A Model of the Process of Change:
Model Development and Exploration and Implications for the Classroom

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This project by Tana Ebaugh is accepted in its present form.

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To all, I am grateful.

Abstract

Change is an intricate and complex process. This paper explores a non-content, non-outcome driven model of the process of change that can be expressed mathematically. It explores the process of change as a means to help raise awareness of change that may lead to intentionality of change, more effective process of change and changer agency over their process.

The preeminent component of the process of change is motivation; subsequently the changer's and teacher's understandings of those motivations is paramount, for both teaching and curriculum development. Motivation consists of components that interact with each other in quantitative and qualitative ways. The act of making a decision does not equal change, nor does practice of the change; these are only the initial two stages of the process of change. Events that impose sudden or unexpected external change are the equivalent of a moment of change that is disorienting and produces 'change shock'.

Educational Resources Information (ERIC) Descriptors

Change

Change Theory

Instructional Design

Learning Processes

Motivation

Teacher Education

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Chapter 1

Introduction to the Process of Change

Change is a process, vaguely understood. It contributes largely to learning and hence is of importance to teaching and curriculum design. Because change is the process by which we move through our lives, it is important to be aware of changes and to be intentional about them.

Consider the following:

1. Maybe I'll move to Thailand. I am moving to Thailand. I (have) moved to Thailand.
An action is being contemplated, motivations weighed; decision made, change is in preparation; change complete.

2. I should quit smoking. I am quitting smoking. I (have) quit smoking.
An action is being contemplated, motivations weighed; decision made, change is being practiced; change complete.

3. I'm not sure I believe in a God. I am becoming a nonbeliever. I believe in the existence of electrochemical beings and their ability to communicate.
A belief is being contemplated and explored; decision made, change is being practiced; change complete.

The sequence looks simple, but how does change happen? What is the process?

I ask myself this because I also believe that "Only awareness is educable..." (Gattegno, 1987) To answer the questions above, one must become aware of change the entity and the change taking place. In order to answer these questions I explored what I know about change. I've created a model of the process of change in response to that exploration. I believe that knowing how change works will allow me to become aware of my own *process* of change and the change I ask my learners to make. Using this skill I may then help learners to notice their process of change and teach the process as a skill, so that

learners can make it their own, helping to develop autonomy as learners and changers. Change is a process that starts at some imaginary initial state and continues until the change has become a conscious competency (Gordon), but not, as we all know, necessarily as originally intended.

It is possible that because we don't know (enough) about the process of change we cannot or do not make it consciously and it is often more difficult than needs to be. In addition, as teachers, we might not neither know enough about how to support the process or the learner nor think about the implications (maybe only the desired results) of change. We need to support change with awareness of the process because after awareness, learning may take place.

The process of change is complex and personal. My model shows that despite the personal nature of the process of change there is a framework for the process. There are four stages, an articulation point—the moment of change (MOC), and feedback loops. The model attempts to take into account changes in both practices and beliefs, internal and external changes, the role of motivation, and the concepts of recursion and regression. The model accounts for both conscious and unconscious change. The model places the MOC prior to actual change taking place as opposed to after. Hence an aware individual could say, possibly more accurately, 'I am quitting smoking.' instead of saying 'I have quit.'

The basic assumption made regarding the construction of the model is that the process of life is a process of change. Change does not happen in a straight line; it has a beginning,

at conception, or at birth, depending upon one's beliefs, and possibly no end. The intrinsic nature of the process of change over a lifetime is possibly a simple three-dimensional conical spiral, growing ever upward, towards a single final pinnacle.

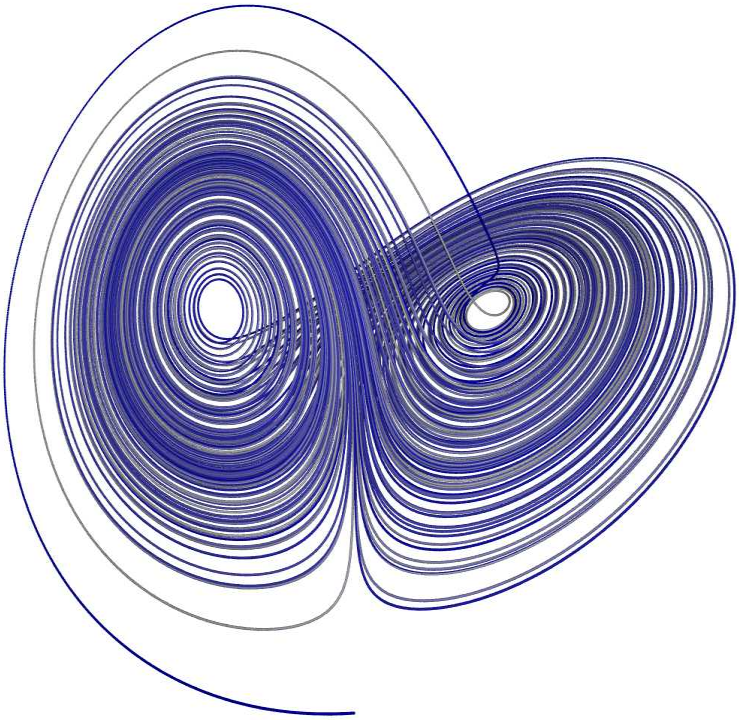

Figure 1.1 *a basic Figure of the Lorenz attractor*

More likely is that change follows a complex path, perchance one such as the Lorenz attractor, developed by Edward Lorenz in 1963 initially for describing climate and weather change, but now also used to describe long term chaotic behavior. I choose this model specifically because it is a chaos theory which states that the outcome of various events is quite sensitive to the *initial* condition, and our probability of knowing the outcome in the long term can be quite slim.

I assume that every individual begins life with an initial condition, my model's Initial state. One is continuously being brought back to a place close to one's 'initial state'—either through the process of looping after MOC, the associated shock from an unwanted or unavoidable external event, a regression or recursion, or in stage four of the process, the modification of underlying beliefs involved with the experiential learning cycle (ELC)—yet growing ever outward into time-space. If the process of change follows the Lorenz model then it may look chaotic in the long view—we are not able to make a prediction of the outcome of a change with any accuracy or precision—but may be somewhat predictable in the short view—we are in a position to know of an individual's current beliefs and practices, and are potentially cognizant and sensitive to the initial state upon which the change is brought forth. For example, I was born with a unique set of taste buds and neurons which detect hot and cold. As a young child I did not like ice cream, in fact the act of being asked to eat it made me cry, however, by the time I reached adolescence I loved it and consumed it in great quantities, though I cannot remember why and how the change took place. Currently I don't eat ice cream very often, even though I continue to like it. I cannot predict with much reliability what my relationship to ice cream will be in the future.

The initial state may then be seen as a grounded state, a firm theoretical and/or practical base, consisting of one's underlying beliefs and/or actions. One's underlying beliefs may change over time if they follow through on change by involving themselves in the ELC.

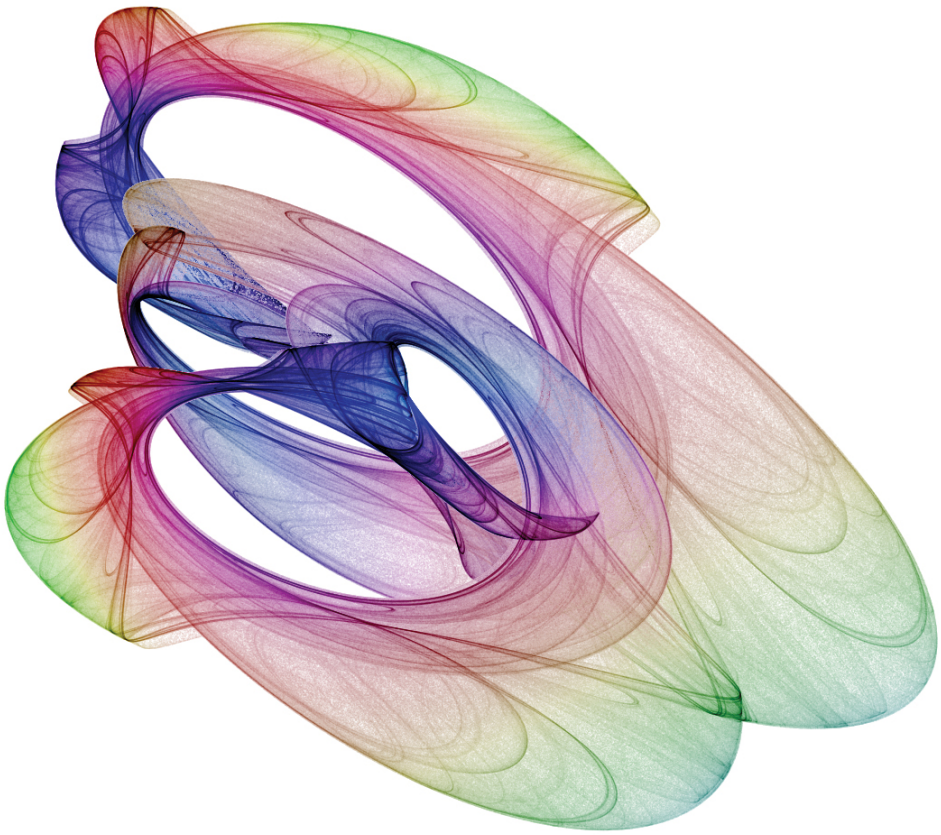

Figure 1.2 *more complex Figure of the Lorenz attractor model*

The version of the Lorenz model in Figure 1.2 shows how the simple system of Figure 1.1 can become complex while the basic process is still the same. This is the soup of change within an individual's life, each change interacting with hundreds of other changes.

The process of change over the course of a lifetime may indeed look like the Lorenz attractor model—the larger view of the process of change—but to look at a single change event requires excising a section of Lorenz's model.

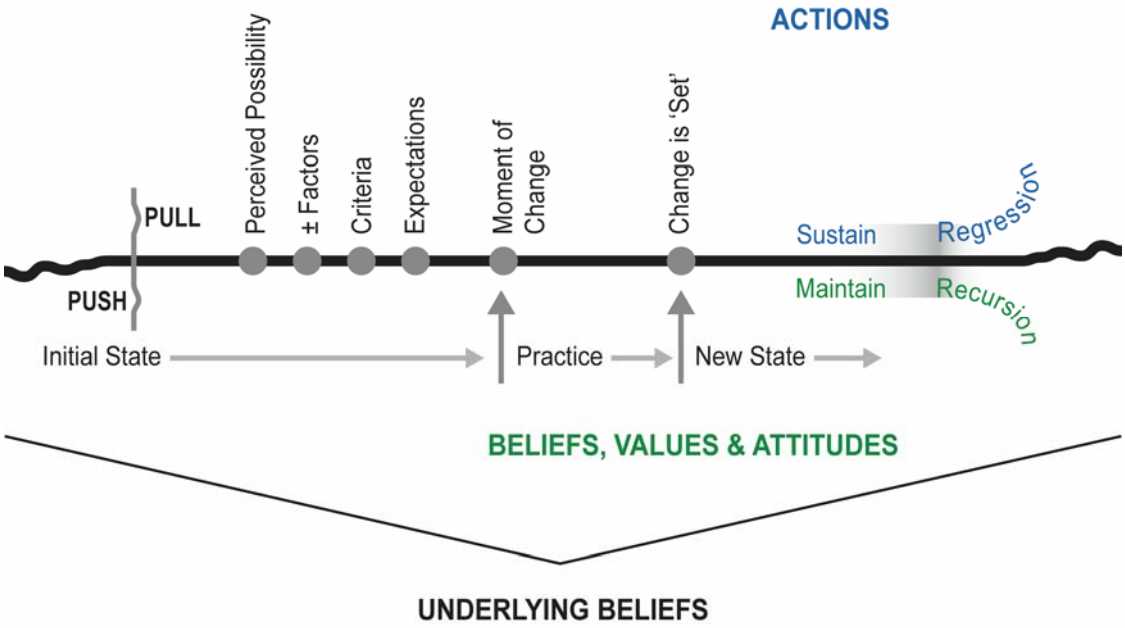

Figure 1.3 *Process of Change Model: Stages One through Three*

Figure 1.3 shows an excised section of the attractor that shows the process of change for a solitary uncatalyzed change event. It is as if we have caught the process of change in a vacuum. This figure only shows the first three stages of the process of change because they are the only ones that are 'required' for change to have taken place. The fourth Stage of change is optional and leads to further awareness and intentionality in future changes and possibly to reflective competence. (Nonaka, 1994) It is at the end of Stage 4 that we might truly say that change has become 'set' or complete.

Imagine that Sally, a working professional, takes a holiday to the Caribbean. At the end of the trip as she stands, bags packed and looking out across the bay towards the island of Jost Van Dyke she feels the pull to live in the islands and the push of the colder climate of New York. She becomes aware of her desire/feelings. Upon returning home, she

navigates through the steps leading to the moment of change. She decides to move—the moment of change. She then makes preparations and moves to the islands within the year. The change is complete. She makes new friends, finds a new job, visits 'home' and family, and friends visit her, all things that promote the continuation of the change state. Eventually living there becomes automatic. Upon reflection during a yearly trip home, Sally explores what led her to move and what underlying beliefs may have changed in that process.

We operate our lives according to our underlying beliefs until an event comes along that produces a conscious or unconscious desire, a push or pull, to think/behave differently. We then go through a series of steps that lead to a decision to change, a decision is made—the moment of change—and then we practice that change until it becomes automatic or until we are unable to maintain or sustain that change. Whether we maintain or sustain change, whether we regress or recurse depends on the type of change that we are attempting to make.

Learning and teaching are about change. Frequently as teachers we don't have an awareness of asking learners to change, an understanding of change or the process of change. As teachers we often don't realize the nature or the extent of what we are asking learners to do. I often find learners and teachers are not aware of the process of change, the types of change that can occur, nor the requirements for successful change. Because of lack of awareness, individuals often make change without intentionality.

As we ask ourselves, and others, to move through the process we can facilitate change in both our personal lives and in the lives of our learners. Often individuals start the process of change and then either regress or recurse to a previous state, that is, one that is virtually similar. Change in the psyche and physiology of their being will always occur. For example, I ask myself if the participants on a teacher training course will take their newly gained skills and beliefs with them back to the classroom or if they will check them at the door when they leave the course. If they take them home, how long will the changes last in the face of old habits, easier methods, potential lack of support from colleagues. But I also know that there have been changes made in their psyche due to the simple taking of the course and in their physiology for electrochemically transmitting information around their brains.

Through learning, practicing and reflecting on our own change, we can then teach others the skill of change, and help make the process of change more effectively, efficiently, with more confidence and with intentionality. While I am primarily concerned with teachers and learners, the model also applies to individuals in other contexts. The model of the process of change that I explore is not driven by content, specific outcomes or goals; it is applicable to all change—beliefs, practices, learning.

The mathematical formula: I have developed and included a mathematical model for the process of change. In math, problems/equations work towards solutions. Developing the formula helped me to see if the interactions of my models components were working or not, if a component were missing, when a feedback loop needed to be included, and how the power or strength of each component of the process needed to be valued.

The reasons for including the formula are twofold. First, it is another lens, another perspective on the process, another modality for inspection or understanding of how the process works—the interrelationship between the Stages of the model and the components of those Stages. Appendix B contains the mathematical symbols used and a brief description of meaning and use. Second, math is a science that underlies all fields of inquiry. It is at the root of physics, music, artificial intelligence, social sciences, even models of consciousness and decision making processes. For example we use set theory and if:then processes all the time without consciously thinking that they are math.

Understanding of the mathematical formula is not necessary to understanding my process model of change. It is a link to other disciplines and types of theories, and I believe a different level of understanding of the nature of the process of change.

Chapter 2

Two Types of Change, Four Categories

Change can be divided into one of two types: a change in practices and a change in beliefs. These two types of change can be distributed across a continuum from surface to core, tangible to intangible, and immediate to gradual. I place change into four categories: surface practices, surface beliefs, core practices, and core beliefs.

Practices are physical actions, physiological changes and set emotional responses. Physical actions are the things we do, things that can be seen and/or heard. Physiological changes can be thought of as changes occurring within the body, an action predicated upon one that may or may not be able to be seen or heard, for example building muscle or ridding the body of free radicals. Physiological changes cannot always be directly observed but may be inferred, either correctly or incorrectly, by observation of the physical body of practices.

Set emotional responses are based on attitudes that can be seen in gestures and actions that have been consciously or most likely, unconsciously developed in response to or in order to deal with specific stimuli. For instance, making a facial expression of dislike when seeing one's noisy neighbor or maybe even just hearing their name. But they may also be a rise in blood pressure or heart rate without any noticeable physical effect to others. Practices can be thought of as actions or 'habits of action.'

Beliefs, values and attitudes are cognitive and psychological in nature; in and of themselves they cannot be seen or heard, but may be revealed through practices, for example actions or verbalizations. They can be thought of as 'habits of mind.'

It is our underlying beliefs that lead to the acceptability or unacceptability of, as well as to changes in, practices and surface beliefs. The following are a series of examples of changes in both practices: habits of action, things that can be seen and heard, and beliefs: habits of mind, values, emotions and attitudes, and possibly, associated underlying beliefs.

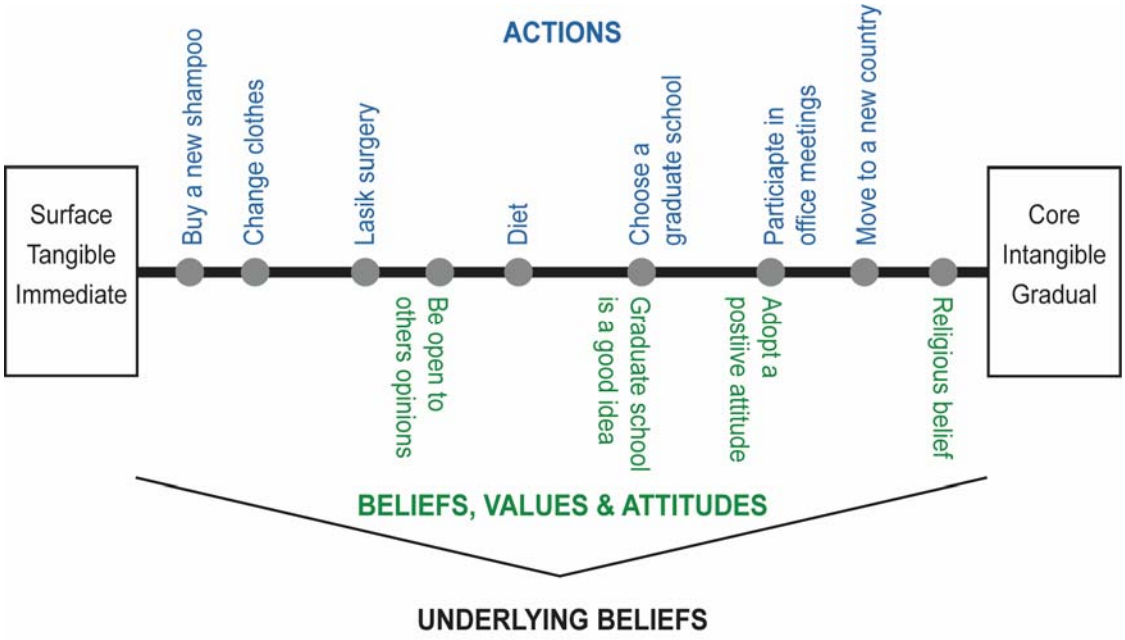

Figure 2.1 *Surface to Core Changes: Habits of Action, Habits of Mind*

Figure 2.1 shows the types of change distributed on a linear graph. The left end of the continuum is Surface change—things that are tangible and for which one might see more immediate results. The right point of the continuum is Core change—things that are

intangible and the results of which might take longer to effect. Above the continuum line are placed Practices, or habits of action, and below the line are placed Beliefs, values and attitudes, or habits of mind. Practices and beliefs are both motivated by underlying beliefs.

Figure 2.1 contains examples of items that might be changed by an individual based on the four categories of change. They are placed according to my beliefs and values. Each individual will place things in different locations based on their own belief system.

Example 1, surface practice, use of a shampoo type: I am shopping for my usual brand of shampoo and see that they have created a new type that is clear and fragrance free. I am delighted. I purchase the new type of shampoo. I changed my practice of buying one type of shampoo for another. My underlying belief was that shampoo without colorings and fragrance would be better for my hair and better for the environment.

Example 2, surface belief, deciding to change clothes: This represents a change a behavior, a habit of action. I wake up in the morning, get dressed as usual and then remember that there is an office meeting that day. Being conscious of wanting to make a good impression on the Chulalongkorn professor, I change clothes into something I feel is more appropriate to Thai values. The underlying belief responsible for my change is that I will be seen to be more of a professional and my opinions will matter more if I dress according to Thai values—the belief that a teacher should look very ‘sharp.’ I have made a change in Practice predicated upon underlying Beliefs.

Example 3, core practice, behavior in meetings: I decide to increase my participation level during staff meetings. I have been watching and listening during staff meetings for the first month after my promotion, contributing only small amounts to the conversations. My confidence has built and I have taken the time to see how the meeting politics operate. I am ready to participate more fully. My underlying belief is that I have worthwhile ideas to contribute and that sharing will benefit myself and others.

Example 4, core belief, attitude towards a specific set of meetings: I decide to increase my level of positivity during staff meetings. I feel my positive spirit being drained away during staff meetings by the overriding negativity and 'can't do attitude' that I find there. Faced with another meeting at the end of the week, I choose to return to a set of actions that I have developed in the past to help prevent this. My underlying beliefs are a) prolonged negativity will harm me energetically and b) through positive example I can make a difference.

Chapter 3

Related Change/Learning Models and Motivational Theories

I developed my basic model of change for my presentation at the School for International Training's yearly Sandanona conference. Research has brought to light other models that interface directly and in meaningful ways with my model.

Gattegno's Four Learning Stages (Young)**:** explains learning in terms of awareness. The first stage is the *simple* act of awareness that there is something to be explored. The second stage is when learning starts but there is an exploration of what is to be learned and mistakes made while learning it. Awareness of the mistakes and feedback regarding the mistakes allows for success in the learning when the learner is 'present' to the learning. Stage three is a transitional stage from having to be aware of the learning while in the process of using/doing the learning and the development of automaticity of the learning. The fourth and final stage is a transfer stage. The learner is capable of taking what has been learned and using any associated new skills, as well as the content of the learning, and applying it to further learning.

Gordon's Five Stages of Conscious Competencies: explains learning in terms of consciousness. Unconscious incompetence is the state where the individual is not aware of something that they do not know. Conscious incompetence is the state where the individual has become aware of something to be learned or changed, but doesn't yet comprehend it. This state is similar to Gattegno's first stage, the *simple* act of awareness. Conscious competence is the stage in which an individual is learning or making change and needs to remain conscious of the learning, to be thinking about it while using it.

Unconscious competence is the ability to use what one has learned without thinking about it. This state is similar to Gattegno's third stage, automaticity.

Reflective competence is a later addition to Gordon's model attributed to Nonaka, who was specifically thinking about what is required to be able to teach a competency.

> *As a fifth level, I like what I call 'reflective competence'. As a teacher, I thought "If unconscious competence is the top level, then how on earth can I teach things I'm unconsciously competent at?" I didn't want to regress to conscious competence - and I'm not sure if I could even I wanted to! So, reflective competence - a step beyond unconscious competence. Conscious of my own unconscious competence… But additionally looking at my unconscious competence from the outside, digging to find and understand the theories and models and beliefs that clearly, based on looking at what I do, now inform what I do and how I do it. These won't be the exact same theories and models and beliefs that I learned consciously and then became unconscious of. They'll include new ones, the ones that comprise my particular expertise. And when I've surfaced them, I can talk about them and test them…"*
>
> *This would describe a person's ability to recognize and develop unconscious incompetence in others.* (Nonaka, 1994)

He states that one needs to be aware of the competency at a level that allows one to be able to teach it. This is not the same as the transfer that Gattegno discusses, as the individual is not using it for their own continued learning, that i. applying it to some new learning or skill they want to acquire, an internal process. In reflective competence the knowledge is moving outward.

Prochaska, Norcross and DiClemente's Six-Stage Transtheoretical Model: explains change in terms of the psychology of health, in particular the removal of undesirable habits. It explains a process but primarily from the point of view of why change doesn't work, going so far as to state that an individual may never move beyond a maintenance stage. It is also stated that some stages may be skipped and that individuals may relapse to previous stages.

Pre-contemplation is the stage where the individual has not considered adopting a new behavior. Contemplation is the stage where the individual is considering adopting the behavior, but has not made any effort towards enacting it or preparing to enact it. Preparation is when the individual has started to gather information on the behavior, with a view towards enacting it. Action is when the individual has begun to enact the behavior regularly, but has not continued doing so over a long period. Maintenance is the stage where a behavior has been regularly enacted for more than six months and the change has been adopted. Maintenance, however, is not a 'final' stage, after which the individual does not have to expend effort to maintain the behavior, as there are a number of factors that can propel an individual back into previous stages of change. Transformation is the stage in which the change in behavior has become part of the person's normal behavior. This is seen as the 'final' stage - although there is much disagreement as to whether an individual ever moves beyond the maintenance stage.

Dörnyei: explains motivation in terms of two basic dimensions—*direction* and *magnitude* (intensity)—these dimensions are seen as the choice of a particular action and the effort expended on it and the persistence with it. Motivation explains *why* one is

willing to do something, *how hard* they are willing to do it and *how long* they are willing to do it. (Dörnyei, 2001) *Why* includes physical needs, well-being needs, values and beliefs. *How* and *why* answer the questions, "Do I think I can do it?" and "Is it worth it?"

Motivations can and do have effects on the other motivations—overriding or catalyzing other motivations. Motivations cannot be viewed as static; they are in process and change over time.

Dörnyei provides a chart of motivation theories. These theories can be assigned into my model's Stage 1 components of motivation.

My model's Stage 1 components	**Underlying Beliefs**	**±Factors**	**C_i** intial criteria	**E_i** intial expectations	**C_d** developed criteria	**E_d** developed expectations
Theories from Dornyei's chart of theories	Social Motivation theory	Self-efficacy theory Self-worth theory Goal Orientation theory Self determination theory Theory of Planned behavior	Attribution theory	Attribution theory	Goal Setting theory	Expectancy-value theories Achievement motivation theory

Table 3.1 *Motivation Theories as they fit my model's Stage 1 components*
Source: table information from Dörnyei (2001)

Dörnyei describes situation specific criteria in his framework of L2 motivations that also work for my model of change. They are criteria for the learner's self —interest,

relevance, expectancy, and satisfaction; for the learner's teacher—affiliative motive, authority type, and direct socialization; and for group-specific motivations—goal-orientedness, norm and reward systems, group cohesiveness and classroom structure. These specific criteria are always being adjusted and modified during the practice of a change. These are the types of motivations that are being adjusted in Stage 2 of my process of change model.

Intentional Change	**My Model**	**Initial State**	**Stage 1**	**MOC**	**Stage 2**	**Stage 3**	**Stage 4**
Four Stages of Learning	Gattegno		Awareness		Present with the learning	Automaticity	Transfer
Learning Competencies	Gordon	Unconscious Incompetency	Conscious Incompetency		Conscious Competency	Unconscious Competency	Reflective Competency
Trans-theoretical Model	Prochaska Norcross DiClemente	Pre-contemplation	Contemplation Preparation		Action Maintenance Relapse		Transformation
Process Model of Learning Motivation	Dörnyei		Preactional: Choice motivation (generated) Goals and intentions		Actional: Executive motivation (maintained and protected) Action and ongoing appraisal		Postactional: Motivational retrospection (retrospective evaluation) Forming attributions Elaborating strategies Further planning

Table 3.2 *Relationship of models of learning and change*

These four process models of learning, behavior change and learning motivations can be equated with the stages of my process of change model. My model consists of: an *Initial State*, the state prior to the unconscious or conscious situation that may bring about change; *Stage 1*, underlying beliefs, factors, and motivations that effect the probability of change; *an articulation point*—the moment of change (MOC)—an unconscious or conscious decision made or external event that forces change; *Stage 2*, practice, preparation, and pre-visualization; *Stage 3*, change is set and is maintained & sustained; and *Stage 4*, the experiential learning cycle (ELC), that brings the aspect of intentionality to the process of change.

Chapter 4

The Process of Change

I will briefly describe my model of the process of change and then go into more detail regarding the components of each Stage, the moment of change, and feedback loops. I develop a pseudo mathematical formula of the model. In Chapter 5 I will explore two examples of this model based on a six-month Diploma course; first, the changers—the participants and one aspect of the facilitation of their change; and the second, the design of the curriculum.

The overview of the model looks like this:

Change = Initial State + Stage 1 ⇒ MOC + Stage 2 + Stage 3 + Stage 4

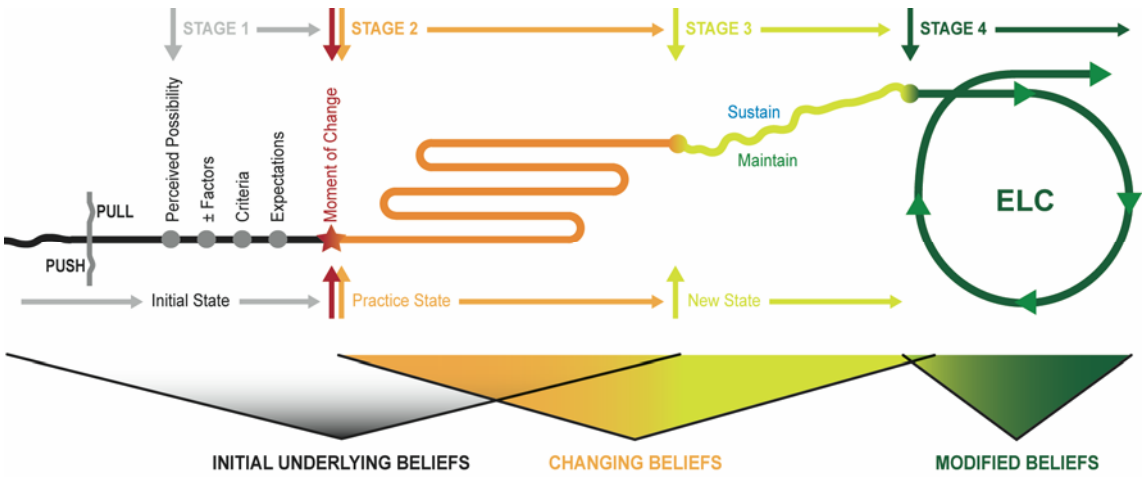

Figure 4.1 *Process of Change Model*

The process of change has an Initial State, prior to any onset of a specific change. At some point there is a push or pull to make a change, to do or believe something differently. As soon as the Push:Pull of change occurs, whether or not the individual is

consciously aware of it, they enters Stage 1. In Stage 1 the Push:Pull is accompanied by Perceived Possibilities, ±Factors— pre-existing, readily available, personal beliefs or attitudes towards the change that is starting to take place. There are both initial criteria and expectations as well as criteria and expectations developed for a specific change. Once these components have been sorted out to an acceptable level to the individual, an articulation point, the moment of change (MOC), occurs and the individual immediately enters Stage 2.

Stage 2 consists of practicing, preparing for, or pre-visualizing the change. The length of this stage is dependent upon all of the factors leading up to the decision plus external factors outside the control of the individual, that is set factors that affect the ability to change that are beyond control of the changer.

Stage 3 is where a change could be considered to be 'set.' The individual is using the change in their lives without conscious effort. The old habit or belief or practice is no longer a part of their daily consciousness.

The final stage is Stage 4, in which the individual may take the time to consciously reflect upon the change experience; the individual enters an experiential learning cycle (ELC). In this cycle the individual must become aware of the change, reflect on what happened during the change, and evaluate the change. This is a period of synthesis and consolidation of the entire change process as the individual reflects on the experience of change and potentially modifies underlying beliefs. The individual prepares for future experiences.

Initial State

The Initial State is one that I see as an imaginary state, similar to an imaginary number; it is a complex state: abstract. This is because we are always in the process of multitudes of both conscious and unconscious changes. A true Initial State might be conception, a more genetic model or birth, a more environmental model. This is the transient, fleeting state that an individual is in before experiencing the Push:Pull of a specific desire or event.

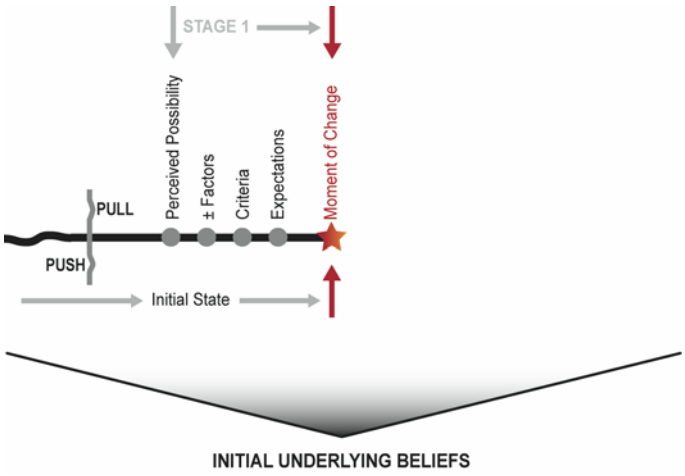

Figure 4.2 *Stage 1*

Stage 1: Push:Pull, Perceived Possibilities, ±Factors and Motivations

Push:Pull: This is any situation or event that prompts change. An individual may be pushed by the negativity in the office to look for a new job and/or they may be pulled by the position they see advertised in the back of *Scientific American***.**

Perceived Possibility: Whether the individual is aware of the Push:Pull or not, they begin to feel a perceived possibility of making the change. The possibility may be viewed as

highly improbable or easily attained. The individual may or may not be aware of making that judgment.

±Factors: Almost as soon as the Push:Pull starts the ±Factors, ±F, begin to have an influence. They are pre-existing beliefs and attitudes that guide the individual in most of their changes and decisions and are most likely unconscious in nature. The ±Factors are underlying initial beliefs, entrenched attitudes, values, and emotional responses. They represent an approach to life in general at an unconscious level, for example an optimistic point of view, or the idea that 'things never work out for me" that an individual brings to bear on a specific change. The Seven doors model of personal change (Robinson, 2004) originally saw the +Factors as steps and stages; a series of steps to behavior change, and the –Factors as stages of behavioral inertia, whereas I identify them as attitudes and values that contribute to the process of change.

+ Factors *contributing to change*	**– Factors** *contributing to inertia*
Knowledge: I know I should	Ignorance: I don't know
Desire: I want to	Rejection: I don't want to
Skills: I can	Inability: I can't
Optimism: It's worthwhile	Pessimism: It won't work
Facilitation: It's easy	Complication: It's too hard
Stimulation: I'm joining in	Apathy: I can't be bothered
Reinforcement: Well done	Undermine: I'll get back at them

Table 4.1 ±Factors: *Attitudes and emotional responses*
Source: table information from Robinson (2004)

The ±Factors are sets of beliefs and attitudes that have the possibility of being modified as the individual explores the specific change during Stages 1 and 2. The ±Factors are interactive and may counteract or catalyze other ±Factors. A single strong underlying belief in one of the ±Factors or combination of ±Factors could easily prevent the process of change from moving forward or could be an overwhelming catalyst for change.

Motivations: The first set of Motivations, M_1, consists of the preexisting, inherited, taught, and cultural motivations. It consists of two categories: the criteria we may have from previous related or unrelated experiences, C_i, and pre-existing expectations, E_i, built up from previous experiences and social constructs. The second set of Motivations, M_2, are developed for a specific Push:Pull event. They are criteria developed expressly for a specific change, C_s, and expectations, E_s, developed for a specific change.

The formula for the change model at the end of Stage 1 looks like this:

$$S_i + (\text{Push:Pull} \bullet (|+F^x + -F^y|) \cup (M_1 \bullet M_2))$$

where $M_1 = C_i$ and E_i and $M_2 = C_s$ and E_s

The absolute value of the ±Factors is taken in order to prevent a negative number, the assumption being things remain the same if you multiply by 1.

Stage 1 of my model is the equivalent to Gordon's conscious incompetency. The individual understands that they don't how to do something. They are in the process of determining if they are going to engage in learning or changing.

Articulation Point: Moment of Change (MOC)

The moment of change, as seen in Figure 4.2, is not a stage but a point in time. It happens precisely when the decision to change is made, not after the change has occurred. This is an instantaneous event and may happen before the individual becomes aware of it. The MOC happens because the Push:Pull have led to the processing of the ±Factors; criteria, $C_i + C_s$, and expectations, E_i and E_s, have been set and met, or at least to the degree that satisfies the individual who needs/wants to make change. Essentially Stage 1 has been negotiated such that the outcome is greater than 1, and the individual decides, consciously or unconsciously, to change. This is the MOC and allows an individual to say that they are changing, are in change, are experiencing change, are practicing or preparing for or are pre-visualizing the change, that is change has started but is not complete. The assumption being that if an individual does not make a decision, consciously or unconsciously, then change cannot be take place. The individual may or may not be aware of the process.

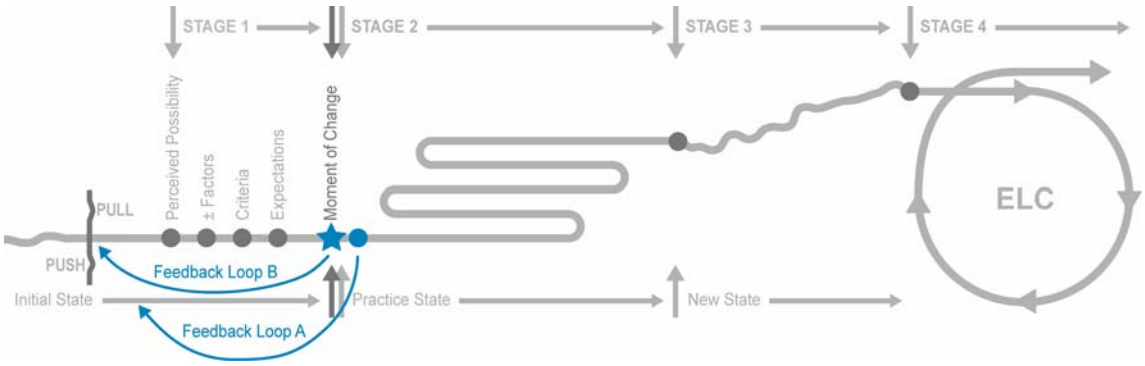

Figure 4.3 *Feedback Loops A and B*

In the process of change there are several feedback loops: one occurs just after the MOC and one is an external MOC that forces the individual to immediately enter Stage 2 and concurrently loop back to Stage 1.

Feedback Loop A: Sometimes the decision is one that takes the individual back to a state similar to the Initial State, a state parallel in space, because the content of the MOC dictates a new set of Stage 1 activities. This is not to be confused with the practice of Stage 2 but differs because the person is not practicing the effect of MOC on the same change but preparing to make another change. For example, if I decide that I will go back to graduate school, that MOC immediately becomes the Push:Pull of which graduate school to go to, when, etc. I have taken Feedback Loop A because I need to go through Stage 1 in order to make a decision, a process that has its own set of Stage 1 components.

Feedback Loop B: Sometimes the change that a decision must be made about is a forced external one, for instance a death, a sudden loss of job, or a flood that destroys one's home. The event/situation has created a Push:Pull point in the process of change that leads immediately to a MOC without Stage 1 processing. This is why the individual experiences a sense of shock; they have not gone through the Stage 1 process either consciously or unconsciously, they are not prepared to make the change and/or it is not a change they would decide to make. The change they are faced with has already occurred, is complete, and they must start practicing Stage 2 of the change model immediately, while at the same time, going through the process of Stage 1.

The formula after the articulation point, MOC, looks like this:

$$\text{Change} = S_i + (\text{Push:Pull} \bullet (|+F^x + -F^y|) \cup (M_1 \bullet M_2)) \Rightarrow \text{MOC}$$

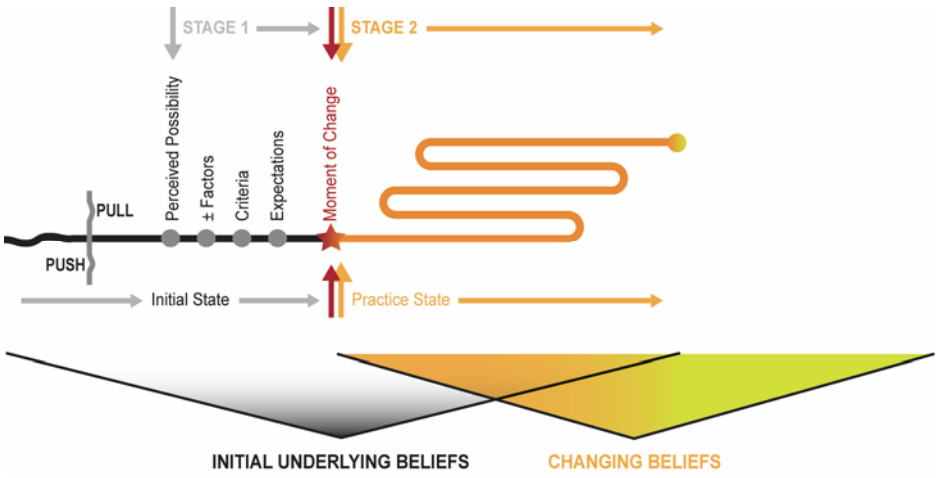

Figure 4.4 *Stage 2*

Stage 2: Practice, Preparing, Pre-visualization

While it is true that this can be an almost instantaneous stage for some changes, changing clothes or getting a nose job, for many changes, such as maintaining positivity during meetings or developing a better golf swing, it is a longer process of actually practicing the new state of change and/or visualizing it. During Stage 2 an individual is modifying both their initial and specific criteria and expectations, their ±Factors may change their relative strengths, and their underlying beliefs may be tested. The act of practicing and preparing affects our beliefs and attitudes.

During this time there may be slips or errors or waverings. These are small lapses in maintaining or sustaining the practice of the change, but the entire practice of the change is not lost; for example, falling off of a bicycle, having a slice of cake, or falling into a

negative mood in a meeting. None of these things as singular events will cause the individual to go back to the state of not knowing how to ride a bike, being overweight, or never being positive in a meeting again.

Stage 2 of my model is the equivalent to Gordon's conscious competency. The individual understands or knows how to do something. However, demonstrating the skill or knowledge requires a great deal of consciousness or concentration.

The formula at the end of Stage 2 looks like this:

$$S_i + (\text{Push:Pull} \bullet (|+F^x + -F^y|) \cup (M_1 \bullet M_2)) + \text{MOC} + \text{Practice}$$

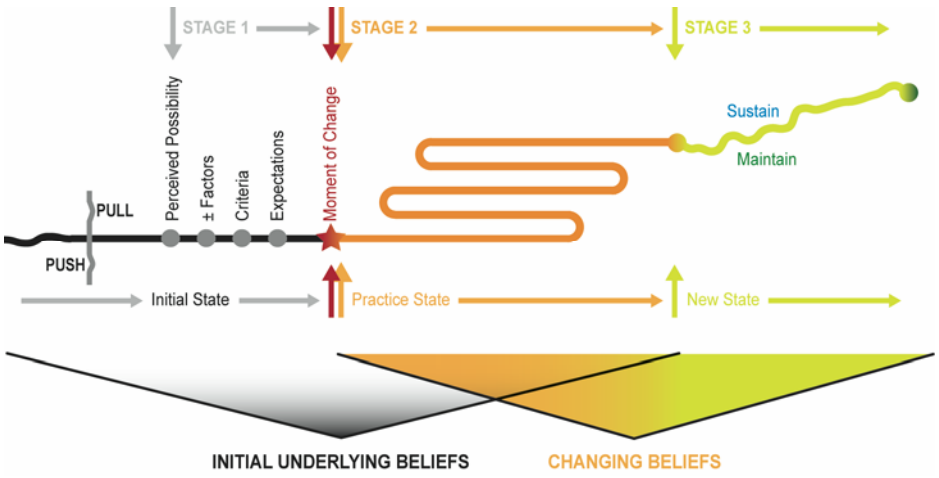

Figure 4.5 *Stage 3*

Stage 3: The Changed State, Maintaining and Sustaining, Regression and Recursion

At the beginning of Stage 3 the individual crosses over into the changed state. It is possible that the change is complete. The exact point of transition from Stage 2 to Stage 3

may be unclear. It might be said that the individual has reached a new level of competency.

The actions of Stage 3 are slightly different in quality depending on whether or not the individual is making a change in a practice or a change in a belief or belief system. Whereas an individual sustains a change in practices, actions continuing to be done or not done; an individual maintains a change in beliefs, values and attitudes held without long periods of disbelief.

Stage 3 of my model is the equivalent to Gordon's unconscious competency. The individual understands or knows how to do something and is able to demonstrate the skill or knowledge without consciousness or concentration. The individual has had so much practice with a skill that it becomes "second nature."

However, in this Stage there may be events external to the individual that they may feel will be mitigated by returning to previous practices or beliefs, or possibly internal events, an occurrence of a desire for the Initial State, for example when faced with circumstances that are identical with or similar to the circumstances in which the Initial State was pleasant and at this time may still be deemed to be desirable. The individual may then regress in a practice—return to a former practice or recurse in a belief—return to a former belief or set of values or potentially, move on to Stage 4.

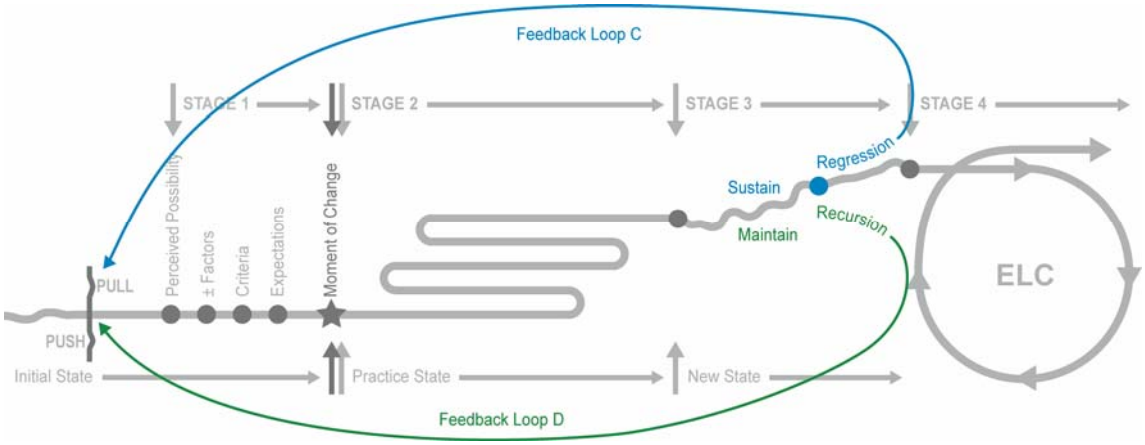

Figure 4.6 *Feedback Loops C and D*

Loop C, regression: In the case of a new practice that was being sustained the individual will follow a pattern of regression to a state parallel in space to the Initial State and the process of change will return to a former state. This is usually as a defensive reaction to an external event. The process of change may repeat. A teacher goes back to using the L1 in her classroom because she felt it was simply easier and therefore she no longer needed to concern herself with lesson planning.

Loop D, recursion: In the case of a new belief that has been maintained the individual will follow a pattern of recursion to a state parallel in space to the Initial State and the process of change may repeat. Recursion is not the same as *wavering* which may have occurred during Stage 2; it is more substantial in nature and longer in effect, for example one's partner has died and one no longer believes in a God.

Both loops take the process of change back to a place similar to the Initial State, like a reset, but it is important to know that the individual does not reset to the Initial State. Concomitant changes have been made, Stage 1 components have been worked through,

some learning has taken place. There is generally emotional backlash that accompanies regression and recursion that will effect any future moving forward with the same specific change; the individual's ±Factors and Motivations may have been modified. At the very least an individual's physiology will be different. Looking at Lorenz' model in Figure 1.2 one can see how the process of change in the larger picture of our lives shows regression and recursion.

The formula at the end of Stage 3 looks like this:

$$S_i + (\text{Push: Pull} \bullet (|+F^x + -F^y|) \cup (M_1 \bullet M_2)) + \text{MOC} + \text{Practice} \Rightarrow \Delta \approx \Delta \text{ State} \Delta\Delta$$

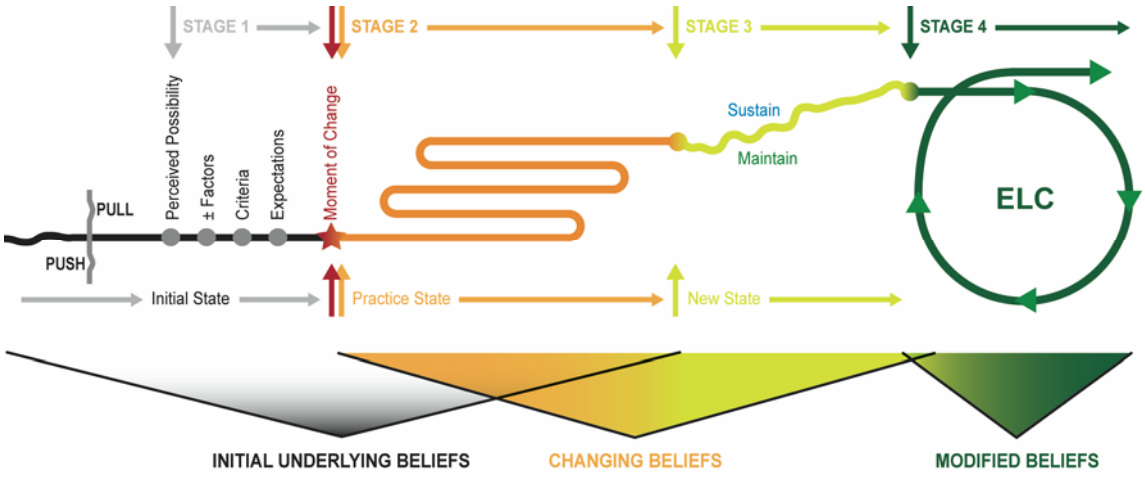

Figure 4.7 *Complete Process of Change*

Stage 4: Experiential Learning Cycle

If the individual has not taken the loop of regression or recursion, and having had the experience of undergoing a specific change, then they may enter the experiential learning cycle. (Kolb and Fry, 1975) If one wishes to be intentional about change, or wishes to be

able to teach the skill of change, then this is the obvious last stage for the process of change model.

This is a time of reflection and synthesis of the process of change as well as the content of change (the experience itself) that the individual has just completed. It will consolidate their new beliefs and/or practices and reinforce or modify previously held beliefs. It will prepare them with a more solid base for future changes both in the whole and those that share the same organizing principle; this stage is analogous to Gattegno's concept of transfer.

Upon completion of Stage 4 of my model the individual could be said to have moved into stage five, *reflective competence*, Nonaka's recently added stage of the Conscious Competency Model.

The formula at the end of Stage 4 looks like this:

$$S_i + (\text{Push: Pull} \bullet (|+F^x + -F^y|) \cup (M_1 \bullet M_2)) + \text{MOC} + \text{Practice} \Rightarrow \approx\Delta \text{ State} + \text{ELC}\Delta$$

Chapter 5

Seeing Process of Change in Action

Best Practices Diploma Program - Deagu, So. Korea

The Best Practices six-month Diploma program pilot ran from September 04, 2008 through February 27, 2009. The program was attended by twenty-five Korean teachers of English who are teaching in middle and high schools. They had a range of teaching time from two years to over twenty years. The age range was from 23 to 52 years of age. There were four men and 21 women. This program was developed and provided to meet the need created by the Korean Ministry of Education's mandate that all 'English classes will be taught in English by the beginning of the year 2010.' Currently, English classes in Korean middle and high schools are primarily taught in Korean.

The Diploma program was set up in three phases: Phase 1 was ten weeks of theory and peer teaching; Phase 2 was four weeks of immersion in the USA with EFL and culture based tasks and observations of EFL and ESL classes being taught in US public and private schools; and Phase 3 was eight weeks of practice teaching.

Phase 1 of the course dealt primarily with theory, the four skills and grammar, and gave the participants the opportunity to do four peer teachings and two small group presentations, teaching English in English. They also were guided through examination of their beliefs about learning and teaching language. Phase 2 also dealt with their beliefs and gave them an opportunity to observe EFL and ESL classes in the USA being taught in the L2 and process those observations. Phase 3 required them to teach English in English for eight 45-minute sessions and a number of 15-minute warmers.

The belief statement sheets, their 'self as a language learner' papers, end of Phase 1 written reflections and end of Phase 3 final learning statements were the documents that the participants used to individually and explicitly examine their underlying beliefs about learning and learners, teaching and teachers. I have chosen to look at four individuals based on their documents and discussions and have given them pseudonyms for the sake of anonymity; Bruce, Charline, Chris, and Martha.

There were two major things that the Diploma program was asking the participants to change: 1) their belief that teaching English in English could not be done; and 2) their ability to actually teach English in English. The participants were being asked to change both a belief and a practice.

The participants:

Push:Pull: The participants as a group were all experiencing a massive Push by Korea's Ministry of Education mandate, which each experienced in their own way. They were all aware of the change that *must* occur. Some of the participants were Pulled by their desire to improve their own English language proficiency, some to improve their teaching skills, and some because attending the course meant that they did not have to teach for six months and yet still received their regular compensation.

Perceived Possibility: An initial informal poll of the teacher participants of the course showed that most of the participants thought that the task of teaching English in English was 'impossible', or maybe only under certain circumstances, that is for advanced level

learners. However, to teach other than advanced learners English in English was thought by all participants to be an impossibility.

±Factors: The group experienced a variety of ±Factors, as shown in Figure 3.1, that are observed in their documents. Of the +Factors, Chris and Martha experienced desire and optimism. Charline, Chris and Martha experienced stimulation, a joining in with the group feeling. Of the -Factors, all four participants experienced inability and pessimism. Bruce also experienced rejection, complication and apathy; he writes, "I came to the 6-month language training course with a luke warm attitude, to be honest. …hoping to have slight achievements." Yet he goes on to state that he believes in his ability to deliver a class in English.

Many of the participants were experiencing anxiety and fear regarding the mandate, an impending externally imposed MOC, and what it meant for their teaching practice. Some could be said to be in a mild state of emotional shock regarding the specific state of affairs.

Initial Expectations and Criteria: They all had high expectations for the potential of increasing their own language proficiency and used that as their main criteria for being able to teach English in English in the future. These criteria and expectations were developed prior to finding out about the content and nature of the program.

They all thought that learning 'classroom English' would help them to succeed. Classroom English is a set of language expressions put together by the Korean Ministry

of Education to help teachers teach English in English. The 'textbook' consists primarily of imperative phrases and stock questions and answers to be memorized.

Specific Expectations and Criteria: Once the participants saw that there was to be a large amount of theory, a paper and presentations, their prior criteria and expectations were a bit dashed, especially noticed by Charline, but all rallied when they were assigned their EFL groups. They *continued to believe* that language proficiency would be what would help them the most and was their criteria for being able to teach English in English. Their initial criteria and expectations of the content were not modified despite receiving additional information regarding the content.

Of the four Ps that I have chosen to explore, two changed their beliefs about teaching English in English during Phase 1 from a belief that it could not be done to one that it was possible. Charline said, "I have always thought that teaching English in English could be just a slogan." Martha said, "'…teaching E in E only' has been my dream, but I have a doubt…And finally, when I taught Ts Korean in Korean, I reached the 'Wow' moment."

Chris never explicitly mentions a change in belief in the possibility of teaching English in English or a change in practice, but details a long list in her final learner statement that all point to a change in practice that she is going to take with her back to her classroom. She states in her belief statement sheet, "I believe practices come from what I believe." Implicitly she states her changes in the following, "My inner conflict between my own beliefs based on reality and the new ideas SIT had offered hindered my acquisition of the

new theories. But I looking back, the time I had spent reflecting about how to applied the new ideas to my real teaching was the most significant to develop myself into a better qualified teacher." She ends with, "…the goal of teaching as a teacher is to teach English in English."

In Bruce's final learning statement he says, "I now have a strong attitude. …I can perform or deliver communicative language teaching…" He never mentions whether or not he believes it is now possible to teach English in English, but he has actually done his practice teaching in English. The change that he mentions most often is, "I will change – a Korean traditional teaching style or a teacher-dominated class into a student-centered one."

The program:

What did the Diploma program do to facilitate the process of change for the participants?

Phase 1 of the program fits very neatly into Stage 1 of the model. The theory and belief sheets, learning papers, and end of Phase reflections all gave the participants the opportunity to discover their own beliefs, attitudes, criteria and expectations.

Phase 2 of the program continued the exploration of the Stage 1 components by giving them chance to observe EFL and ESL classes being taught in the L1 and/or the L2 and make comparisons. They also had the opportunity to develop their own language and cultural proficiencies, which lead to self-confidence.

Phase 3 of the program gave them the opportunity to practice. In a sense, it assumed that the moment of change had occurred and that the participants were now in Stage 2 of my model. Although, practice teaching could be thought of as a 'safety zone,' of acting 'as if,' as if the moment of change had already occurred—a chance to practice without commitment.

Looking at Stage 3 is tricky, because we do not know if the participants will continue the practice of teaching English in English or if they will regress to teaching in Korean. We do not know if the change, practiced in a real classroom, but without the constraints of testing and with fewer learners, has been set or not. Have they attained the automaticity that Gattegno speaks of? Will their newfound beliefs about the possibility of teaching English in English recurse to the impossibility of it when faced with teaching six hours a day and the demands of the Korean testing system?

One could say that Stage 4 of my model was ongoing in their daily reflections in Phase 1 and in the observations and feedback sessions of Phase3. However, there was no specific time set aside for individual and group processing of the six-month program *in its entirety*, no time to revisit beliefs from Phase 1. Concurring with Stage 4 of my model, Dörnyei's Postactional stage the participants should have had time to form attributions, elaborate strategies and engage in further planning.

Overall the curriculum of the program closely followed my model of the process of change.

Chapter 6

Implications for the Classroom

I didn't know what I would discover when I set out to look at the process of change. I was becoming more involved in teacher training and knew that it meant changing my focus, my content competency level and developing reflective competencies, and asking teachers/learners to change. I thought if I knew more about change, I could do a better job of making my own personal change and then supporting learners in understanding the process and making their own change. I thought it would lead to more learner autonomy, a greater sense of agency. For me the discovery was about becoming aware and then by extension, intentional in my own change and in what I expected from learners in terms of change.

Based on my model of change and watching and discussing change taking place during a six-month course, I find that there are many implications for the classroom. Initial assessment of the learners that is non-content in nature is very important. In that everything that comes before the MOC can be classified as underlying beliefs, attitudes and motivation, these areas need to be thoroughly explored. The ELC at the end of the process of change model is crucial in a learner understanding their process of change, as well as for teachers and teacher trainers who are teaching the process of change as a skill. The need to develop and apply objectives that are SMART (specific, measurable, achievable, relevant, time-bound) based on the components of Stage 1 for use in Stage 2 will facilitate the process of change.

Implications for the classroom: *for learners and teachers*

I see the following five items as being directly connected by the process of change model that I have created:

1. The overwhelming need for initial assessment regarding the learners' beliefs and motivations, in terms of both the changes the teacher will be asking the learner to make and the content;

2. that the process of change is a skill to be made aware of and can be taught;

3. The value of developing SMART (specific, measurable, achievable, relevant and time-bound) objectives as the 'changer' moves into Stage 2 as they reflect the learner's criteria and expectations from Stage 1;

4. the necessity of the experiential learning cycle and reflection as Stage 4, the need to synthesize and consolidate, learning from our learning, in understanding why and how change has taken place;

5. the connection with the learning competencies model, that teaching requires our own ability to reflect and our reflective competency, in order to be able to teach.

From Stage 1: the value of understanding the learners' Initial State

Teachers need to learn more than personal information from their students; it is simply not enough. The need for assessments that help both the learner and the teacher to discover the learners' underlying beliefs about what is being learned, their criteria for learning, and their expectations are vital to the learning process if it is to be effective.

Learners and teachers need to be clear about their beliefs and how these beliefs might affect learning and teaching. A by-product of this is that it will lead learners to become more autonomous learners. Assessment about what brings a student to a classroom or a specific learning is essential for the teacher; it is paramount to change and learning taking place.

From Stage 2: the value of SMART objectives

The movement through change is facilitated greatly by developing strategies, objectives and goals. Stage 2 is navigated more cleanly and clearly with an understanding of the components of Stage 1. If an individual takes these components into account and explicitly uses them to develop SMART objectives regarding change, then it will be easier to accomplish the change and to know that it has been accomplished.

From Stage 4: the ELC and Reflective Competence

Learners need the opportunity to reflect upon their changes and their learnings. The use of the ELC will help them be able to transfer both the content and skills learned to new learnings and changes and help to prepare them for future changes.

Teachers need to reach the level of reflective competence about what is being taught, and this includes skills as well as content. The process of change—being able to make change intentionally, effectively and meaningfully—is a skill. Teachers must be able to understand the process itself, and be able to identify the location of the learner in the process.

Implications for lesson planning, syllabus and curriculum design:

In any course or program there needs to be an intentionally designed set of activities that lead the learner to investigate the components of Stage 1. The learners need to be able to articulate why they are in the class, to explore their ±Factors, to understand and develop their criteria and expectations according to the content and delivery of the content. This is a process of developing awareness for both the learner and the teacher; it helps to chart the path.

The opportunity for practicing, Stage 2, the changes being asked is exceedingly important, not just in terms of content, but also in terms of beliefs and non-content changes the learner may be being asked to make. The cultural content of the language is one of the main issues in this category. Timeliness and type of participation required may also be quite different for the learner and these changes will also take practice. Consciousness of this will facilitate syllabus and curriculum design that incorporates time to practice without quantitative assessment of the outcome of content. From a teacher point of view bringing these changes to the awareness of the learner will facilitate their movement through the changes, with adequate time and appropriate activities for exploration of beliefs.

Stage 4 of the process of change is often forgotten in the rush and push to fill all available time with content. Frequently no time is scheduled at the end of a course to look back at the whole and explore the changes that occurred, both in beliefs and in practices. There is no time to look at what happened, why, and contemplate how to move into the future, to

become fully conscious of the changes or for the individual to learn about their own process of change and then intentionally prepare for future change.

The non-content changes that the learner is being asked to make need to be addressed consciously with a variety of activities that are predicated on the learners' initial exploration. Time in the curriculum needs to be available for the teacher to incorporate these activities into their lesson plans.

A preliminary framework for the development of a syllabus or curriculum that follows the Stages of the process of change might look like this:

Stage 1: activities that help the learner to identify, examine and evaluate their beliefs, values and motivations and that help them to make choices that are available within the confines of any mandated elements from higher institutions.

Stage 2: practice those changes in situations that are authentic to where the practice/belief will be used (important information is to be gathered here for use in Stage 3), possibly 'as if' the moment of change has already occurred, if it has not. That is, letting the experience of practice, a 'safety zone' of MOC not yet committed to, modify the learners criteria and expectations—C_i and E_i and C_s and E_s.

Stage 3: activities that help the learner become aware of changes made and determine for themselves how they will maintain and sustain their learnings and/or change based on information gathered in Stage 2.

Stage 4: activities that will help the learner identify, examine and evaluate learning and change that has occurred and how to leverage that new information to the future, to transfer to other learnings and change, and to examine any changes in underlying beliefs.

Chapter 7

Summary

The model of the process of change that I have developed includes: four stages, an articulation point—the moment of change, and feedback loops. It is independent of the content of the change and the outcome desired. There are stages in the process that can be equated with Gattegno's four stages of learning and with Gordon's learning competencies model. Motivation plays a major role in the decision to make change and has four components in Stage 1 that affect that decision. The entire process of change or individual parts may be conscious or unconscious in nature.

Change that does not start from the perceived Push:Pull that creates the desire for change, may start with a moment of change that has been externally created and foisted upon the individual. Because that individual has not been able to work their way through Stage 1—the ±Factors, the M_1 and M_2—they may wind up in a state of shock and must loop back to deal with those before being able to move psychologically forward with the change that has been foisted upon them. At the same time they are thrust into Stage 2—actively practicing the change without the benefit of the process of Stage 1.

Looping back also occurs when a change cannot be maintained or sustained, and for internal or external reasons a person goes back to a state similar to, yet at the least physiologically different from, the Initial State prior to the moment of change.

Mathematically the process of change can be summarized as follows:

$$S_i + (\text{Push: Pull} \bullet (|+F^x + -F^x|) \cup (M_1 \bullet M_2)) + \text{MOC} + \text{Practice} \Rightarrow \approx\Delta \text{ State} + \text{ELC}$$

Stage 4 of the process of change is not required for change to take place but is required for understanding the process of change that an individual has just completed and for using the information to move forward into and through other changes. It is in Stage 4 that an individual gains additional awareness of the content and the process of the change. A reflective competency is gained that promotes the ability to be intentional about change and to teach the skill of change to others.

Reflective competency of the process of change informs one's decisions in the classroom in terms of content, teaching the skill of change, and design of classes, courses, and curriculum that facilitate the changes that the individual and/or institution is promoting.

Chapter 8

Conclusions

The process of change is complex and intricate. Each individual that engages in change brings their own complexity to the process. However, the variation that they bring is subsumed by the overall model of chaos as developed by Lorenz. The types of change that an individual makes are potentially determined by the starting point of their lives—a combination of genetics and environment. These individual differences do not effect my process of change model.

Learners must be able to, at a minimum, influence their own criteria, expectations and outcomes within the bounds of the nature and purpose of a class, course, workshop or program. Learner autonomy is vital in facilitating change. SMART (specific, measurable, achievable, relevant and time-bound) objectives must contain both criteria and expectations that the learner/changer has been able to modify for their own process. Teachers, institutions, and the need to 'cover the material' often fail to give changers/learners time to practice/prepare for change; we expect instant change.

The model supports the value of experiential learning and autonomous learning—learning and change that are not imposed solely from the outside, producing shock and resistance—and in which what is learned is also guided by the learner. The teacher/institute/society cannot dictate the outcome of a learner's change, the learner must choose; it must come from within. However, it is possible to facilitate the change being presented to the learner.

Change is a life skill and the process can be taught. In learning the life skill of change an individual, a learner, a group, an organization may become more effective and intentional in the change that they make. The process model of change requires us to become intentional if we follow through Stage 4. In this sense it could be said that this is also a model for intentionality with one's choices and responses to events.

Curriculum design should incorporate a set of bookends to the content delivered, an initial exploration of motivations and a terminal exploration of the changes made. These two acts will facilitate the learning that occurs between them because the leaner is now involved, has a stake in what is to be learned. At the beginning of a class or course, the learner becomes conscious of the process of change/learning they are about to go through and understands their motivations with regard to that change/learning. At the end of the class or course, the learner can reflect on how the change/learning proceeded, what concomitant changes/learnings may have occurred and contemplate how they may want to move forward with future change/learning. The learner is on their way to becoming aware and intentional with regard to change and learning.

I have come to the conclusion that change is a form of learning and learning is a form of change, although one doesn't always learn from change nor change from learning.

Appendix

Appendix A
Glossary of Terms and Abbreviations

Beliefs	acceptance of a truth or existence
Change	alteration, substitution, becoming; an experience
Core	essence; intrinsic nature; central most important part
Emotional Response	a subconscious psychological and potentially physical response to a stimulus that produces emotional content and its resultant behavior
Experiential	based on experience and observation
Initial State	state before Stage 1 in relationship to a specific change
Maintain	enable a condition or state of affairs to continue; preserve, support
MOC	Moment of Change, a point in time, a decision
Motivation	reason(s) and effectors for behavior change; initiative; agenda
Practice	application of idea, belief or method; rehearsal real or imagined
Push: Pull	reasons to entertain the process of change—conscious or unconscious
Recursion	Beliefs: repetition of a process or procedure
Regression	Practice: return to a former stage/less developed state; defensive reaction
Surface	apparent on a casual view, immediately obvious, uppermost layer
Sustain	Practice: strengthen or support physically or mentally
Values	principles, standards of behavior

Appendix B
Math and Logic Symbols

±	plus-minus, a entity that can have either value
+	perceived positive value
-	perceived negative value
$\Rightarrow$	an implied if…then
$\cup$	union, including all of the values in all of the sets listed
| |	absolute value, essentially a 'positive' value of the result of the function carried out between the symbols, e.g. | +6 - -7 | = 1 and | 5 • -4 | = 20
•	simple multiplication
≈	almost equal
Δ	delta, change

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