjoyable relevant experience, the quality and inclusive nature of that experience may enhance the stimulation and motivation for the student to engage with the curriculum. The ***how*** of the Junior Cycle curriculum clearly outlines what a classroom experience should look like and raises important concepts such as inclusivity, diversity, equality, relevance and engagement. The rhetoric of the Framework is suggesting that the responsible response of educators to the new curriculum must be a new approach to pedagogy which might allow every student the space to run. It demands a professional response and the use of professional judgement in how the curriculum is now brought into reality. The curriculum creator has opened the possibility of autonomy and offers spaces for agency to the meso and micro actors to become curriculum makers. This line of flight in the framework was grasped with excitement by some but caused others in the assemblage great angst and fear as it was an alien landscape. However, the creators were adamant that this curriculum would not be about delivery but about transformation.

We were deliberately, strategically, relentlessly positive about the higher-level mission or our vision for this change. Also, although it was unsaid, we were very, and remain to this day very hopeful, that the purposes and the methods and the structure of Senior Cycle will follow on from this major national initiative at lower secondary. What we are looking at, at the early stages essentially of an educational revolution in the country

(Policy Actor 7).

The role of the curriculum creator becomes one of understanding the semiotic, material and social flow of the assemblage of lower secondary education in order to expand the molar and molecular lines of the assemblage. They enable this by offering a curriculum framework which emits lines of flight that will encourage the assemblage to self-organise. This self-organisation could not be a re-set to the old ways of curriculum delivery and therefore there are revolutionary concepts for Irish education offered within the Junior Cycle curriculum. The focus on the human being as multiplicity, connected and holistic, knowledge as expanding and centrifugal and the search for a unique and relevant space for lower secondary, all converge to present a major shift in the thinking and response necessary. However, from the discussion above, there are indications that the Junior Cycle curriculum does not capture the extent of the desire of the assemblage or the ideas emerging in the research and scholarship. The curriculum creators were restricted in what they could offer by the structures and systems that had existed, the culture and mindsets that were entrenched and the linear and deterministic thinking that dominated the purpose and practices in the classroom. Nevertheless, there are clear messages arising from the curriculum framework that encourage a change of thinking and behaviour. Emerging phenomena of becoming are the student as a holistic, unique human being, knowledge extending and connecting the student to the world and the professionalism and agency that is needed to respond to this evolving curriculum.

8.4.2   The Curriculum Maker

The role of the curriculum maker works the semiotic, social and material flows at the local level of the school and the classroom. As discussed, this role merges and nests in the work of the curriculum creator as all actors in the assemblage create the framework for curriculum. Curriculum makers are a multiplicity of meso, micro and nano actors. They apply the 5 'w's and the 'h' to their planning for the education that best serves their pupils. Curriculum making proposed by the Junior Cycle happens when the school shifts their concentration from focus only on the exam to the educational experience in the classroom. This is a shift in thinking from

transmission and delivery to the student and how they can expand their knowledge, understanding, skills, values and dispositions through the encounter in the classroom. It has a chance to occur when the teacher's thinking shifts from one of just subject teacher to educator. This was one of the biggest changes for teachers and leaders and the data offered insights into what the role of the curriculum maker might entail:

- Understand and make-sense of the concepts in the framework.

- Speak the educational language of the framework.

- Make connections with the multiplicity of dimensions offered in the frame to meet the needs of the students in their own context.

- Expand their knowledge, subject and discipline to connect with the nested world of the student and with others in the assemblage.

- Develop their understanding of professional identity and professional judgement.

- Collaborate and dialogue with other teachers within and without the school.

- Build educational spaces where something unique might happen and come into the world.

- Foster a positive disposition to change and encourage the possibility of the virtual as well as the actual.

What is proposed here is a whole new role for teachers, students and leaders and how they operate inside and outside the classroom and the school. It requires an ecological mindset which focusses on connectivity rather than assessment.

Roles and Relationships are Becoming through Agency and Collaborative Practice throughout the Assemblage.

The question a teacher might now ask is how am I connecting to the human beings in the educational space – the students, other teachers, school leaders, parents? How am I connecting to knowledge – through my subject, to other subjects, to the community and to the world? How am I connecting to non-human and more than human – to technology, the desks and furniture in my classroom, the environment of the school? How am I connecting to skills, to the diversity of values within the school and the world, to the multiplicity of dispositions? The teacher's role is viewed within the Junior Cycle as an "agent of change". Priestley and Drew (2016) have critiqued the use of this idea by arguing that:

> ….teachers in many countries have lost much of the craft knowledge necessary for school-based curriculum development, attributable to prescriptive teacher proof curricula (input regulation), and heavy-duty accountability mechanisms (output regulation) (p.1).

Taylor has also offered warnings to this avenue of thinking and highlights that teachers have been used to curriculum which were somewhat "teacher-proof" (2013). This has inhibited creativity and innovation and the expectation that this can suddenly reverse itself without significant resourcing and in-service from the curriculum creators, shows a sincere lack of understanding as to the impact of previous curricula practices. These structures that exist from our past are not separate or external to all the actors in the system. The actors embody this top-down, fragmented and striated structure. Each actor perceives, interprets and is shaped by their living experience of this structure (Byrne and Callaghan, 2014, p.112). Complexity theory and rhizomatic curriculum views more than the teacher as an agent of change. Rather it sees the teacher as one actor, amongst a network of collaborative actors that will bring about change to curriculum in the assemblage (Fenwick and Edwards, 2010). Agency becomes through a

convergence of factors such as the individuals own capacity and environmental structures and systems. Teachers and leaders in the assemblage who grew in confidence in their own agency and who brought about change were not only passionate about their local context – the school and students- but had a systemic understanding and knowledge of the purpose and rationale for the change.

The capacity of teachers to change their roles to respond to the Junior Cycle curriculum is a highly complex process and stating that teachers are "agents of change" is a shifting of responsibility for the enactment of the curriculum onto the shoulders of teachers. Rather, this curriculum needs a network and eco-system of "agents of change" who engage in deep reflection on how best to build capacity as individuals and as a collective, to change inhibiting structures and build a culture whereby a teacher is enabled to lead change within their classroom and school, without being closed down by mindsets that demand the status quo. What has built teacher agency over the early years of the reform is the move to collaborative practice. In the earlier discussion, I highlighted the lines of flight both across the domains of the assemblage and within the domains themselves. There is a definite shift in some schools to build professional learning communities and to develop teachers as leaders of curriculum and innovation within their own schools. What these communities look like from the data are groups of people, both teachers and leaders, coming together with a shared vision, working together and exploring how they can meet the needs of the students within their context (Stoll et al., 2006). There was clear evidence that the many committees, teams and particularly the Subject Learning and Assessment Review meeting for teachers, were generating a confidence in the agency of each teacher and school to develop practices that activated their ability to make curriculum. Leaders of schools understood that change must emerge from within the thinking, practice and hopes of the teachers themselves – ground and bottom up. It is not about the teacher having autonomy in their silos but rather curriculum reform requires the teacher to build a new craft of skills to connect themselves to the eco-system of the assemblage. These

connections might bridge the gaps that are often experienced between the intended curriculum and the achieved curriculum (Supovitz and Weinbaum, 2008).

8.4.2.2   *Pedagogy is Becoming by Opening Up Spaces of the Possible and Not Yet Imagined.*

This understanding of the importance of the connections and inter-relationships poses the challenge of developing new roles for both teacher and student. It brings to the fore a whole set of questions not only about learning but especially about teaching. Davies and Sumara tell us that despite the prominence of discussions about learning, "discussions seldom involve an interrogation of the actual phenomenon of teaching" (2007, p.54). There is a whole new skill set and craft of teaching demanded from this curriculum and it has put huge onus on developing capacity of the teacher and the leaders of schools. The teacher is beginning to work with curriculum as rhizome (See **Appendix 10**). This capacity is about shifting a world view that is based on determinism and instrumentalism to one that is emerging and works to create spaces that open to the as-yet-unimagined. This thinking is captured in by Davis and Sumara (2007):

> Teaching, like learning, is not about convergence onto a pre-established truth, but about divergence – about broadening what can be known and done. In other words, the emphasis is not on what is, but on what might be brought forth. Teaching thus comes to be a participation in a recursively elaborative process of opening up new spaces of possibility while exploring current spaces (p.64).

Davis and Sumara's comments offer reminders of the importance of the virtual in curriculum. The virtual is the mode of reality implicated in the emergence of new possibilities. This is a line of flight, a belief in possibility, that poses huge challenges for the assemblage and needs on-going resourcing and in-service. However, there are clear lines of flight in the type of methodology teachers are introducing to encourage more engagement, deeper understanding and developing the skills and values to make possibilities actual. Active methodologies are encouraging the generation of collaborative classrooms with a move towards a hermeneutical style in some situations. There are clear indications of a shift to constructivist theories of learning and the word "scaffolding" was used in relation to the learning not only for students

but also for teachers.   Students and teachers were comfortable talking about Learning Intentions, quality criteria, peer and self-evaluation and formative assessment. The data offered a renewed approach to Bloom's taxonomy as many schools were relooking at the levels of questioning used in the classroom and on examination papers. The engagement with formative assessment has generated discussion about the type of feedback that students receive both in the classroom and on their reports and this has been one of the areas that have offered very positive returns for students improved learning and responsibility for learning.

The curriculum has changed the content and the pedagogy is changing to bring about this reform. The role of the teacher has shifted to a focus on the nested encounter with the students as a holistic individual but also as a collective member of a class/school/community/family. Teachers are not just a delivery service for knowledge and curriculum but there are concepts such as inclusion, diversity, heterogeneity to be negotiated. The boundaries that a teacher erected around their subject have been extended and they are encouraged to be concerned about the wellbeing of the student. For some, this brings them into unfamiliar territory. The teacher is asked to bring their professional judgement to make curriculum which responds to the needs of the students sitting in the classroom before them. The biggest change in the role of teacher is the expectation of the development of the craft of dialogue they now construct with the student as they make curriculum together. The student's role is about taking responsibility for their learning and engaging with the teacher in an encounter where they have voice and agency to bring something new into the world. Biesta has highlighted that education needs a "pedagogy of interruption" (2006b, p.150) and states that it is only when we give up the idea that human subjectivity can be educationally produced that spaces might open up for uniqueness to come into the world. He argues that "In all cases, it means that education ceases to be a process of giving, and instead becomes a process of asking, a process of asking difficult questions (2006b, p.150).

Within the data there were hints of the emerging of an Enactivist theory of learning. Teachers were experiencing the connectivity of the web of curriculum and the nested place of humans within it. The more confidence they gained in curriculum making, the more they realised that all dimensions of the curriculum were connected and were emerging in their classroom. Perhaps one of the most liberating aspects of curriculum making was the opening up of the creative and innovative abilities of teachers and students. Their new role pushed them towards the edge of chaos and their response was often that of opening imaginative and original spaces. In the later years of this study, repeatedly, leaders and inspectors alike, exclaimed their surprise at the creative capacity of teachers and students as they connected in many unique educational encounters in the classroom.

One line of flight that is also emerging is the approach to difference within the assemblage. Data offered insight into the expanding understanding of diversity in all its multiplicity but significantly there is a growing emergence of difference in kind. This is particularly becoming in the approach to different modes of assessment. Summative assessment captures difference in degree through its use of standards, rubrics etc. A teacher can differentiate between the progress of one student in comparison to another. However, in classroom-based assessment, there is the growing awareness that there is another type of difference – difference in kind. This assessment offers an insight for teacher not at a point in time, but rather change in progress happening over a longer space of time through encounter, feedback and engagement together. According to Deleuze and Guattari (2003) difference in kind opens the spaces where something novel becomes into newness. Classroom-based assessments offered clear evidence that they created smooth spaces for students to become, moments of epiphany for students and teachers – spaces were extraordinary things happened and allowed the student to emerge in their own uniqueness.

The pattern that emerged from the teachers and students was a positive experience of learning and growing in understanding of their talents. It was about affirmation. For some students, it pushed them beyond their comfort zones and yet they were delighted that they had achieved. An important message for the curriculum makers, was to ensure that this space does not move into performance but remains a space where students can emerge in their unique presence to the world. The misunderstanding between assessment for difference of degree and kind is an area to be explored with teachers in the assemblage so that the understanding of assessment can be expanded. The CBA is about creating the space of possibility – offering a space for change and newness. The final June exam is about assessing for degree – which finds its space in numbers and percentages. This confusion has been a major inhibitor of bringing about curriculum reform in Ireland. The above lines of flight are gathering momentum within the assemblage and are self-organizing into real changes in the assessment and pedagogical practices of teachers and students.

Introducing such a revolutionary curriculum which posed a whole shift in thinking, understanding and practice was not for the weak hearted. Reform faced many highly complex and converging factors; a context that favoured the linear, instrumental and deterministic approach to education; the reset history of curriculum reform; conflicting educational policies and agendas; cultural mindsets and social fragmentation and individualism; political will without political resourcing. Yet, through the new ideology on the centrality and holistic nature of the student and a more rhizomatic framework which enabled autonomy and agency in the school and classroom, the molecular lines of the assemblage were cracked and new lines of flight as to what education and curriculum were about emerged. Thresholds opened but many thresholds remained closed and some actors remained within the liminal space that had been created. The following **Table 15** is a summary of the opening and closing thresholds of the becoming of curriculum in secondary education in Ireland.

Table 15 Curricular thresholds opening up and curricular thresholds closing down the flow in the assemblage

Curriculum Lines of flight	Thresholds Opening	Deterritorialization	Thresholds Closing	Deterritorialization
Ideology: **Epistemology-** **Knowledge is becoming as a centrifugal emergence**	Knowledge making is a multiplicity and has moved beyond subjects to also include a diversity of skills, values and dispositions	Intrinsic worth of knowledge Short courses, Wellbeing, Other areas of learning, Skills – Learning to learn Scaffolding of a framework to support this change	Normative and hierarchical acceptance of subjects	STEM bias in curriculum Focussed on CAO points Academic approach only
	Broader, non-linear and deeper approach to knowledge	Reduction of the number of subjects and easing of the overcrowded curriculum Use of digital technology New content	Teacher as deliverer of knowledge	Subjects as silos, Class streaming, Limited understanding of assessment, Standard approaches
	Knowledge connected to the world in which the student lives and responds to their needs	Agency of teacher and student in the process of sense-making and curriculum making Critical thinking and problem solving	Passivity of the students Knowledge is limited to what is on the exam	Curriculum as product Spoon feeding knowledge Teacher knowledge capacity limited Equality of educational experience for all a concern

Ontology- **Living out new** **roles and** **relationships** **as curriculum** **makers and** **creators**	Centrality of the student	Inclusion & equity - Level 2 Learning Programmes, Wellbeing Heterogeneity	Students who do well in assessment	Uniform and homogeneous response
	Holistic development	Something new coming into the world Common level papers	Success measured by academic potential	Higher/ordinary/ Foundation levels
	Student voice	Oral component of English CBA Dialogic practices in the classroom Curriculum maker	Little opportunity to voice or choice	Student council, questionnaire
	Changing role of the teacher	Professional judgement -what does it now mean to be a teacher?	Autonomous professional Syllabus as product Practice v's theory	Sacred space of classroom and exam centre Note giver Teaching to test Getting good results
	Craft as curriculum maker	New language and concepts 24 Statements of Learning Specifications Assessment of own students in CBA's SLAR meeting	Summative assessment practices	Pen and paper exams
	Professional role as teacher	Professional time JCT in-service Agency	Engagement at subject CPD only	Demand for specification to be more content specific
Axiology-	Holistic education for all	8 Key Principles	Academic achievement	Subjects like SPHE, RSE, PE get little timetabling space

A call to responsible responsiveness	Ethical call to ensure the full potential of students are realised	New relationships based on equity New assessment practices Resources	Refusal to assess students state exams Limited resources	Relationships of dependence Limitation of agency due to limited time, space and capacity
Framework **An invitation to autonomy, agency and flexibility**	New curriculum concepts	Curriculum as process Trust Capacity Collaboration Learning Outcomes	Curriculum as product – aims and objectives Individual practice	Textbooks Timetable Transactional conversations
	Coherence	Intra-relationship of the three elements of the new curriculum Level 2 Learning Programmes Portfolios	Subject orientation	Differentiation not included in planning
	Connectivity	Classroom environment Short courses Formative assessment Technology Senior Cycle	Linear rows Digital technology used in style of chalk and talk	Banning of mobile phones PowerPoint presentations
	Convergence	The centrality of the classroom Networks of relationships - social capital Building of agency and collaborative practices Reflection	Centrality of the teacher	Micro - management of curriculum
Pedagogy- **Opening up the space of the possible**	The teacher as an agent of change amongst many agents	Professional identity New approach to subjects and relationships Letting go of control Opening up to the unpredictable	Authoritarian control Minimalist response	Chalk and talk Discipline

		Individual learning approaches Behaviourist theories of learning	Traditional approaches
Multiplicity of approaches	New methodology Constructivist theory of learning Formative assessment Group work Active learning Digital technology Theories of learning		
Assessment - a different animal	Classroom-based assessments SLARs Assessment Task State examination Reporting From private to public practice Unpredictable Feedback	Performance Private practice Limited reporting profile for students	Christmas and summer tests Predictability
Collaboration	Professional Learning Communities Group work Leadership	Closed classrooms Lack of professional discussion	No shared resources

There are many flaws to be seen on all levels of the assemblage during Junior Cycle curriculum reform, from poor messaging and communication, beginning reform during a recession, lack of understanding of the concepts and language, failure to respond to an ethical call and the transfer of micro agency to a body that had its own non-educational agenda. However, what is clear is that the assemblage is now learning. How curriculum is becoming in lower secondary education in Ireland is through connectivity, developing intra and inter-relationships and expanding across all levels. At the end of six years, curriculum is no longer viewed as a syllabus, a product, but rather as an evolving and emerging multiplicity of elements - a rhizome. Entering into this eco-system is exciting but challenging. The biggest challenge for the actors is to retain a space for lower secondary and not allow the Leaving Certificate to dominate the educational experience

of the students. The message that was important to the actors and might be repeatedly shouted aloud is that education is about the becoming of the student into presence as something new and that the Junior Cycle curriculum offers the spaces for this becoming to emerge during the first three years of secondary education. Lines of flight may be found in our three main areas of research:

a. The assemblage is self-organising and expanding its nature by arranging and fitting together a more ecological structure and culture. It is learning to adapt its social and political responses to curriculum creation and making in lower secondary education.

b. The purpose of education becomes as a multiplicity. It retains its desire for qualification but there are lines of flight in the purpose of education as socialization and subjectification. The need for and the use of professional judgement to navigate the multiplicity of educational purposes was emerging as an important becoming in the assemblage.

c. Curriculum is becoming in the assemblage of lower secondary education in Ireland as rhizome: a multiplicity, which incorporates an ideology, framework and pedagogy that encourages difference through the affirmation of the human being as they become something new and find their home within the world. The two roles that assist with this becoming are those of curriculum creator and curriculum maker.
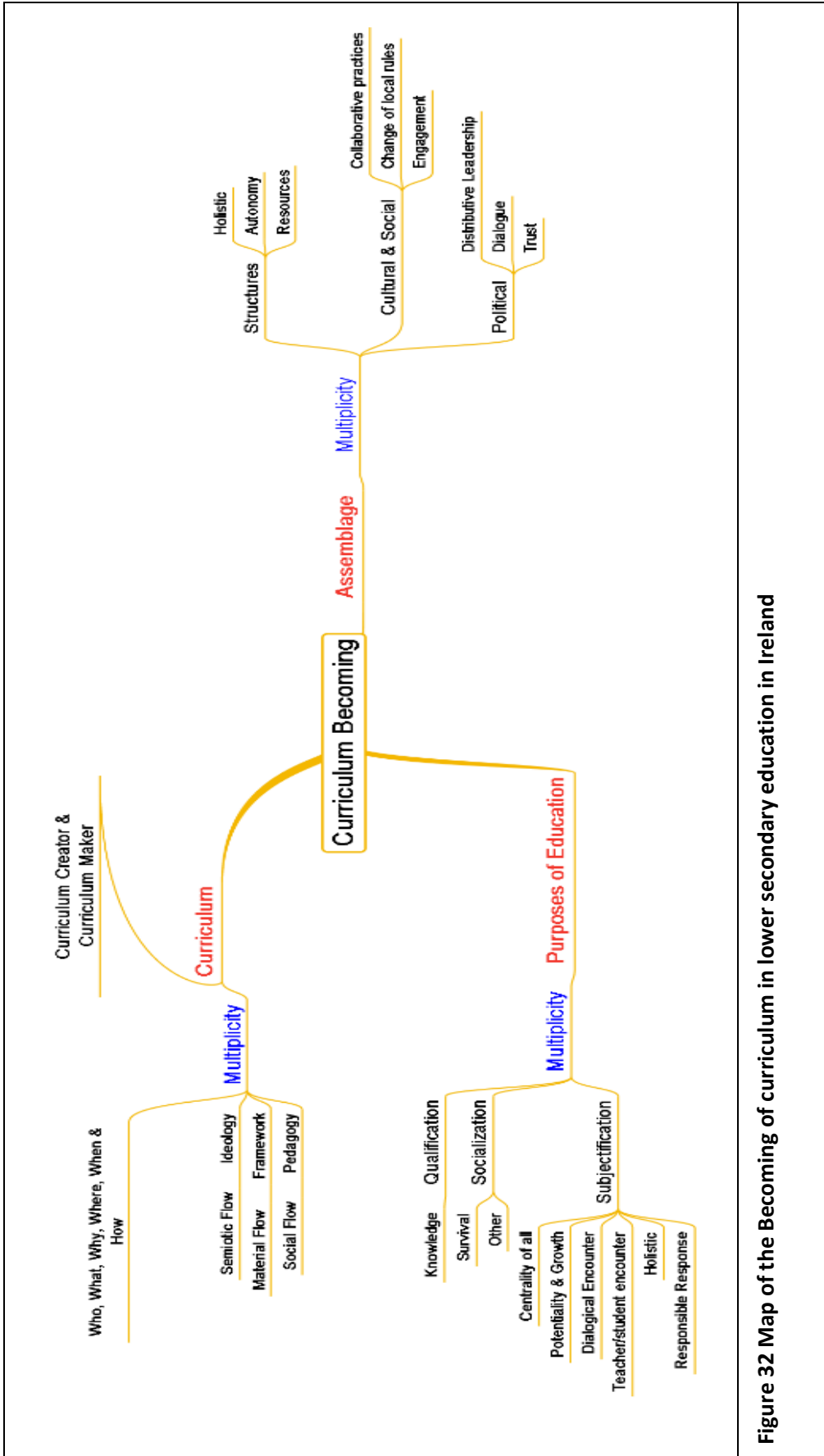
Figure 32 Map of the Becoming of curriculum in lower secondary education in Ireland

(BE)GOING THOUGHTS

What is Becoming?

This thesis has centred on three areas of intensity and interest: the assemblage of lower secondary education in Ireland, its educational purpose and curriculum creation and making in a time of curriculum reform. What is new and coming to light through this research is viewing these three areas as interconnected multiplicities. This research highlights the incompressibility of the connections between/in/through the assemblage, educational purpose and curriculum. It has found that what comes through the middle of their inter and intra-connection, is a more emergentist understanding, a space where education and curriculum "pick up speed" (Deleuze and Guattari, 2003) and moves from striated spaces to smoother spaces. What is novel about this research is mapping as nomad these multiplicities through their semiotic, social and material flows during a stage of tremendous and controversial curriculum change. What this thesis captures for the first time in Ireland is the breadth of voices in the assemblage of lower secondary education. What is emerging and becoming for curriculum in lower secondary education is their desire to rethink the educational encounter and offer students spaces to bring something new into the world. These spaces encourage difference, not just in degree but difference in kind. These are spaces which affirm their humanity and call it to situate itself with others in their home within the world.

The **structure** of the assemblage has been mapped as a multiplicity which is becoming and emerging through the self-organisation of:

1. A more agentic, collaborative and distributive assemblage, within each domain and between each domain.   There are clear lines of flight from separations and fragmentation, to interconnections.

2. A more distributive communication system throughout the assemblage with open feedback and recursive loops.

3. An openness to viewing lower secondary education as an ecosystem – an open, adaptive system which embraces the messiness of life in a non-linear, dynamic and emerging process.

However, the data also evidenced within the assemblage a clear reluctance on the part of some micro and meso actors to move their approach to curriculum from product to emergentist. Actors are caught in a liminal space, between the linear, deterministic and instrumental thinking about purpose and curriculum and the emergentist approach of the Junior Cycle Framework.

On the level of purpose of education, the assemblage once again highlights the concept of connectivity and multiplicity. This research captured the view of the actors which proposed that the purpose of education at lower secondary desired liberation from the constraints and instrumentalism of the Leaving Certificate. There is a move to understanding education as a space of emergence through a more radical relationality. It seeks a flattening out of the thinking that human beings were at the top of the hierarchy of life and instead sees the human being as nested within a planetary interdependence. The purposes for education are to connect the student to Life and offer a deep understanding, knowledge, skills and values as to what makes a student part of this interconnected world. They desire a purpose that offers qualification but wants lower secondary to concentrate more on socialization and subjectification. The focus of this space of education should be on the becoming of the student in diversity, freedom, equality and democracy. There is evidence from the data that the assemblage desires more than learning and what matters is an expanding, non-linear process of strong emergence and becoming of the student. This educational purpose is an onto-epistemological shift which incorporated a move from the predictable and determined to the unpredictable and incompressible. Whilst this shift was desired by the assemblage, it floundered when the macro actors began to build the framework that would put it into the lived reality of the school and classroom. The research offers an insight into the need for the assemblage to respond responsibly to the rationale for

the change in the purpose of education and sees the call to change from the limitations of the previous curriculum as an ethical call.

The study offers two roles that are essential for the becoming of a curriculum. The curriculum creator,(an ecosystem of all actors from all domains of the assemblage) connects the multiplicity of the ideology of a curriculum into an ecological framework. The curriculum maker works with/through/between the multiplicity of curriculum components and brings them into life through a pedagogy that open spaces that expand into the not-yet-imagined, where something new comes into being. The human being finds their home within the world by turning to the other in the teaching and learning encounter. The research demonstrated new roles and relationships emerging within the school and classroom and the becoming of an understanding of a new professionalism and the use of professional judgement. The Junior Cycle curriculum has not reset back into the old patterns but is becoming in lower secondary through a process of self-organising as an emerging process, a multiplicity not a product. It is becoming through an on-going process of encounter that fosters human becoming through the enabling of difference and connectivity between others and the world.

The interplay of these three elements of connectivity encourage the thinking about the assemblage and the curriculum as an eco-system – a rhizome, a system where there is a deep living order as the system self-organises and catalyses itself (Doll, 1993, p.22). To further this becoming, the discussion highlighted the need for multiple literacies for the actors: ecological, conceptual, professional, relational and curricula literacy. The resourcing and development of these literacies will enable the curriculum to open thresholds to move the actors from the liminal state of the assemblage. It will improve the semiotic, material and social flow of the assemblage which needs to move from fragmentation, segments and silos of thought and practice. Future focus on these literacies may expand the nature of the molar and molecular lines of the

assemblage and emit lines of flight that seem at this point of the reform, impossible to imagine. The responsibility of opening smooth spaces lies with all the actors.

Strengths and Limitations

One of the strengths of this thesis was the building of the theoretical framework which allowed me access to the complexity of the assemblage and to map its changes. It offered a conceptual toolbox which expanded and challenged my own knowledge and understanding and opened up new thoughts. It freed me from the bondage of linear thought. Understanding the assemblage as an open, adaptive system made me concentrate on connections rather than separations and fragments. It made me highly sensitive to context and environment and the importance of viewing the human being as nested in the heart of life. This theoretical framework and its approach to the assemblage as holistic and an eco-system offered a pathway to methodology and the construction of the rhizo-analysis. Situating the methodology in a post ~qualitative paradigm answered the call in the literature to *"to produce different knowledge and produce knowledge differently"* (St Pierre, 1997, p.613). The voices of the actors across the assemblage produced different knowledge in that no study at the time of writing had taken the approach to interview actors across the four main domains of lower secondary in Ireland. The rhizo-analysis encouraged this study to produce knowledge differently through building the connections and intra-relationships between people, theory and practice within their social, cultural, political, historical and environmental contexts. The strength of this thesis is the prooffering of a map of the lines of flight that have emerged in the enactment of the Junior Cycle curriculum. Whilst these are tentative and early lines of flight, they are gathering momentum in the assemblage and are deterritorializing into a change of educational purpose, structure, mindsets, culture and practice. There is the beginning of evidence that education is becoming and curriculum is rhizome.

One of the limitations of the study was the reduction of the many ideas and concepts offered in Complexity Theory and in Deleuze and Guattari's "A Thousand Plateaus" (2003). As author of this thesis, I had to make many executive cuts to the material being offered. The richness of Complexity Theory and the processing of concepts on the plain of immanence, does not lie in their existence as separate components alone, but in their interrelationship and interconnectedness. Whilst there was a reduction of the use of some concepts, the main Deleuzian and Guattarian concepts of assemblage, becoming and rhizome created a rich tapestry of concepts that open to other concepts if a reader has the inclination to follow them. Also, the data that emerged was so extensive that again, executive cuts had to be made. The cuts were made with the main three areas of interest in mind and I focussed on data that helped to answer the primary thesis question. It is the hope of this researcher to visit some of these data again so that its richness will not be totally lost.

Another limitiation that must be offered is the recognition that I was nested very much within the assemblage in my past experience as teacher, principal and as a JCT associate. It posed the challenge for me to look always at the data that was before me and not my preconceived experience and expectations. My mantra throughout was "Where in the data?" Finally, the data does not offer the voices of parents. I did try to engage the National Parent's Council but despite many endeavours, the interview did not occur. Further research that mapped the parents voices and views, would enhance this research. I am forever grateful to all the actors who opened their doors to me during 2017 and who were willing to read their transcript and agree to its use. Such generosity will be always remembered.

Recommendations

1. This study, due to its focus on the first six years of reform was not able to map the reterritorialization of the lines of flight completely. Therefore, further study to map the lines of flight and their reterritorialization would be very important for policy makers in making changes to the Junior Cycle Framework.

2. The senior cycle curriculum is now undergoing the initiation of consultation for reform. I recommend the application of some of the findings of this thesis to the process:

   a. An understanding that curriculum is a multiplicity and the semiotic, social and material flows of the senior cycle assemblage might be researched for their molar, molecular and lines of flight.

   b. Deep consultation across the four domains of the assemblage, powerful communication systems and messaging .

   c. I recommend the development of a clear purposes of education for senior cycle through in-depth dialogue with all stakeholders and through the lens of qualification, socialization and subjectification.

   d. An exploration of the ecological, conceptual and curricular literacies that are available to teachers and leaders as curriculum makers across the assemblage of senior cycle education.

3. I recommend the development of the understanding of difference both degree and kind in order to help teachers understand and engage in a new approach to assessment.

4. The proposal for senior cycle to move from a curriculum knowledge, understanding, skills and values based on subjects alone to a more extended and rhizomatic approach.

5. Lower secondary education needs to retain a distinct identity and becoming for itself through on-going resourcing and in-service for teachers, leaders, pupils and parents.

6. Further study to be carried out on how the Junior Cycle Framework can emerge and become as a rhizomatic model from the perspective of the curriculum creator and curriculum maker.

7. Research on how the meso level of the assemblage embraced the role of leader of learning and teaching and the challenges and opportunities this offered.

(Be)going......

I began this Ph.D. because I had experienced the opening up of smooth spaces in the post-primary school where I was the principal. I saw the change in the dispositions of the students and the teachers when they were engaged in education that was not totally instrumental and deterministic. I witnessed emerging confidence, talents and uniqueness that embraced diversity and equality. I wished to know whether this could be the experience for all students and teachers and what was needed to make this a possibility for all schools. I have enjoyed every moment of this journey and have been challenged at all levels of my becoming. Through this research, I now believe that smooth spaces should be the experience for all in education and they can be made available through the curriculum creator as they build a curriculum multiplicity that connects to myriad ways of knowing, doing and becoming. Smooth spaces can happen through the curriculum maker as they ensure that the classroom encounter opens up thresholds that allow something new to come into the world, something as-yet-unimagined. They can happen through the student as they engage in an education that offers them the possibility of finding their home within the world.

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APPENDIX 1: QUESTIONS ASKED DURING INTERVIEWS OF POLICY

1. **Could you outline for me the story of the ……………………………..input into the design, development and enactment of the Junior Cycle?**

2. **What do you think was the main purposes of the reform? Had you any concerns about these purposes? What elements of the framework were you happy with?**

3. **What would be your main understanding of what education is for?**

4. **Do you think that the education system was ready for such reform? Why/why not? What in the system would you have had concerns about?**

5. **What became the main challenge for your organisation?**

6. **What kind of consultation took place between the different stakeholders in the education system? Did consultation improve or dis-improve as the enactment occurred? What do you mean by consultation?**

7. **Have there been any significant "distinctive" or "surprising" moments in the process of implementation of reform, that changed the course of bringing about reform?**

8. **What do you think were the contributing factors to these moments?**

9. **Do you believe you had autonomy and agency in the system to carry out your brief?**

10. **What do you see as the main changes, if any, that are now emerging in the education system due to this reform?**

11. **Do you see any of these changes as transformational for education in Ireland?**

12. **If this process was to begin anew, what would you change?**

13. **What have you learned about curriculum enactment and will this learning, change future curriculum enactment for your organisation?**

APPENDIX 2: LEADERS AND TEACHERS QUESTIONS FOR INTERVIEW

1. Can you remember when you heard about the Junior Cycle first?

2. What was your initial response to it?

3. What do you think it was mainly trying to achieve?

4. What do you like about its rationale? What do you dislike?

5. What do you think is the main purpose of education? Are these ideas contained in the Junior Cycle?

6. How has the Junior Cycle changed your approach to teaching, learning and assessment?

7. Could you give me any concrete examples of these changes?

8. Do you think that it offers teachers/leaders more agency and autonomy?

9. Have you read the Junior Cycle Framework, the Guidelines for Wellbeing or other associated literature?

9. Have you attended any CPD on the Junior Cycle? How well did it help you understand the reform?

10. Do you think the education system was ready for this reform? Why/why not?

11. What are your own concerns going forward?

12. What do you see emerging in the education system as a result of these reforms.

13. Do you think the Junior Cycle could be transformational for Irish education?

APPENDIX 3– INTERVIEW QUESTION FOR FOCUS GROUP INTERVIEWS

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1. Can you tell me the story of your school day.. the time you start, what happens, what you do?

2. What subjects did you take in first year? Did you get a chance to 'taste' these for a while?

3. What are you learning?

4. Why are you learning?

5. When do you feel most comfortable learning?

6. How do your teachers help you to learn?

7. What ways does your teacher let you show what you are learning or have learned?

8. What are the ways that your teacher has you practice what you are learning?

9. How do you think you are doing in your classes? How do you know? How do you show your teacher that you know? What can you do yourself to improve your learning?

10. In what way does your school offer the area of learning called wellbeing?

11. Why do you think it has become important on the Junior Cycle curriculum?

12. Is there any other skill or knowledge that you would like to explore, but that the curriculum doesn't offer. Why?

13. What do you think the Junior Cycle is trying to accomplish for you?

14. Do you think you have a say in what, why and how you learn?

APPENDIX 4 : THE ANALYSES OF THE HORIZONTAL AXIS OF THE ASSEMBLAGE

Human & Non-Human Actors :

- Who are the human actors involved in this assemblage of lower secondary in Ireland?

- How are they assembled in the assemblage -what agencies do they represent?

- What are their roles?

- How are they structured – hierarchical, distributive etc.

- What material (non-human) elements are important in this assemblage – school buildings, technology, resources, frameworks etc.

- What is the capacity of the various elements in the assemblage?

- What is system and what is environment in this assemblage?

Connectivity and Relations

- Where and how does the Junior Cycle enactment encourage interconnections and networking?

- Where are the interrelations and interconnections happening?

- What are the rules governing behavior?

- How do they combine and interconnect?

- Where and how was consultation offered and to whom?

- Who engaged in the process? What did they understand by engagement?

- How do the different levels of curriculum strata- supra, macro, meso, micro and nano levels   (van den Akker and Thijs, 2009) – impact the assemblage?

- Where are the positive and negative feedback loops occurring and why?

- What kind of matter, information and energy do they exchange?

- How do these feedback loops encourage self-organisation?

- What feedback loops generated change and what generated equilibrium?

- What are the enablers and constraints placed on the lower level elements by other levels of the system?

- Where is the power in the system?

- What characteristics of those lower level units determine the range of dynamical possibilities at the focal level?

- What are the typical attractors (what might happen) of the focal level dynamics?

- Under what conditions is each attractor dominant for the (sub-) system?

- How do new attractors emerge over the history of the system's development and the evolution of this kind of system?

- Which features of system behaviour are determinate and which are not?

Purpose/desire

- What are the desires or purposes of the assemblage?

- How are they evident in the assemblage?

- What is the disposition of the assemblage?

- Whose desires have most voice and power?

- How have juxtaposing desires impacted on the system?

- What desire or purpose is gaining momentum in the assemblage?

Enunciation

- What previous history had the assemblage with curriculum enunciation?

- How was the Junior Cycle Framework announced?

- What affect did it have on the system?

- What documents are available from the design and development phase?

- How did the system react?

- What were the messages offered during the early days of enactment and how clear where these messages?

- How was communication enabled or disabled in the system?

- Who were the main messengers of the Junior Cycle?

- What are the main metaphors being used by the actors about Junior Cycle?

- What are the semiotic flows, material flows and social flows in the assemblage due to the enactment?

APPENDIX 5: LIST OF NCCA REPRESENTATIVES

Chairperson
Nominee of the Minister for Education and Skills
Nominee of the Minister for Children and Youth Affairs
Joint Managerial Body x 2
Irish National Teachers Organisation x 3
Educational Training Board Ireland
Catholic Primary School Management Association
National Association of Boards of Management in Special Education
Church of Ireland
Irish Federation of University Teachers
Irish Business and Employers Confederation
Irish Congress of Trade Unions
Association of Community and Comprehensive Schools
National Parents Council – primary
National Parents Council – post-primary
Foras na Gaeilge
State Examinations Commission
Department of Education and Skills
Association of Secondary Teachers of Ireland x 2
Teachers Union of Ireland x 2

NCCA Council – the Macro Level of the Assemblage

APPENDIX 6: 24 STATEMENTS OF LEARNING

The Student

1 communicates effectively using a variety of means in a range of contexts in L1*

2 listens, speaks, reads and writes in L2* and one other language at a level of proficiency that is appropriate to her or his ability

3 creates, appreciates and critically interprets a wide range of texts

4 creates and presents artistic works and appreciates the process and skills involved

5 has an awareness of personal values and an understanding of the process of moral decision making

6 appreciates and respects how diverse values, beliefs and traditions have contributed to the communities and culture in which she/he lives

7 values what it means to be an active citizen, with rights and responsibilities in local and wider contexts

8 values local, national and international heritage, understands the importance of the relationship between past and current events and the forces that drive change

9 understands the origins and impacts of social , economic and environmental aspects of the world around her/him

10 has the awareness, knowledge, skills, values and motivation to live sustainably

11 acts to safeguard and promote her/his wellbeing and that of others

12 is a confident and competent participant in physical activity and is motivated to be physically active

13 understands the importance of food and diet in making healthy lifestyle choices

14 makes informed financial decisions and develops good consumer skills

15 recognises the potential uses of mathematical knowledge, skills and understanding in all areas of learning

16 describes, illustrates, interprets, predicts and explains patterns and relationships

17 devises and evaluates strategies for investigating and solving problems using mathematical knowledge, reasoning and skills

18 observes and evaluates empirical events and processes and draws valid deductions and conclusions

19 values the roles and contribution of science and technology to society, and their personal, social and global importance

20 uses appropriate technologies in meeting a design challenge

21 applies practical skills as she/he develop models and products using a variety of materials and technologies

22 take initiative, is innovative and develops entrepreneurial skills

23 brings an idea from conception to realisation

24 uses technology and digital media tools to learn, communicate, work and think collaboratively and creatively in a responsible and ethical manner

APPENDIX 7: SHORT COURSES, WELLBEING, LEVEL 2 LEARNING, & OTHER AREAS OF LEARNING

Short Courses: Short Courses allow each school flexibility in delivering the Junior Cycle to their students. A short course could answer the need of the school in providing the 24 Statements of Learning that traditional subjects have not covered. It also allows for an enhanced and broader learning experience for students. A short course must allocate 100 hours of student engagement over the three years of the Junior Cycle. A school can offer a maximum of four short courses. The NCCA have provided the following seven short courses:

- Coding
- Digital Media Literacy
- Artistic Performance
- Chinese language and Culture
- Social, Personal and Health Education (SPHE)
- Physical Education (PE)
- Civil, Social and Political Education (CSPE)

Schools may also create their own short courses in accordance with a template and guidelines set out by the NCCA.

Level 2 Learning Programmes: The Level 2 Learning Programme, aligned with Level 2 of the National Framework Qualifications, offer a student with general learning disabilities in the higher functioning moderate and low functioning mild categories, a

new road to experiencing success. While the L2LP will only affect a handful of students in Second level schools, it will have huge implications for our many Special schools. The L2LP is designed around priority learning units which focus on the social, personal and pre-vocational skills for study, work and life. The prospect of a student actually experiencing success in these units is a positive move and it opens the doors of schools to become more inclusive to our students with special needs.

Other Areas of Learning: Learning in the Framework is based on a more holistic approach and therefore schools are now confronted with integrating Other Areas of Learning and Wellbeing. Already the practice of volunteering for extra-curricular activities is widespread in Irish schools and a student will have the potential to experience many different options such as sport, drama, choir, debating etc. A school will have to make the decision as to what exactly will be accepted as "Other Learning Experiences" and who will collect and report this data. It will capture a wider picture of each student's learning over the three years of the Junior Cycle and along with the area of Wellbeing will feed into the raising of self-esteem and confidence amongst young adolescence.

Wellbeing: The wellbeing of the students in lower secondary has been particularly targeted by the Framework. Wellbeing is about "young people feeling confident, happy, healthy and connected". (pg. 22) The challenge for all schools is to integrate wellbeing across the whole curriculum and this is reflected in many of the 24 Statements of Learning[101] and the development of Key Skills. Over the phasing in of the Framework, schools will have to allocate up to 400 hours for wellbeing and this will

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[101] 24 Statements of Learning: 5,7,10,11,12,13

include areas such as Physical Education, SPHE, CSPE and guidance. It will try to ensure that that the students will experience learning opportunities to enhance their physical, mental, emotional and social wellbeing. It responds to a critical need for students in Ireland today to build resilience, belonging and identity with their communities.

APPENDIX 8: CHANGES TO THE JUNIOR CYCLE REFORM THROUGH THE LENS OF THE DOCUMENTS PUBLISHED

Year	June 2009	Feb 2010	Feb 2011	Nov 2011	Oct 2012	Jan 2014	Feb 2015	May 2015	Aug 2015
Actor	Minister Bat O'Keefe	NCCA	NCCA	NCCA	Minister Ruairí Quinn	DES	Pauric Travers	Minister Jan O'Sullivan	Minister Jan O' Sullivan
Document	Leading and Supporting Change in Schools	Innovation & Identity: Ideas for a new Junior Cycle	Junior Cycle Innovation & Identity – summary of consultation findings	Towards a framework for Junior Cycle: Innovation & Identity	Framework for Junior Cycle	Advancing Implementation	Travers Report	Joint Statement on Principles and Implementation	Junior Cycle Framework 2015
Theme	Curriculum change in the Irish context- how it does and doesn't happen. Key role of teachers & leaders in the implementation of change	5 pathways offered as a thinking tool about the big questions around Junior Cycle	Opportunities and concerns for a new curriculum discussed.	Framework must include learning, curriculum, assessment and assessment changes.	Learning, teaching and assessment is now the focus not the examination.	A road map to deal with areas of concern: Pace of change is slowed down. Resources and CPD needed. Quality assurance and assessment to be explored.	Problem of context outlined & new guide to Junior cycle offered	5 elements of learning which are all valued and reported on.	8 Principles 24 Statements of Learning 8 Key Skills Short courses Wellbeing L2L Other areas of learning
Identity /Becoming	Highly professional and educated role of teachers & leaders as curriculum developers	Autonomy offered to schools to be agents of change	Student & teacher identity highlighted as central. New identity for lower secondary	The system and the school collaborate in bringing about learning.	Teachers as professionals.	Recognition for teacher and whole school CPD.	Teacher and student very important in the reform.	Joint partnership & collaborartion between all system actors needed in reform.	Commitment of all actors in the reform space.

APPENDIX 9: FORMS OF CURRICULUM

The one area of agreement about curriculum is that it is highly complex, not because it is a 'thing' but rather a system of interrelated and interconnecting processes that connect the human, knowledge, experience and the culture-nature continuum(Braidotti, 2013). Posner suggests that there is not one thing that we consider to be the curriculum but five concurrent curricula to consider: the official, the operational, the hidden, the null and the extra-curriculum (2004, p.12).
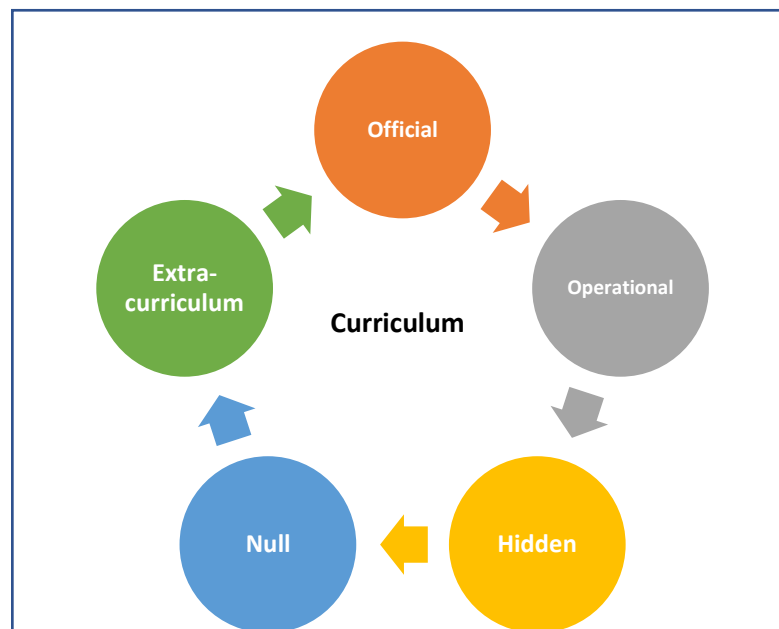
Posner's Five Forms of Curriculum

The *official curriculum* has often been described as the formal or written curriculum and is perhaps captured today in the many curriculum frameworks that are produced such as the 'Junior Cycle Framework' in Ireland or the 'Curriculum for Excellence' (CfE) in Scotland. It offers the vision and rationale of its purpose and proposes the basis from which a school can plan, sequence, evaluate and administer its educational purposes. The *operational curriculum* or implemented curriculum is what is actually taught and interpreted by the teachers and what

they believe counts as important. Van den Akker (2009) would add to this area of understanding by suggesting there is also the form of curriculum called '*attained*', by which he means what is experienced by the students and the results of that experience. Konieczka defines the *hidden curriculum* as "the unintended or implicit values cultivated in the practices exercised in the classroom and educational institutions through the application of the curriculum" (2013, p.250). The hidden curriculum transmits values of the dominant group and it is often the upper or middle class that holds this power. The question then of hegemony must be considered when looking at reforming curriculum. The *null* curriculum is that which is not taught and requires the researcher to probe as to why certain experiences are chosen and others ignored. The *extra curricula* are all those planned 'other areas of learning' that are planned outside of the official school timetable. Many of the extra-curricular activities are voluntary but are very important to the educational experience for students. Curriculum specialists try to capture the diversity of what curriculum is and Kelly sums this up when he writes:

> We need a definition which will embrace at least four major dimensions of educational planning and practice: the intentions of the planners, the procedures adopted for the implementation of those intentions, the actual experiences of the pupils resulting from the teachers' direct attempts to carry out their or the planners' intentions, and the 'hidden' learning that occurs as a by-product of the organization of the curriculum and indeed of the school" (Kelly, 2004).

Levels of Curriculum

To add to the complexity in scoping the territory of curriculum, curricula operate on many different levels or strata as depicted by Van den Akker (2009) in the following table:

Level	Description	Examples
SUPRA	International	Common European Framework of References for Languages
MACRO	National	• Core objectives, attainment levels • Examination programmes
MESO	School, Institute	• School programme • Educational programme
MICRO	Classroom, teacher,	• Teaching plan • Instructional materials • Module, course • Textbooks
NANO	Pupil, individual	• Personal plan for learning • Individual course of learning

Curriculum levels and Curriculum products (van den Akker)

It is recognised globally that the theory and vision at the Supra and Macro levels often do not trickle down to the Meso, Micro and Nano levels and the age-old battle between theory and practice plays itself out. Louise Hayworth argues that "there is a substantial body of evidence that plans for curriculum or pedagogical innovation often lead to little change in practice" and she draws on the work of Cuban 1994; Swann and Brown 1997; Barnes et al. 2000; Olson 2002 and contends that "some initiatives have very little impact at all" (Hayworth and Spencer, 2010).

Components of Curriculum

Key Competences	Cross-curricular or integrated studies	Student-centred approaches	Development of specialist schools and programmes
Austria, Belgium, the Czech Republic, France, Finland, Germany, Italy, Luxembourg, New Zealand, Norway, Switzerland, United Kingdom	Belgium, Japan, Korea, Netherlands, Poland, Switzerland, Sweden, Turkey, United Kingdom	Canada, Finland, **Ireland**, Japan, Korea, Turkey	Netherlands, United Kingdom

Emerging Themes in OECD Countries

There are many components that make up a curriculum: Learning Outcomes; content; teacher's role, assessment; materials and resources; time allocation; location etc. and Priestley argues that the recent new models of curriculum all have idiosyncratic features: child-centred approaches; active learning; active pedagogy; role of the teacher as co-learner; core/key competences; and based on constructivist philosophy of learning (2013, p.3). The OECD offer the following table (adapted from Looney (2009) and it captures a snapshot of emerging curriculum themes in OECD countries:

However, these emerging curricula often lack attention to questions of educational purpose (Biesta, 2009) and are being implemented in "a climate characterised by increasingly pervasive regimes of accountability and cultures of performativity, despite policy rhetoric that constructs teachers as agents of change and professional developers of the curriculum" (Priestley and Biesta, 2013, p.6). Gleeson (2010, p.138-139) writing about curriculum in Ireland outlines the difficulty of developing curriculum theory in a culture that chooses the rational technical paradigm to overtake all curriculum discourse in Ireland. It is evident therefore that defining and studying curriculum is like entering mountainous terrain and it can be so easy to get lost and out of focus. Not only are there many complex aspects to consider and many layers of meaning involved, the central complexity lies in how they all interconnect and create a coherent harmony that improves the educational experience of students.

In summary, the landscape of curriculum incorporates an ideology, a framework and a pedagogy which draw on not only the interaction of epistemological, ontological and axiological purposes but also different forms of curriculum, different levels and different components. As you can see, the assistance of a Sherpa would be indeed fortuitous as together we try to navigate an understanding of curriculum so that the question how does the Junior Cycle curriculum work for lower secondary in Ireland can be explored? I am suggesting that understanding curriculum as rhizome can best assist this journey. The following

discussion will therefore focus on the three main interpenetrating aspects of curriculum:

ideology, framework and pedagogy. In focussing on these three aspects and how they unfold

in the Junior Cycle curriculum, we may be able to understand how curriculum is rhizome, a

process of becoming.

Connections Made	**Voices from the assemblage**
Moving from the subject CSPE to the Short course and connecting to Wellbeing	They are doing a local short course in CSPE. They are localising that. They are mapping it onto the Wellbeing indicators if you like (Actor 27)
Changing the seating and connecting this to formative feedback to peer correcting to special needs	I had one or two particular students who would have had maybe learning support and who were kind of afraid that they didn't want other students seeing their copies. So, that was kind of a logistical nightmare for about a week or two until I got the classroom seating plan right. I was trying to mix them up. But I got there and getting them to pass kind of their copies across and then to put nice little comments on the end and you know your two stars and a wish and that kind of thing. But it does work (25).
Formative feedback connecting to student wellbeing to motivation to progression	Yeah, in some subjects we do this thing, two stars and a wish. They give you like two good things you did about the work sheet or the homework and then they say one thing they want you to improve on. I think that really helps because if they just gave me the thing to improve on, I don't think I'd be able to push to do it but if I'm told, oh you're so good at this subject in this part, if you just improve this last part, it will be like perfect. Then that will push me to actually like improve it (Actor 31)
Desks connecting to group work connecting to sharing practice	The next morning two doors down, I heard furniture being moved. I thought, what's going on there? I could see through the glass that the desks had been moved. And I said, now say nothing and see what happens. And the teacher went to the staff room, she said I moved my things, my chairs and somebody else said, God, I'm going to try that. Within about two weeks I would say there were six or 8 classrooms. So, that was organic. It was one teacher doing it and other teachers saying, what was the noise today in your

	classroom? She would say, God, it's so different when you go into the class now.
Staff meeting now connected to *opportunities to learn from each other* and this could be *good for senior cycle*	So, the challenges are whole staff meeting and learning from each other. I mean opportunities to learn and from within the staff to hear what's going on in our school because something fantastic could be going on in Geography and you know the Biology teachers and Senior Cycle will really be able to use that model. (Actor 27)
Seating connecting to *group work* connecting to *talking to each other*	1\. And what about your seating? Are you all sitting in rows or what? 31\. It's different for every class. I think it's better for group work. So, like you can work with people around you. We were talking to each other.
Technology connecting to *greater knowledge*	It's a great resource and that's all it is. It's really handy after the event of the teaching to get more information and to further your knowledge but it's after the event. The teaching happens differently. It happens in the classroom with a teacher. In the class I attended yesterday, they were sent off to do their research after it. It was Russborough House they were looking at and they will go online. That's where they will get their pictures for their presentations that they are going to do for their next class. So, it's really important. There is so much out there (Actor 33).

Framework 2015

Autonomy — Agency

Curriculum Concepts — Coherence — Connectivity — Convergence

Process — Inter & Intra Action — Links — Classroom

Process:
- Slow uptake
- Learning is totally changed
- Too many changes
- Capacity Concerns
- Existing Culture
- Lack of Flexibility
- Individualism

Inter & Intra Action:
- Fragmented
- Subject Dominance
- Measurement

Links:
- Short courses
- Wellbeing
- Formative Assessment
- Level 2 Learning
- Environment
- Technology
- Leaving Cert.
- Collaboration

Classroom:
- Relationships
- Networking
- Collaboration
- Reflective Practice