Research Paper

Narrative Formation of Teacher Identity from the Perspective of Complexity Theory

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Abstract
Teacher identity has been studied from several perspectives. However, the present study makes an attempt to investigate the process of identity formation through narrative telling from the framework of complexity theory. In a case study design, semi-structured interview data and teacher-produced diaries of a novice Iranian English teacher were analyzed in order to identify attractors of identity formation. As a result, four major attractors that had the strongest effect on the process of identity formation were detected. Then the mechanisms through which these attractors exerted influence on identity formation are discussed. Finally, it has been argued that narrative construction of identity requires the individual to stress different aspects of their identity at different times; and that the phase shifts that occurred when the identity system moved in the direction of another attractor were triggered by the moment-to-moment requirements of narrative formation.

Keywords: Complexity Theory; Identity; Identity Formation; Narrative Identity;Teacher Identity

شکل گیری روایی هویت معلم از منظر نظریه پیچیدگی
هویت معلم از منظرهای مختلفی مورد بررسی قرار گرفته است. با این حال، پژوهش حاضر تلاش می‌کند تا فرآیند شکل‌گیری هویت را از طریق روایت روایت از چارچوب نظریه پیچیدگی بررسی کند. در یک طرح مطالعه موردی، داده‌های مصاحبه نیمه ساختاریافته و یادداشت‌های روزانه معلم زبان انگلیسی تازه‌کار ایرانی به منظور شناسایی عوامل جذب هویت مورد تجزیه و تحلیل قرار گرفت. در نتیجه، چهار جاذبه اصلی که قوی‌ترین تأثیر را بر روند شکل‌گیری هویت داشتند، شناسایی شدند. سپس مکانیسم‌هایی که از طریق آن این جاذبه‌ها بر شکل‌گیری هویت تأثیر می‌گذارند مورد بحث قرار می‌گیرند. در نهایت، استدلال شده است که ساخت روایی هویت مستلزم آن است که فرد بر جنبه‌های مختلف هویت خود در زمان‌های مختلف تأکید کند. و اینکه تغییرات فازی که زمانی رخ می‌دهد که سیستم هویت در جهت جذب کننده دیگری حرکت می‌کند، توسط الزامات لحظه به لحظه شکل‌گیری روایت آغاز شده است.
کلمات کلیدی: نظریه پیچیدگی; هویت؛ شکل گیری هویت؛ هویت روایی؛ هویت معلم

Introduction

Identity, especially teacher identity, in language teaching and learning has a long research tradition (e.g., Beijaard et al, 2004; Beauchamp & Thomas, 2009; Lankveld et al, 2016; Yazan, 2018; Kayi-Aydar, 2019, etc.). It has been found to be a determining element in language learning. Teacher identity, also, is an active player in the way teachers think and behave, in that it affects their beliefs and the practices that stem from them. Therefore, a pressing need is felt to investigate the process that teachers – and learners alike – go through in developing their professional identity. This process can be looked at through various perspectives. One candidate framework that lends itself well to studying the ups and downs of identity formation is complexity theory. However, identity formation through narrative making from the perspective of complexity theory, while obviously needs careful attention, it is a relatively under-researched area of investigation. The present study, therefore, aims to add to our knowledge on this particular issue.

Theoretical framework

Identity in general

Identity may not be as tricky a term for the common mind as it is for the theoretician. A layperson does not seem to have great problems with what identity is. But scientific inquiry compels the theorist to define the concept they are working with. However, the tricky nature of the concept and its social-scientific provenance render it an elusive term to be defined (Tao & Gao, 2018). Akkerman and Meijer (2011) reviews the development of thinking on identity, and refers to two major shifts in how identity has been understood and conceptualized. He refers to pre-modern and modern understandings of identity; identity was approached in relation to a single universal truth, in the former and it was the result of a process in which the individual is the center of universe, in the latter. He then contrasts these perspectives with a postmodern conception of identity, in which "…identity is no longer seen as an overarching and unified framework but, instead, as being fragmented along with the multiple social worlds that people engage in, (p. 309). Similarly, Block (2007) discusses a postmodern conception of identity, raising a number of issues that are associated with what identity is, how it is constructed. According to him post modernism sees identity not as a fixed entity, rather it is "…fragmented and contested in nature, (p. 864)". This entails that the individual, when faced with new life conditions in novel situations, does not assume a new form of identity; rather they negotiate their identity to encompass new experiences, and this may result in a third place (emphasis in original) where "…the past and the present encounter and transform each other in the presence of fissures, gaps, and contradictions (Papastergiadis, p. 170, cited in Block 2007). This process may result in ambivalence (emphasis in original) which is "…the uncertainty of feeling a part and feeling apart, (p. 864)". This requires that the individual negotiate the differences in order to resolve ambivalence, which in turn raises the importance that is attached to the individual's will and agency. Therefore, identity is – at least in part – viewed to be the result of a personal process of negotiation of who one thinks one is. The personal choice, however, is contrasted with the power of social structures in allowing the individual to or constraining them from making certain choices. There are, according to Block, "…social structures … that constrain the amount and scope of choice available to the individuals, (p. 865)".

The postmodern view makes more sense, at least in a teaching context, not only for its plausibility, but also for its greater potential to account for an individual's situation-specific notions of their selves. It allows us to gain deeper understandings of how an individual thinks about who they are; and how this perception changes from one situation to another. A post-modern account of identity also sheds light on its social nature, wherein the individual together

with outside forces shape their ideas as to who they are. Therefore, throughout our discussions, the position that we take regarding identity, resembles a postmodern one, while not rejecting sociological or modern notions of identity altogether.

Teacher identity

Beauchamp and Thomas (2009) list a number of the challenges facing the researcher in their attempt to understand and define teacher identity. Notwithstanding, there have been attempts to provide a working definition (Higgins 2017, Day 2011). Day, for example defines teacher identity as "…the way we make sense of ourselves and the image of ourselves that we present to others" (p. 48). Yet, Palmer (1998) sees identity more holistically, and takes into consideration several dimensions of personal life stating that: "… identity is a moving intersection of the inner and outer forces that make who I am, converging in the irreducible mystery of being human, (p. 13)". Also, Beijaard, Meijer, and Verloop (2004) see teachers' professional identity as an ongoing process of interpretations being made of experiences that makes connections between the person and the context and which consists of sub-identities in need of the exercise of agency (p. 122). However, Sachs's (2005) definition seems to be a good candidate for a comprehensive definition of teacher identity, wherein s/he states:

> "It provides a framework for teachers to construct their own ideas of 'how to be', 'how to act' and 'how to understand' their work and their place in society. Importantly, teacher identity is not something that is fixed nor is it imposed; rather it is negotiated through experience and the sense that is made of that experience. (Sachs, 2005, p. 15).

This view of identity is influenced by Norton's (1995) seminal work. It represents a move away from viewing identity as a psychological construct to looking at it as a contextual and social process. This view holds that identity is not a stable phenomenon; rather it sees identity as in a constant shift, resulting from factors that are both internal and external to the individual, which is in line with a postmodern view of identity discussed earlier. Therefore, identity is shaped by both the person's agency and the contextual factors that surround them. Yet, this relationship is not one-way; that is identity both shapes and is shaped by the factors that relate to it.

However, the perspective one holds on teacher identity needs to be discussed in terms of the dimensions that Tsui (2007) refers to. He points to the lack of a consensus among researchers regarding teacher identity in terms of whether it is multidimensional, personal or social and agency- or structure-driven (p. 658). The first refers to whether there are sub-identities inside a general, inclusive identity. As to the second dimension, Tsui states that some researchers tend to emphasize the personal factors, i.e., one's reflections, desires and practical knowledge, while others point to the importance of the social context that shapes identity. The last dichotomy relates to whether the teacher's agency is emphasized over the social structures that affect their practices or vice versa.

Yazan (2018) after reviewing the literature on teacher identity lists five general findings on which the existing studies converge. They are 1. Teachers' conceptions about themselves as teachers, 2. Others' expectations and positioning, 3. Dynamicity and constant evolution 4. Social (re)construction and 5. teachers' commitments, participation and investment in the profession, (p. 27). Yazan's findings align with what most scholars on identity believe to be true of identity. More specifically, identity construction is believed to be an individual and also a social process of identity negotiation in the light of current beliefs and practices (Duff & Uchida, 1997; Tsui, 2007). This process may involve a struggle to negotiate novel forms of identity in the face of

current practices, which may lead to new forms of relationships, professional practices and understanding, or it may result in alienation or lack of legitimization (Tsui, 2007).

Moreover, teachers' identities are context-dependent. Teachers and consequently the identities they negotiate with the environmental factors are situated in a specific social milieu, (Chien, 2019). Inside this social setting there are power relations, ideology and culture that teachers need to negotiate (Zembylas, 2005). Additionally, the process of identity construction involves a continual and dynamic nature, which may vary from one context to the next, (Gee, 2001).

Identity construction

The formation of a teacher's identity begins long before the time they start their teaching or even their teacher development courses. Teachers entertain ideas on what teaching is, what teachers do, how a teacher should be and do, during the time they observe their own teacher in their studentship. Lortie's (1975) idea of apprenticeship of observation captures the images that teachers have developed about teaching out of their own educational experiences. However, identity construction, by nature, is a continual and ongoing process, although we may be able to track its starting point to early school days of the teacher. This gradual and continual process is shaped by almost every contextual factor that has a bearing on teachers' lives and practices, including social, political, cultural, economic and religious forces. These causes interact and ultimately determine the trajectory of a teacher's identity development, and this process continues throughout a teacher's career (Buchanan, 2015; Kerby, 1991). Beijaard, et. al. (2000) put the factors that influence a teacher's sense of their own identity in three broad categories which are: teaching context, teaching experience and the biography of the teacher.

The current thinking on the development of teacher's identity is that it is an ongoing process that involves the interpretation and reinterpretation of experiences as one lives them (Kerby, 1991). This act of meaning making involves negotiating experiences in the light of the perspective that one takes on the surrounding world. While some researchers emphasize the sociocultural dimension of this constructive process, others foreground the discursive and narrative dimension, (Lankveld et al, 2016). The constructive nature of identity implies that identity is not stable; rather, it is a fluid phenomenon, which may undergo radical changes through revisiting long-held beliefs provided that conflicting experiences are confronted.

Complexity Theory

Complexity theory (CT) aims to study the ongoing development of a system in order to explain the influences that give shape to the system as a whole, bearing in mind the relationships that parts of the system have among themselves. The basic premise of the system is that if we separate the parts and study one part at a time in isolation from the other parts, we miss important information about the general working of the system. In other words, according to Williams, Mercer and Ryans (2015), "…in order to understand something, we need to look at all the parts of the system to which it belongs and their varying interactions (p. 156)". The theory aims to study systems that are made of numerous interacting parts, which determine the overall developmental path of the system in combination. Examples of candidate systems that lend themselves well for a CT investigation are the evolution of philosophical ideas, a disease in human body, the direction that a ball goes on a beach, the relationship between a husband and wife, the changes that occur to a language over time and finally – one that is more related to the field of applied linguistics – the development of a learner's interlanguage or the development of a teacher's identity over time. What all of these diverse systems have in common which is another distinguishing characteristic of the system is its complexity. The systems that CT studies, have several components that establish complicated relationships (Larssen-Freeman & Cameron,

2008). This necessitates that these relationships are not nonlinear, meaning that the outcome of the interactions among the parts cannot be predicted. Therefore, unpredictability is itself another key term in CT, which comes from the fact that these relationships vary from time to time, making it difficult for the observer to state with certainty what factors contributed to the present state of the system. Moreover, the components that form the whole are not stable, so single instances of investigation at a time are insufficient, since the components are in a constant state of development, and as a result they change over time, giving a completely different appearance to the system from one investigation to the next.

Although the general developmental path of the system is determined by the interactions among its various component parts, there are ingredients to the system that exert more influence on the system than others. The famous example brought by Larssen-Freeman and Cameron (2008) is that of the movement of a ball on a beach. The breeze on the beach plays a more important role in determining the path of some balls, than the shape of the sand, the material from which the ball is made, the initial path and velocity and the pressure of the air inside the ball. In other cases, it may be the weight of the ball that has the ultimate say in specifying the course in which the ball goes. These determining factors bring the whole system into a temporary stability, which is called the attractor state. This is the state towards which the system tends to move, (Larssen-Freeman & Cameron, 2008, p. 49) and which, once achieved, tends to keep the system in place until another stronger force jolts the system out of its static state. An example is a hole on the beach which seems to pull the ball in, or a fossilization that occurs for some adult language learners. Moreover, there are states from which the system seems to escape, meaning that the system does not move in their directions and at times that it does, it changes its course. The mountain range alongside an area does not allow the air front to pass, and as a result on the other side of the mountainous area little or no precipitation is expected; or a bump on the beach makes the ball change its course when it gets nearer to the bump. These states are called *repeller states*.

It is possible to draw similarities between the ways identities develop over time, and the explanations CT provides for the changes that occur in a system. The unpredictability of the properties of an individual's evolving identity at any specific point of time, echoes the lack of determination of the system discussed in CT theory. The emergent nature of identity is another realization of CT in the process of identity formation. Last but not the least is the initial state of the identity which in part determines the trajectory of identity formation; an explanation CT offers for the role that the starting point of the system has on the outcome. These tempting similarities point to the interesting possibility of looking at the process of identity formation through the lens of CT. Therefore, CT constitutes the general framework of the present study.

Narrative identity
Another way of looking at identity construction is through examining the stories that individuals tell, in an attempt to make sense of the world, and positioning themselves in it. Beijaard et al. (2004), for example, state that "… "Through storytelling, teachers engage in narrative 'theorizing' and, based on that, teachers may further discover and shape their professional identity resulting in new or different stories" (p. 121). Connelly and Clandinin (1999) by invoking the term "stories to live by", believe that teachers make use of stories to gain understandings of their experiences. This entails that we come to terms with the idea of multiple identities since the moment-to-moment requirements of narrative-making involves stressing different aspects of personal experiences at different times. In fact, these narratives are the actual negotiations that the individual engages in, in order to give meaning to their beliefs and experiences and according to Beijard et al. (2004), these narratives may result in new forms of stories. Still some researchers go even further to viewing these stories as the de facto identities of

individuals. Sfard and Prusak (2005) equate identities to "collections of stories" (p. 16); or Watson (2006) observes that "…telling stories, then, in an important sense, doing identity work (p.525). This contention makes sense as stories are representations of actual lived experiences and the interpretations made of them in the light of beliefs constitute enduring patterns of thought or action.

Cohler (1982) adds that personal narratives give coherence and continuity to the life of an individual socially, historically and culturally. Furthermore, according to McAdams (1995) knowing someone requires not just their personal factual information, but also their identity which is laid out in the form of narratives. He (2018) makes a distinction between two conceptions of narratives as one's identity, which are big and small narratives; big narratives are those which form grand stories that encompass "…different chapters, scenes and characters" (p. 362), small narratives are those that appear in limited domains and contexts.

The above discussion on narrative as identity helps to justify the effort to approach the identity of a teacher as the stories that they tell. When a teacher is faced with a difficult situation or when they are being asked questions regarding significant aspects of their jobs as teachers, they tend to tell personal stories, and by so doing, they justify the decisions that they make and the behaviors that they display. This act of negotiating the meanings of their decisions and actions in a sense "…integrates the elements of their selves" (McAdams, 2018), and the eventual outcome is a type of professional identity that takes the form of narratives.

Research Question

What attractors were in play during the formation of the identity of a language teacher?

Method

Participant

Jack – a pseudonym – was a 32-year-old male teacher with one year of teaching experience. He was selected for the present study based on convenience, since the number of teachers available for the present study, and that also qualified for it, was five, and Jack's case constitutes a part of a larger study. He had an MA in English literature and did not have a background in teacher training courses or certifications. Prior to the study he had taught for 3 months in the Iran Language Institute (ILI) in the children's department, which teaches to children aged between 8-11 years of age. ILI is a sub-division of the parent organization i.e., Center for the Intellectual Development of Children and Adolescents (CIDCA) which is a semi-state educational organization aiming to help children develop their skills in a safe and supportive environment. ILI is the largest nationwide English-teaching institute in Iran, and in the context of the present research, it is the biggest and the only institute that selects, prepares and assesses teachers (at least partly) systematically. ILI is subject to the ideological governmental restrictions that are also practiced in other state organizations. In the context of this study these restrictions were even stronger since, the city in which it took place is not a big city in which, compared to larger cities, the governmental causes are reinforced more by social values. As a result, the teacher's dress code is extremely important; the female learners – even though they are under 11 years old – are required to cover their heads; teachers are asked not to discuss political or religious affairs, and if they do, they are required not to take positions which run counter to the mainstream governmental perspectives.

Jack had taught in other institutes sporadically, as part-time teaching; however, according to him, the way he taught in those classes was fundamentally different from his methodology at the ILI, due to an altered teaching mentality that he went through as a result of his readings on

philosophy and literature. He started to teach in the ILI after graduation, and it is plausible to track his new identity development starting with his job in the ILI. The present researcher also was teaching at the ILI at the time of the study, and this colleagueship brought about deeper familiarity with the participant that assisted in the analysis phase.

Procedure and instrument

Data collection began with an online semi-structured interview on Skype. During this session the basics of teacher identity were discussed, not dwelling on the concept itself; instead, the components were focused on. This interactive interview was followed by five semi-interactive interviews in which the questions were sent to the participant in the form of voice messages on the Telegram application, and he was required to send the response back in the same format, i.e., as a voice message. However, he was required to ponder over the questions for a few minutes, so that the responses would tap more directly into his cognition. All these interviews were transcribed verbatim for analysis, which took place both during and after the course of the interviews. The purpose of the simultaneous analysis was to bring the questions asked in later interviews more in line with Jack's ideas and to formulate more informed cues. Along with the interview sessions, diaries were required in between the interviews, after the second, and after the fourth interviews.

Each of the Telegram interviews and the diaries focused on a specific aspect of teacher identity. In order to ensure clarity of purpose during the interviews, each session was allocated to a distinct dimension of teacher identity. Each dimension included a number of cues or questions that were adopted from previous studies on teacher identity. The procedure to arrive at the questions was first to pool all the items available from the literature and also items that were added to the list following a brainstorming session by the researcher. Later, the items were grouped according to similarity of focus and finally encompassing, inclusive cues were developed by merging overlapping items. The ensuing protocol which included three groups of items labeled cognitive, social and status, was employed as the guide during the course of the interviews.

The interviews began with an introductory session during which the basics of identity were introduced, but only for the purpose of orienting Jack to the kinds of responses that were expected from him. Later, one session was dedicated to each of the three categories of identity mentioned above, with and interval of thirty days between the interviews. Along with the interview sessions, two diary journals were required in between the interviews, and they were intended to be more introspective, tapping into Jack's reflections. The first diary asked him to introspect on his career and his opinions about himself as a teacher, his strengths and weaknesses and the limitations he deals with. The second asked him what constituted his character as a language teacher and in what ways he possibly considered himself different from other teachers.

Data Analysis

Data for this study included transcriptions of Skype and Telegram interviews and the two reflective journals. The transcriptions and the diaries were content-analyzed collectively, following this procedure: first the transcripts were read and the salient statements were highlighted. Then the highlighted parts were written on a separate page adjacently, and then meaningful phrases were formed out of the statements. Later the meaningful phrases were tallied following another round of thorough reading of the transcripts. Finally, those phrases that had higher frequencies embedded in the transcripts and the diaries were used to formulate overarching themes. The themes thus developed from the transcriptions formed the basis for the discussion which will be presented later.

Researcher Positionality

It has been argued that in social sciences the position that the researcher takes affects the outcome of the study, (Day, 2012, Campbell & Wasco, 2000, Pelias, 2011). Positionality refers to the situation in which the researcher's perception of their position in the world "… impacts the way that the research is approached, interacted with, and interpreted (Jacobson & Mustafa, 2019). The researcher in order to attain maximum utility in the field, may present the self in particular ways. They may picture themselves as either experienced or inexperienced, (Day, 2012). Therefore, it seems necessary to spend some time pondering over the type of relationships that existed between the researcher and the participant of the present study. As explained earlier, Jack and the researcher were co-workers in the ILI, which can signal possession of equal rights to comment on the way a teacher should act and behave in that institute. However, the fact that the researcher had taught a few more years than Jack, had the potential to make Jack more reserved in expressing his certainty regarding impersonal issues such as the way a teacher should perform inside the classroom or behave in the social world, the goals of teaching English, etc. Moreover, the researcher's status as a PhD candidate in TEFL compared to Jack's who had an MA in English literature was an obvious sign of unequal power relations. However, maximum effort had gone into ensuring objectivity during the interview sessions; also, in order to mitigate the effects of perceived power differences, the researcher tried to ensure Jack that the research was not seeking a specific response type, but that whatever he stated was approved of as his credible opinion. Similarly, in order to bring the statuses of these two more in line with each other, institutional similarities and goals were emphasized and collaboration and solidarity were given priority.

Credibility

In order to safeguard as much as possible against biased interpretations, a number of measures were taken. The first was data multiplication, through garnering data from more than one source, hence interview data and diary data were collected. Second, researcher triangulation took place with an assistant researcher going through the data and the analyses carried out by the present researcher. The assistant researcher has a PhD in TEFL and has published papers in a number of journals. He was debriefed with regard to purpose, methodology, the general framework – with which he was already familiar and interested in – and all the necessary details of the present study. Furthermore, participant check followed the analysis phase, during which Jack was presented with the interpretations of his statements, and also, he was later consulted with, regarding the degree to which his beliefs were represented in the interpretations. This led to minor alterations in the interpretations.

Results

Throughout the interviews one point stood out consistently; that Jack highly idolized a body of wisdom and knowledge presented by Western scholars. All along the interviews, he championed the opinions he adopted from Western philosophers, psychologists, writers, etc., as the paragons of the educational enterprise, who offered the perfect knowledge we need for our educational circles. He admired figures such as Kant, Nietzsche, and Freud for their groundbreaking ideas and went to great lengths to adopt them in his teaching. He firmly believed that the answers to current deficiencies in education come from these scholars and their thinking. Therefore, he was severely resistant to present thinking, practice and culture that surrounded schools and classes in Iran. Not only he stand at a distance from the existing normative culture related to teaching and

teachers, but also, he strived to oppose the set of beliefs and practices that are shared among teachers and laypeople as well. Below, the reader is presented with detailed analyses of the interviews.

As discussed above, Jack displayed a very strong inclination toward Western scholars and their ideas. This was apparent from the second interview:

> As a teacher, I am the product of two things: The role of teachers as I see in our society is not at all something I agree with. I don't want them; I don't like them. Instead, I have chosen Western thinkers' ideas about teachers' roles and education as a whole, as my frame of reference. Also, (I like) the behavior of foreign teachers, and even their ways of talking and dressing, which are based on scholarly ideas. I am the product of these (two).

Similarly, he referred to Western ideas at another point during the second interview, as well:

> Before teaching, I had no knowledge about these figures. By and by, I came to know them. They are not from a single field. (They're) from psychology, logic, …. I even didn't have the intention to become a teacher. But knowing these figures changed my worldview completely. So, I put away everything I had (of knowledge) like religion and … tried to look at the world from the perspective of these individuals, even if they were the opposites of my former beliefs.

In a similar fashion, the following excerpt from the fifth interview adds credit to the statement that he admired Western knowledge and thinking. When asked about the factors that influenced him the most in his teaching, Jack responded: "A universal source of influence over me …. was the thinking and ideas that we talked about before." He goes so far as he mark every bit of norms or cultures that are related to teachers in Iran as "completely wrong (int. 2)".

Another major influence on his thinking and practice according to his claims is the videos of actual classrooms that he watched on YouTube. For instance, during the fifth interview which was dedicated to the influence of social issues on Jack's identity, when asked about the social media he preferred and used the most, he stated: "…but YouTube … enormously. Wherever I feel an inadequacy, I go and see it quickly, as a reference. Instead of searching for a book, I go to the videos, (int. 5)." Elsewhere during the same interview, he pointed out that he watched foreign videos rather than Iranian ones. Also, he made references to foreign videos in several other instances, as well. However, he insisted that he did not accept everything he watched with open arms; he laid stress on his criticality towards YouTube videos and asserted: "… But I don't accept everything that I see. I size them up. Maybe some parts are not practical, and I can't implement them here, (int. 5)." It also needs to be made clear that he insisted that he practiced his own judgment not only in relation to the videos but also with other considerations, as well, such as the ideas of western thinkers, reported above. Generally speaking, he made every effort to picture himself as making use of YouTube videos critically. The references to videos and his criticality towards the videos and other factors were another salient point embedded in the interviews.

Another major theme that popped up frequently in Jack's statements, was his desire to distance himself from society at large and from other teachers, as well. He enthusiastically and – proudly at times – stated that he was a different type of teacher from what society expected him to be. This purported difference came in different guises, both in practice and in beliefs. His claims such as "I didn't copy from anybody on these matters (of classroom practice) (int. 10)", "I was a normal teacher like everybody else, (int. 20)", "I hate cliches (int. 5)", or the ones which more directly expressed his dislike to be similar to the others such as "I … don't go with the society. I am completely incongruent with the environment, the organization, the norms or the rules. You

can see some anti-normality in me, (int. 6)" are signs of his preference to move away from social and traditional norms. However, the most colorful claim came during the seventh interview when he said "I do like to be part of teachers' groups or mix with them, but I don't want to be identified by their group membership".

The final major defining statement was Jack's insistence that his classroom practices were well-informed, positively productive and on the right path. This theme could be detected when asked about possible clashes of interest with learners' parents or with the organization's code of manner. As instance, he stated during the first interview that "… some of them object to the thing that later they themselves ask me to repeat in the class." Or he stated during the second interview that "… (my practices) have mostly been met with satisfaction by parents. Of course, there were some that criticized me, they didn't like them, but they were those bigoted people racially, religiously, educationally or they were illiterate." Finally, to quote him from the third interview "… even those who made objections to me later came to the conclusion that what I did was good and benefited their children, and when I look at my results, I see that my actions have positive results." He heartily insisted that his overall framework of practice, which he said he established upon Western philosophers' thinking, stood the same all along, in the face of those objections directed at him, since, he claimed, the productiveness of his practices was apparent. However, he admitted that he made minor alterations in his practices and they were due to organizational or cultural mandates; but also, that these adjustments of practices did not affect his overall frame of action.

The four themes reported above, were the most salient ones, based on frequency of occurrence and also their pivotality in Jack's narratives. Other and possibly less significant themes could be detected from the transcripts; however, they were not included, since they were deemed not axial to Jack's identity. Similarly, one of Jack's own direct statements regarding himself was decided not to be included in the main categories. In that statement, he emphasized his weaknesses and asserted that "… I am weakness by definition". This utterance appears like a useful and meaningful thematic expression, but this one, too, was not included in the final analytic themes, due to the fact that no more references were made to them, or nowhere else in the data they were built upon to develop identity-related concepts.

Discussion

Complex systems are characterized by constant change and it occurs inside a context that is itself part of the system (Larsen-Freeman & Cameron, 2008, p. 16). As such, in order to provide a useful account of the system as a whole in each phase and the kinds of changes it goes through, the job is to trace the change along the way. It necessitates detecting and explaining the turning points in the system's journey towards an unpredictable destination. In complexity theory jargon these turning points are called attractors. Therefore, the aim of this paper is to discuss the attractors during the process of Jack's identity formation.

Attractors are "… (the) states, or particular modes of behavior, that the system 'prefers'… (Thelen and Smith 1994: 56)." In the case of identity development, attractors are any element, whether social, personal or cognitive in nature, that draws the identity system towards itself. In other words, identity attractors are the axes around which the individual develops their personal or professional identity; these axes may be adopted from the environment, or formulated from within. This means that the individual employs a specific feature of life and bases their identity around it. This feature draws and defines the individual's identity for a period of time until the next move towards another defining element is made. As a result, when we look at the identity system as a whole cross-sectionally, we see one or two aspects of identity that the individual

gives prominence to in developing their identity. However, in the longer term, we witness a number of possible defining features, one coming into prominence after the other over a period.

The most significant identity attractor in this study was Western knowledge which, for ease of reference, I term wisdom. It established the overall identity framework, and it replaced earlier ideas that influenced the individual and his identity. Jack's statement that "…I threw everything else away" can be taken as a phase shift that occurred in Jack's identity system, and, as a result, a new form of identity emerged in which wisdom functioned as the core or the attractor of that system. The strength of this attractor was relatively high, regarding Jack's heavy reliance on Western ideas and his insistence that this form of knowledge is both preferable and productive.

The second attractor that played a major role in developing Jack's identity was classroom videos that he watched on YouTube. The videos Jack watched appealed to him, and he claimed he tried to simulate the type of teachers he saw in those videos. The move in the direction of the videos could be seen in his claims about teacher behavior, teacher-student relationship, teacher's dress code, etc. The role that these videos played in shaping Jack's teaching behavior and his identity, as well, was so profound that it can be said that YouTube was the most significant resource available to Jack since he had not attended any training courses, nor did he have an academic teaching background, and as a result, he tried to resemble the teachers he watched. So, the videos attracted Jack and his conception of good teaching and good teachers.

Yet, Jack's perception of himself and his inclination to be considered a nonconformist teacher, who prefers to move away from socially established norms and standards was another pulling force. In the interview fragment discussed earlier, he revealed his dislike of being identified with the group of teachers; he also used adjectival descriptive phrases such as "severely antinormative" referring to himself. This inclination gave a specific direction to Jack's identity formation process, pulling his ideas and preferences towards a normatively distanced teacher, who enjoys difference from mainstream teachers and is indifference to their norms of thinking and behavior.

Finally, Jack's belief that his classroom practices were based on solid grounds and that they were positively productive, formed an indivisible part of his identity. Apparently, he had gone through clashes of interest with learners' parents and the organization staff, regarding whether his classroom style was favorable in his circumstances or not. He appeared to negotiate this conflict internally and the resolution was to stick to his own mindset. This tendency to sustain his present beliefs and emphasize their effectiveness may come from the fact that he derived that set of beliefs from his studies of Western thinkers, and any damage or threat aimed at them may have undermined an important pillar of his identity, which would necessitate the laborious job of reforming his identity. Although he strived to put on an open-to-criticism, fault-admitting personality, by acknowledging his personal weak points, he refused to concede major shortcomings. This unwillingness is an indication of the strength of this attractor which appears to resist the perturbations introduced from outside of the system – in this case, complaints and objections directed at his practice.

Now that the attractors have been identified and explained, a word of caution is in order here: the movement between and among these attractors needs to be looked at more closely. As was discussed earlier, complex systems are continuously changing, and adopt different and differing states as a result of this constant change. Larsen-Freeman and Cameron (2008) distinguish between two types of change, internal and external (p. 43-44). Internal change according to them changes the structure of the system, while external change occurs through energy or matter coming from outside of the system and leads to "… adaptive change that maintains order or stability". Both types of change happen in either of two modes, continuous or dramatic. What we notice in the case of Jack's identity, is that he went through dramatic changes in his identity as a result of engaging in the activity of narrating his life stories. According to Connelly and

Clandinin (1999) and Beijaard et al. (2004), identity is formed by the very act of narration; the narratives that an individual produces are their very identity (Hammack, 2008). Integrating the complexity-theoretic explanation of change and that of narrative identity, I would argue that Jack's identity system moved forward and backward among the attractors discussed above, and what drove that movement was the act of narration itself. In other words, Jack's identity took critical states or phases determined by the attractors. When he engaged in the act of narrating his life stories, the momentary requirements of that specific narrative demanded him to emphasize a specific aspect of his life, leading him to adopt one of the attractors discussed above as the overarching dimension of his identity. When telling another life story, his identity underwent a phase shift, as it was believed to be synonymous with the stories themselves. However, the specific shape of the phase, i.e., the characteristics of that attractor state were influenced by the external and internal forces that altered its behavior. This way of looking at change has the merit of consolidating the two perspectives of complexity theory and narrative identity, accounting for both phase shifts and the system's internal change.

Conclusions

Identity formation is a subjective process of selectively adopting aspects of life as the defining element of who one is. As such it needs to be studied over time, documenting the alterations that the individual makes on their identity, as they attempt to negotiate their personal meanings and resolve possible dilemmas. The same was carried out in the present study, through the lens of complexity theory, setting out to find the attractors that pulled the identity system. After pinpointing the attractors, their effects on the individual's identity were discussed. Finally, it was argued that narrative identity, because of its momentary requirements and its nature which is far from consistent, is what drives change in the identity system, emphasizing a specific dimension of identity that appears the most useful for the flow of narrative making at that point in time.

The present study aimed at finding the attractors that played the main role in forming one's identity. However, it would be interesting to go for the repellers in an attempt to uncover the factors that drive the identity system away. Therefore, an interesting area for future investigation is to find out what teachers do not approve of, with what societies, groups, or belief systems they are reluctant to socialize, what types of behavior they are not willing to adopt, and so on. Pedagogically speaking, the present study points to the need to provide supportive help to teachers in their efforts to come to a proper understanding of themselves and their professional selves. As we saw in the case of Jack, in the absence of such help, teachers are left to their own resources in malleating their identity, opting for whatever source of knowledge they have at their hands to find their way through the intricate world of teaching and identity formation. It happened to Jack since he did not receive the formal pre-service education that he needed to start teaching. Therefore, the first priority is to provide teaching courses that can be beneficial in two ways: it can directly devise favorable attractors for teachers, be it the advice they receive from teacher educators, effective role models, success stories of teachers from around the globe, etc. The second and indirect benefit of teaching courses for teachers in developing their identities is the heightened confidence and self-image which is the result of expanded knowledge of teaching, which in turn can lead to a more active role for teacher agency and identity-maker system.

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Biodata

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