

CHANGE IN LEADERSHIP BEHAVIOUR THROUGH ONLINE  
PROFESSIONAL DEVELOPMENT PROGRAM: CONTEXTUALIZING  
“COMMUNITY” BASED ON IDENTITY, COHESION, AND  
INTENTIONALITY

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## **Abstract**

School principals play a crucial leadership role by managing four components of their schools' organizational capacity: teachers' skills, professional community, technical resources, and program coherence. Though important in most contexts, leadership behaviour is particularly crucial in developing countries such as India where public schools struggle with many problems such as teacher absenteeism, learning difficulties among students, shortage of resources, and the difficulties faced by first-generation learners. In such contexts, conventional professional development programs, which are usually academic knowledge-based and expert-driven—identified in literature as 'first space' programs—have been criticized for their effectiveness. 'Second space' programs, based on field or experiential knowledge generated from solving the problems faced in practice, are rare, and perhaps can be criticized for their neglect of theory. A program developed in the conceptual 'third space' that dissolves the boundaries between the first and second spaces, giving equal importance to theory and practice, the expert and the novice, and teacher educators and teachers, therefore, seeks to blend academic knowledge and field-based knowledge related to leadership. This thesis uses a mixed method approach to study such a professional development program, developed in India for government elementary school principals, and delivered online, in order to assess its effectiveness in developing school leadership behaviour. Second, the thesis studies the program's emergent virtual community, given that the broader social context in India is characterized by high context cultural discourse, values hierarchy, and high power distance. Both these aspects are missing in the current literature of third space and online professional development programs in developing countries. The results of structural equation modeling indicate that the program was successful in positively influencing the change-oriented behaviour of school principals. Case study analysis showed that the emergent community exhibited features of a 'goal oriented community of interest' based on membership, with interactions among members of an inner circle. The findings also show that schools exhibiting features of learning organizations where boundaries between different groups of teachers were broken and collective learning was promoted reflected higher change in positive perceptions of leadership behaviour.

## Chapter 1: Introduction

School leadership is known to be a significant factor in improving student outcomes (Coelli & Green, 2012; Robinson, Lloyd, & Rowe, 2008), school culture, instructional improvement (Dolph, 2017), school effectiveness (Darling-Hammond, Meyerson, LaPointe, & Orr, 2009), and school performance at large (Miller, 2013). Leithwood and Levin (2004) categorically noted that school leadership is second to only classroom teaching in affecting student outcomes and principals with limited skills can affect the school in negative or neutral manner (Martorell, Heaton, Gates, & Hamilton, 2010). Principals as school leaders are expected to play a key role in improving educational outcomes by providing leadership to manage four other components of their schools' organizational capacity – teachers' skills, professional community, technical resources, and program coherence (King & Bouchard, 2011; Hallinger, Bickman, & Davis, 1996). In order to play these roles principals need to improve their leadership qualities continuously. Leadership behaviour has been conceptualized by Yukl and colleagues (2002) from a synthesis of the empirical work done over five decades under three broad behaviour categories – task, relations, and change-oriented behaviour. Even though leadership behaviour plays an important role in all contexts, it becomes even more important and daunting task in developing countries such as India where public schools cater to almost 74% of 130 million school going children (NUEPA, 2009). School principals struggle with many problems such as poor infrastructure, untrained teachers, teacher absenteeism (Kremer, Chaudhury, Hammer, & Rogers, 2005), lack of water and sanitation facilities, learning disabilities among students (Ramaa & Gowramma, 2002), and the difficulties faced by first-generation learners. Bush (2009) noted that “these contextual problems exert enormous pressure on school principals who are often overwhelmed by the task” (p. 377). Developing school leadership in such contexts poses a difficult challenge through conventional models of professional development program that follows expert based, two or three days off site program conducted with an objective of completing the financial target without any regard to the local problems faced by principals (Chand, 2014; Dyer, 2004, 2002).

Generally, leadership development programs are undertaken over one's career (Greenwald & Hedges, 1996; McGowen, 2007; Suryadarma, Suryahadi, Sumarto, & Halsey Rogers, 2006). However, Guskey (2002) noted that many of these do not succeed because they focus on changing attitudes and beliefs and expect behaviour to change afterward. According to

him, change in attitudes and beliefs follows change in behaviour. This model has been challenged by Merchie, Tuytens, Devos, and Vanderlinde (2018) and Levenson and Gal (2013). However, as Fullan (2011) argues, people tend to learn by observing the practices of others that have been successful in achieving results in difficult situations. First, a practice is observed, then participants try out the practice on their own, and finally they reflect on the results. If success is evident, the practice is repeated; otherwise, questions on what went wrong and why arise.

This thesis is situated in a professional development program and uses Guskey's (2002) and Fullan's framework on observing practices. The curriculum of this program is based on teachers' practice, and delivered online to government school principals in order to influence their leadership behaviour positively. Along with this, the professional development program tried to develop a learning community with the objective of enabling peer-driven practice. This thesis, therefore, also explores the nature of community that has emerged and how it interacted with individual participants to influence their leadership behaviour. Both these aspects are not well informed through research in the context of India.

Conventionally, leadership programs are delivered face to face, but they face significant geographical and cost-related barriers (Means, Murphy & Baki, 2013). With the advent of technology and the internet, online professional development programs have emerged, overcoming both kinds of barriers. They have been noted to capitalize on non-local resources (Surrette & Johnson, 2015), provide better engagement (McAleer & Bangert, 2011), and encourage active contribution from the participants (Powers, Ku, & Mayes, 2011.) The online medium is also believed to provide a voice to a majority of the participants, in contrast to the face-to-face medium (Boling, Florida, & Martin, 2005). These advantages have contributed to the spread of online professional development programs.

As noted above, the first step in the model of professional development is 'seeing' or observing practice. Darling-Hammond (2006) recommended that the school-work and the coursework of teacher education programs be tightly linked with a clear focus on practice. Zeichner (1996) suggested that practice should be considered as important as theory in teacher education curricula. Practice happens in a space where teachers work with students—in classrooms and outside; this space needs to be respected. The space where theory meets practice has been conceptualized as the 'third space'. Third space—the concept deriving from Homi Bhabha's (1994) theory of hybridity—has been conceptualized by Soja (1996) as a rejection of

the binaries of a dominant discourse of the first space (theory to the exclusion of practice) and the discourse of second space that derides any theory. In the third space, instead of “either/or” the focus is on “both/and also”. In the context of teacher education, the first space corresponds to theory-based academic instruction and the second space corresponds to an entirely practice-based approach. There has been increasing support for the view that the teacher education curriculum should be more inclusive of practice by incorporating various scenarios in which teachers work with students of different cultures and socio-economic backgrounds. However, in spite of a growing support for inclusion of teachers’ experiences in professional development programs, both practice and policies are mostly built on the assumptions of a ‘first-space’ approach that privileges theoretical instruction (Zeichner, 2010).

The review undertaken for this study indicated that though there are a few pre-service teacher education programs that attempt a blend of theory and aspects of practice, there are hardly any studies relevant to in-service teacher education. We could not find any study that examines the effect of ‘seeing’ the practices of others on school principals’ leadership behaviour. So this study aims to study a program that sought to influence leadership behaviour of in-service school principals with a curriculum made up of others teachers’ practice working in similar environment.

The thesis also studies the nature of the learning community that emerged in this online professional development program and how it interacted with participants. The online program was designed with basic principles proposed by Wenger, McDermott, and Snyder (2002) to include design elements that promote learning in community. Ideally, the learning community should exhibit features of community of practice (CoP). The concept of CoP has been developed by Lave and Wenger (1991) and Wenger (1998). It is later described by Wenger and colleagues (2002) as not just as a “...web site, a database, or a collection of best practices. It is a group of people who interact, learn together, build relationships, and in the process develop a sense of belonging and mutual commitment. Having others who share your overall view of the domain and yet bring their individual perspectives on any given problem creates a social learning system that goes beyond the sum of its parts” (Wenger, McDermott & Snyder, 2002, p. 34). Dede et al (2009) note that most online professional development programs are based on the community-of-practice (CoP) framework which assumes collaborative learning and reflection as key mechanisms to promote learning. The literature on the application of the CoP framework to



online professional development deals with programs implemented in a western context, and hence the broader context in which a program is situated may be expected to influence the social learning system that develops in a CoP.

Henri and Pudelko (2003) showed that virtual communities that emerge in online programs can be of different types with CoP representing one extreme characterized by clear articulation of goals, termed as intentionality, and high social bond among the participants, labeled as cohesion. There can be other types depending upon how intentionality and cohesion emerge in the group with time. Our review indicates that no study has attempted to examine how such a social learning system develops and how an online learning community gets defined in the Indian social context. This gap in the online professional development program literature motivates this study.

Thus, there were two questions in this study: first, assessing the effectiveness of a professional development program developed in third space to influence leadership behaviour; second, how virtual community emerges and interacts with individual participants to influence their learning. For the two broad questions mentioned above, we draw on the experiences of an online leadership development program. This program, called SETU, was implemented for principals of government schools in a western Indian province with the help of a curriculum made up primarily of good practices of a number of teachers in the form of case studies and the associated theoretical content.<sup>1</sup> See Appendix 1 for a brief outline of the program. The content of the program was related to governance, school development and infrastructure management. The case studies of best practices in these areas had been collected over a four-year period (2012-2016). Such a program in the public education system is very new for both the system as well as participants. Being the first initiative of its kind, the participants were selected by the administration, and hence the element of voluntary coming together noted as a factor in community formation was missing (Johnson, 2008). Hence, it is unlikely that the participants would have found strong reasons to form a cohesive community. Also, since the participation was not voluntary and was part of professional development that the state is mandated to provide, it is the intention of the state to develop its professional staff that influenced the enrolment of members in the program. We will first examine the extent to which the professional

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<sup>1</sup> In the public educational system in India, instruction at the elementary level is provided in 22 languages. The program under study was in the western Indian language of Gujarati, spoken by more than 60 million people.

development objectives are met through methodologies that involve measurement of changes in leadership behaviour, and then use the case study method to understand the pathways of learning about leadership behaviour as they emerge within the broader rubric of a community of practice. This type of a mixed-method study, especially to understand changes in a behavioural phenomenon like leadership, seems to be a methodological gap in the online professional development literature (Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2009).

## Chapter 2: Literature Review and Conceptual Framework

### 2.1 Benefits of Online Professional Development Programs

With the advent of the internet and related technologies, a number of online programs for professional development have been launched, starting from the early 2000s, with different objectives. These objectives aimed to respond to the needs of schools with respect to the academic, administrative, civic or social purposes of schools (Dede, Breit, Ketelhut, McCloskey, & Whitehouse, 2005). Early research indicated that online training did not show significant increase in the effect size of outcomes of student teachers, related to curriculum implementation (Fishman et al, 2013), perception towards implementing new instructional practice, level of implementation (Lowry, 2007), engagement, attitude, and retention (Bernard, Abrami, Lou, Borokhovski, Wade..., 2004) when compared with traditional face-to-face instruction (Cavanaugh, 2001; Machtmes & Asher, 2000; Zhao, Lei, Yan, & Tan, 2005), but it survived because of its clear advantages in cost efficiency and accessibility (Means et al., 2013). Some researchers recognized the role of online professional development programs in bringing about wider reforms (Darling-Hammond & McLaughlin, 1995; Little, 1994; Darling-Hammond, 2000) by combining best practices of online education, instructional technology, and teacher education. Others noted its ability to curate activities that promote both social and professional dialogue (Cuban, 1986, cited in Lloyd & McRobbie, 2005; Lafferiere et al., 2006). Online professional development programs also countered the lack of focus, disconnect between training and practice, and poor support that characterized face-to-face training (Bull, Buechler, Didley, & Krehbiel, 1994; Corcoran, 1995). They provided the flexibility associated with learning at a time of one's convenience, capitalized on non-local resources (Surrette & Johnson, 2015); provided better engagement (McAleer & Bangert, 2011); and enlisted active contribution from participating teachers (Powers, Ku, & Mayes, 2011). It was also claimed that they provided a voice to most participants, something difficult to achieve in the face-to-face medium (Boling et al., 2005). In brief, though learning benefits as measured by effect sizes of outcomes may not be significant, online professional development has been noted to have clear advantages in terms of efficiency of delivery and engagement of the learners. We now turn to a review of the objectives with which online professional development programs have been instituted for teachers.

## **2.2 Online professional development program for teachers**

Online programs have been developed with a range of objectives like improving the content knowledge in specific subjects like Mathematics and Science; enhancing the efficacy of administrators; influencing the pedagogical methods of teachers; and learning new technology (Dede, Breit, Ketelhut, McCloskey, & Whitehouse, 2005; Avalos, 2011). Dede and colleagues (2005), in their review, categorized online professional development programs into four areas – “improving pedagogical practice of teachers, intellectual development of teachers to increase student learning, development of communities of practice among students to promote learning, and assessing effectiveness in influencing skill and knowledge” (p. 21). Since this thesis is focussing on the adaptation and adoption of practices at school by principals, we review the two broad categories of objectives: improving pedagogical practices and improving student learning and then address the broad assumption underpinning such programs, the development of a community of practice.

### **2.2.1 Influencing teachers’ pedagogical practices**

Influencing teachers’ pedagogical practices is an important objective. Most of the studies noted in the review by Dede et al. (2009) are located in western countries context like United States. Hawkes and Good (2000) facilitated three projects for online discussion that helped rural teachers to connect with other teachers and scientists. The three projects covered different aspects of the curriculum that was developed by a team of teachers. They included Math, Science, Geographical study, and data analysis. The study showed that online discussion can help in improving the usage of computers for problem-based learning.

Porter et al. (2000) conducted a three-year longitudinal study to find the effect of the Eisenhower professional development program on adoption of teaching strategies. They collected data on teaching practices before and after the program to ascertain the extent of change, and found that teachers adopted higher order teaching strategies and constructivist learning strategies when the professional development program was of a network type where participants were connected through internet compared to traditional workshops or conferences where interaction was episodic in nature. They recommended the shift of professional development programs towards more coherent and systemic programs. Similarly, Derry, Seymour, Steinkuehler & Lee, (2004) noted a change in teacher practices from didactic to constructivist after a professional development program that used a Knowledge Building Community Model (KBC) which presented videos online to evoke discussion. Their main

objective was to create a technology environment that can be accessed by others. Bausmith and Berry (2011) emphasized the need to foster professional learning communities to impart pedagogical content knowledge by making a repository of high quality videos made by expert teachers. While online programs have targeted improvement of pedagogical practices, creating a shared understanding of the learning also seems to have been a secondary objective.

### **2.2.2 Development of teachers to increase student learning**

Programs of this category focused mainly on enhancing the content and pedagogical knowledge of teachers in order to improve student outcomes. Many programs were developed to improve the Math and Science knowledge of teachers, for instance, New Mexico Computer Science (NM-CS) program where teachers were given sessions online through the University of Mexico on how to teach computer science concepts (Lee, Dombrowski & Angel, 2017). They followed a blended version where lectures were delivered online and teachers attended the practical at local high schools. This program was assessed on the basis of perception of participants in integrating computer related activities in classroom.

Polly, Martin, Wang, Lambert, and Pugalee (2016) examined the adoption rate of technology by teachers in formative assessment. A program, “Assessment Practices to Support Mathematics Learning and Understanding for Students” was created in southern state of the United States. Their main question was to understand how the availability of online tool influences teachers’ usage in instruction and formative assessment. Teachers went through eight hours of online work for each of three modules on formative assessment, in order to develop capabilities in the use of online tools. First module emphasized on establishing a classroom culture to improve mathematical understanding, second module explained how tool can be used to help instructions and third module focussed on how numbers can be discussed to improve student understanding. This study showed significant positive results in teachers’ usage of online resources in daily practice.

Castillo, Herrera, Carrillo, and McCalman (2016) focused on increasing the technological skill of teachers in integrating Information and Communication Technology (ICT) in regular classes in Mexico. This online professional development program of four and half months was made specifically for Math and Science teachers from public schools in Mexico. They noted that the online program was successful in improving ICT skills and this does not depend on individual factors like age, gender, and even academic training.

Most of the online professional development programs studied measured the effectiveness on the basis of data that was largely self-reported, and collected through surveys about program design and satisfaction conducted before and just after the program (Kleiman & Treacy, 2006).

### **2.2.3 Collaborative learning through Communities of Practice (CoP)**

#### **2.2.3.1 *Communities of Practice***

A community of practice, as defined earlier, is reported to have three structural elements – domain, community, and practice (Wenger, McDermott, & Snyder, 2002).

- a. Domain: The focus here is on commitment. There is evidence of a common goal shared by the members. Membership in a community defines the commitment to domain.
- b. Community: When members come together to discuss or learn or help each other, they build a community of practice. Merely having the same job title or being part of a larger group does not make a community. For instance, all the insurance holders of an insurance company make a group but not community. Community is formed when the people come together for a specific goal and learn together.
- c. Practice: Members need to have a practice where they may share experiences, stories, tools or ways to address problems. Just having a similar interest (movies, songs, etc.) is not sufficient to form a community of practice.

#### **2.2.3.2 *Collaborative learning through CoP***

Literature also points to online programs have included the objective of enabling teachers to share their practices. The underlying rationale for this is when teachers come together with the intention of supporting each other they learn and modify their existing practices (Putnam & Borko, 2000; Barab, Barnett, & Squire, 2002).

Barab et al., (2002) studied the concept of learning among pre-service teachers for secondary teacher certification. They found that learning happens smoothly through reflexive relation and reflective practices that were essential to build one's portfolio. In this program, a Community of Teachers (CoT) was used to foster learning that helped teachers share their practices which in turn led to the creation of other practices. Sherer, Shea, & Kristensen, (2003) discuss the application of CoP in the development of faculty in higher education institutions through a "Faculty Learning Community portal". They show how a small group of six statisticians was able to learn and grow with the help of technology, and note that expanding technology networks is no longer an expensive proposition. Koku & Wellman (2011) describe a

computer-mediated CoP where a group of scholars collaborated through a website TechNet. Most of the members sought advice on their work and some even collaborated with other scholars. Most of the interaction happened over email along with some face to face meetings. They suggested that internet should be used to fit into everyday lives instead of treating it as a separate interaction system.

Yang & Liu (2004) investigated the effectiveness of online workshops in creating a professional learning community. With the help of a web-based portal, 128 teachers participated in a professional development program on elementary Mathematics mentored by three senior teachers. The program was analyzed for type of interaction, mentoring quality and attitude of teachers. They found that most of the teachers benefitted emotionally and intellectually but the quality of interaction was not highly reflective. The study points out the need for designs to be sensitive to online affordances to invoke interaction; to provide more time for teachers to plan their activities; and to involve trained moderators to facilitate interaction.

Nemirovsky & Galvis, (2004) used a video case-based methodology to invoke discussion on content and practice. They wanted teachers to mediate the meaning socially and think from different perspectives. The distant objective of the program was to foster such skills in students through discussion in classrooms. Goos & Bennison (2008) presented a study where an online CoP emerged among pre-service secondary teachers. The emergence of community was credited to the facilitation of professional dialogue, voluntary participation, technological convenience, and the personal trust developed due to familiarity and prior face to face interaction.

It is apparent that while online professional development programs have sought to influence the pedagogical practices and content knowledge of teachers, either treating these as standalone targets or as linked to improving student outcomes, they have also tried to structure professional development around the concept of a CoP. In other words, the studies have assumed CoP to be an integral part of online professional development. However, we could not find any study where the objective was to influence leadership behaviour. Influencing a domain like leadership, which is removed from the more concrete pedagogical and content-related skills of teaching professionals, through online professional development seems to be an area that, to the best of my knowledge, has not been reported in the literature. It is reasonable to conclude, on the basis of the studies reported, that if online professional development were to be applied to a domain like leadership, the concept of community-of-practice will have to be taken into account.

### 2.3 Critique of Communities of Practice

Though the literature assumes the centrality of the concept of community-of-practice in online professional development, the concept itself has been subject to critique, especially on the meaning of the term “community.” Since the word has positive connotations in everyday language signifying meanings like cooperation, harmony and unity, it has taken different trajectories in liberal, conservative, and radical ideologies (Jewson, 2007). It is claimed that Lave and Wenger (1991) and Wenger (1998) did not articulate a clear version of community in any of the definitions (Jewson, 2007, p. 184). At one point, they defined it as a special form of community that is different from the conventional community of residential place, religion, or network. At another point, they defined it as a “way of talking about the social configurations in which our enterprises are defined as worth pursuing and our participation is recognizable as competence” (Lave & Wenger, 1998 as cited in Jewson, 2007). Wenger articulated the stand of community only in association with practice i.e. community and practice cannot be seen individually. This notion of practice has been tied to ‘community’ through three dimensions – a mutual engagement, joint enterprise, shared repertoire.

- Mutual engagement – practice is what connects people who negotiate the meaning mutually through shared understanding. Practice exists in the community and it gets shared. Hence, people come together for sharing these practices which are complex in nature having dynamism on “power, pleasure, competition, collaboration, desire, economic relations, utilitarian arrangements, or information processing” (Wenger, 1998, p. 77).
- Joint enterprise: the process defined by participants through which practices are negotiated with a feeling of mutual accountability. Whether the community members agree or disagree with some practice, they hold complete responsibility for their behaviour because “it’s their response to their conditions and hence their enterprise” (Wenger, 1998, p. 79).
- Shared repertoire: Mutual engagement and joint enterprise result in some form of practice which can have different artifacts. This is the repertoire which is open for the community to reflect upon. It provides a point of reference which is nothing but the history of mutual engagement (Wenger, 1998, p. 82).



So the words community and practice, which cannot be seen in separation, are reified through these dimensions. It is apparent from the explanation above that Wenger (1998) assumes that members of a community are able to overcome any barriers to communication and engage in mutual discussions (either top-down or bottom-up) to create the shared repertoire. From organization behaviour and sociology literature it is evident that communication is facilitated in open environments with low hierarchies and balanced relations of authority and power (Lewis, 2005). The overall trust and psychological safety in such environments also play a role. In the absence of the factors that support such environments, for example in cultures that do not encourage open discussion, the tendency to share views and engage in discussion might be affected. Interactions may be happening, but discussions in the public domain may be curtailed.

Criticisms of the concept of “community” have also been based on the tendency, in the world of internet, to use the term loosely to call any chat room or communication software as community (Preece, 2000, p. 16). The multiple ways in which the concept is used has a long history. Hillery in 1955 conducted a study to bring out the core features of the word community by studying 94 sociological definitions. He found only one core feature that ran through all of them, people, while there was some consonance in 69 definitions on three other features – area, common ties, and social interaction (Stuckey, 2007). Building on Hillery’s work, Poplin in 1979 studied 125 sociological definitions of community and found that the core features found by Hillery continued to be valid. Stuckey expanded the work in 2007 by including 25 recent definitions from different fields such as business management, sociology, knowledge management, web development, and technology-mediated workplace, to find the basic four features continuing to exist. Thus the framework proposed by Stuckey (2007) defines community based on people united by area, common ties, and social interaction.

Fernback (1999) and Wellman (2000) discussed the need to expand the meaning of area from having just geographical significance to include virtual place. The rationale was the correspondence between how language is used to describe online spaces and how it describes physical space, for instance, the main page of a portal is called a “home” page; a URL becomes the address to go to a specific “place”. As adopted by Stuckey (2007) we use “place” and “area” to cover online space. Common ties include features like overlapping histories, common practices, advancing collective knowledge, and learning goals (Stuckey, 2007, p. 52). For example, principals working in the same government system, with standardized allocation of

similar resources, are bound by common ties. Social interaction includes ongoing exchange, communicating knowledge, reciprocity, and repeated active participation (Stuckey, 2007, p. 54).

Though the concept of community—people united by an ‘area’, common ties and social interaction—can be applied to participants in an online development program, the linkage of the idea of community-of-practice to such programs is problematic given the criticisms of the use of ‘community’ in community-of-practice . Hence, it is useful to examine how variants of a “community of practice” have been studied in the literature. In the context of online communities, Henri and Pudelko (2003) note that such communities emerge from the ‘intentionality’ behind group creation, which can range from strong to weak, and the ‘nature’ of the group, depending on the strength of the social bond which can range from high cohesion to low cohesion. Based on how these two dimensions interact, communities may range from those with strong intentionality and high cohesion to those with weak intentionality and low cohesion, with a range of combinations in between. Henri and Pudelko characterize communities-of-practice as strong on intentionality and high on cohesion. But, they also posit the existence of communities-of-interest—those that are weak on intentionality and low on cohesion at the other end. In between, as one moves from communities-of-interest towards communities-of-practice, one may encounter first, “goal-oriented communities of interest” and then “learners’ community”. Building on this characterization of “community”, we may reasonably conclude that in practice, because of the contextual factors that undermine the communication assumptions made by “community-of-practice”, the way in which intentionality and cohesion combine may lead to other forms of “community”. In this study, therefore, we seek to identify the kind of community that emerges in an online professional development program in the Indian context, based on the intentionality that is employed and the cohesion that emerges. As a result of studying how these two concepts interact, we should be able to characterize the emergent community on a continuum ranging from a simple community of interest to a community of practice.

#### **2.4 Role of identity in explaining cohesion and intentionality**

In order to study how cohesion and intentionality emerge as group processes, we draw on identity theory. The justification for this emerges from the centrality of self in the emergence of intention, when individuals declare the intentions behind existence and the need for ‘community’ (Henri and Pudelko, 2003). This declaration includes membership rules, choosing

communication tools and identifying resources in the environment. As a group emerges, the role of identity, a core concept in understanding action, interaction and group processes, becomes salient. Identity is influenced both by the structural features like group affiliations and category memberships that are part of the emerging community, and the traits attributed to oneself either by the self or by others. Likewise, identity is important in cohesion, since to exist as a meaningful social entity with goals, online communities need conscious membership of its constituents. The kind of gathering that emerges impacts the cohesion (belongingness to the group) and engagement that the group is able to achieve.

Identity has been seen in two ways. The first studies the impact of social structures on formation of identity (Stryker, 1987) and the second relies on the process of self-verification (Burke, 1991; Stets & Burke, 2000; Burke & Stets, 2009). Both have been influenced by structural symbolic interactionism that aims to understand how social structure affects the notion of self which in turn affects social behaviour. This may be an oversimplification of Mead's (1934) framework implying that "society shapes self shapes social behaviour" (Stryker & Burke, 2000). The second pathway in decoding the identity lies in the internal mechanisms of the individual. This trajectory was broadly conceptualized by Burke and colleagues to answer the question of how identity produces behaviour based on the symbolic interactionist idea of identity which suggests shared meaning as the missing link (Burke & Reitzes, 1981). So identity is reflected in behaviour when meaning is shared. Burke (1991) presented a model that explains the behaviour based on four components – the identity standard, the culturally prescribed meaning that is impregnated in individual's mind defining identity in a given situation; persons' perception of situation assessed on the dimensions of standard identity; comparing mechanism through which a situation is assessed against the identity standard; and finally the action or behaviour which is dependent upon the difference between perception and standard. In explaining how identity influences behaviour (Stryker & Burke, 2000), importance is given first to the salience attached to identity, which results in commitment that gets reflected in behaviour. Second, an individual compares the standard identity against self-relevant meanings to either approve or indicate divergence. Behaviour is an outcome of this comparison in an attempt to repair discrepancy or create new situations. So when an identity is confirmed in a situation, salience gets reified and when identity differs, then salience gets diminished. Thus, it can be

inferred that identity development and enactment can influence the cohesion and intentionality, combinations of which determine what kind of community emerges.

From a cultural perspective, India ranks high in power distance in a study by Hofstede in 1983. He classified countries based on four cultural dimensions – power distance, uncertainty avoidance, individualism, and masculinity. India was ranked quite high on power distance and low on uncertainty avoidance, which means that hierarchy is deeply rooted and the power holder is entitled to privileges. Such cultures may not encourage open discussion or debate. In a recent study by Nishimura et al. (2008), Indian culture continues to follow high context (HC) cultural discourse where people associate themselves with multiple markers like history, status, religion, relationship, and many other things. In HC culture, it is considered to be offensive and impolite to ask a question. Lewis (2005) classified countries into three conversation categories with India in middle of a “reactive” and “multi-active” scale. Reactive cultures are the one where people listen first, gauge their and other’s position and react slowly without signs of confrontation. Multi-active culture people are impulsive and emotional, they speak and listen at same time and are uncomfortable with silence. HC Asian countries, as Nishimura et al. (2008) note, value hierarchy, fatalism, and inequality. In their communication style, they show introvert qualities; they think in silence, do not interrupt, and use diplomacy above truth in their conversation. India, being a diverse country, may have people with reactive or multi-active features who are loyal to their group and show collectivism in their identity, however, they may show individualistic identity while dealing with strangers. Given the newness of online programs, and that participants would be familiar with onsite training and the conventional professional development model in which some exposure to generating a common intention is present, it is reasonable to generate the following propositions.

*Proposition 1: Based on the familiarity of the participants with offline modes of interaction in the conventional onsite training model and the cultural impregnation of communication style, it is likely that bounded interactions, as illustrated by dyadic interactions, will characterize the emerging community.*

*Proposition 2: Following from the above, it is likely that open discussion and debate, characteristic of strong cohesion, will be less in evidence and hence, it is likely that the emergent community even by the end of program will not show the features of communities of practice.*

#### **2.4.1 Self-directed learner in online environment**

A model of self-directed learning in online environments proposed by Song & Hill (2007) noted that most of the research in the domain of self-directed learning has happened with the broad focus on personal attributes and the learning process without considering the effect of context. So, they proposed a revised model that included context in form of design and support elements and how it interacts with learning process and personal attributes. Design elements include nature of task, resources, and the structure of activities whereas support elements include peer and instructor's feedback. These aspects can affect both personal attributes and learning process. Personal attributes of individuals include resources, strategies, and motivation whereas learning process involves planning, monitoring, and evaluating.

- a. Resources – online environment has both advantages and disadvantages that can facilitate or inhibit the learning process, for instance, convenience of referring to the content at any time is an advantage but the lag between the peers' or instructor's response to a query can be an inhibitor. Another aspect is the validity and reliability of the content provided or gathered online. It is essential for learners to reassure themselves that these do exist. In the context of the online program under study, artifacts<sup>2</sup> along with the information are provided as the design element. Participants may thus assess the reliability and validity individually or they could also gather information on their own.
- b. Strategies – online environment works differently as compared to the face-to-face classroom setting, especially along the communication dimension, where the latter requires verbal communication with which participants are well accustomed and has less chance of misinterpretation, as compared to the former where communication happens through written text. This is tedious in nature and has scope for misinterpretation. Along with this, how participants respond to the design elements of the program is unpredictable i.e. how program artifacts and assessment would be approached can vary from person to person.

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<sup>2</sup> Short case study, pictures, and video of the documented practices along with contact information of case study teacher.

- c. Motivation – this aspect can be a challenge in the online learning environment as motivation in participants should be high to facilitate in-depth discussion, otherwise they can project participation through proxy means if made mandatory. In the program under study, low motivation could result in superficial participation.

The learning context can also affect the learning process that includes planning, monitoring, and evaluating.

- a. Planning – online environment with asynchronous mode having option of anytime, anywhere learning provides almost full control to the learner to plan the pace and sequence of program. These aspects get circumscribed in synchronous programs and are very limited in physical classrooms. As expected, this aspect would vary across participants as it would be influenced by the personal attributes of participants and how they decide to complete the program.
- b. Monitoring – physical classroom environment ensures that almost everyone is aware of their learning in relation to that of the classmates. In an online environment, this relative monitoring process to assess learning levels is a challenge though it can be checked by interacting with other participants; the latter, however, requires high motivation. In the program, participants can discuss the learning from case studies and the completion status to monitor their own learning.
- c. Evaluating – this aspect can be challenging in online environments as the evaluation by instructors may not be possible for the discussion element where every comment or query is addressed. Participants can be skeptical about peer knowledge and may require approval or assurance from instructor; this may take long time or might be absent. In the given program, apart from design elements like formative assessment and project component, participants themselves had to judge how relevant the cases were for them and how satisfied they were with the program.

In the online program under discussion, contact information of different case study teachers, whose practice is documented and included in the program curriculum, is provided. Participants can assure themselves of the validity and reliability of information through various mediums. This can have a bearing upon how program is approached. If the information provided is relevant and valid for participants, the motivation is expected to be high and appropriate strategy would be considered. In case the content is not applicable to participants' schools, motivation and

strategy would be superficial if it is mandatory to complete the program. This can form a boundary condition for learning. Once the boundary condition for learning is assessed, participants may enter into the learning stage through individual reflection and/or participation in the community resulting into different identity trajectories. These trajectories are explained in the next section.

#### **2.4.2 Identity trajectories**

In the process of participation in “community”, the trajectories that identity development takes can be usefully studied by drawing on Wenger (1998). Lave & Wenger (1991) had conceptualized the process of learning in CoP through “legitimate peripheral participation” and “identity in participation.” In this conceptualization, learning was associated with the social situation, instead of with individual cognition. Through peripheral participation, individuals understand the intricacies of the phenomenon by observing the “old timers’ practice” and gradually become aware. In the process, they accomplish goals along with their peers and master mature practices. When one considers the impact of this on individual identities, Wenger (1998) notes that since identity is a lived experience influenced by social, cultural and historical factors (p. 145), it is formed by the layering of events of participation and reification by which an individual’s experience and its social interpretation inform each other (p. 151). This constant negotiation of meaning based on lived experience and social interpretation builds identity. During this process, individuals assimilate the absorbed information and align the changes with their own identity. This he terms as “identity in participation.” It is important to keep in mind that the practices are embedded in the culture, and so cannot be considered distinct from the structural conditions emerging in the group. As a person moves from peripheral to full participation by accomplishing goals, identity gets moulded. This learning through modification of identity is not unidirectional; it can have different trajectories (Wenger, 1998, p. 154):

- a. Peripheral trajectories: these people do not completely enter a community to become experts, either by choice or need, but they may gain from the community and its practice which contributes to one’s own identity. For instance, in an online training program, there may be some participants who may not actively participate in the online forum or interact with experts, but will learn from the ongoing discussion or vicariously from the interactions of other participants.

- b. Inbound trajectories: these are people who have joined the community with the intention of becoming experts in future. It is reasonable to assume that such participants will show active participation and introduce change in their physical environments, while indicating that their goals include attaining expertise in the future.
- c. Insider trajectories: this is a stage where experts-in-information acknowledge, contextualize, and improvise based on inputs they receive and thereby negotiate new identities for themselves. For example, innovative members of the community whose practices are shared may negotiate their identities to accommodate contextual influences.
- d. Boundary trajectories: some people are part of different communities and thus bring different identities. Such trajectories may not be visible in a new online training initiative in which participants do not have the experience of participating simultaneously in many communities.
- e. Outbound trajectories: these are the people who leave community at some stage. Even after one leaves community, the identity has learnings from the experience of entering into community. This aspect may not be visible in the given context.

Given the newness of the program and the unfamiliarity of the participants with online models of development and the state-mandated professional development imperative, it may be proposed that:

*Proposition 3: Peripheral and inbound trajectories are likely to dominate identity negotiation, with insider trajectories playing a secondary role.*

*Proposition 4: Boundary and outbound trajectories are likely to very minimal, and if present, are unlikely to influence community formation.*

## **2.5 Learning in and through the “community”: The role of individual reflection**

Traditional views of learning as passive acquisition of knowledge and decontextualized learning have been challenged (Hager, 2011), with ‘situated’, that is contextualized learning, and ‘collaborative’ learning, which is the learning outcome of social interaction finding a prominent place in the community-of-practice literature (Lave & Wenger, 1991; Wenger, 1998). Learning happens in a ‘participation framework’ which necessarily involves the others in the online community. However, as Illeris (2003) points out, this perspective also needs to take into account the individual aspects of learning—primarily ‘reflection’ has been considered as an important mechanism that allows one to learn from experiences (Schön, 1987; Mezirow, 1991).



Such reflection is also mediated by the artifacts used in the online program; this is a key point made in the ‘sociomaterial’ perspective on learning (Fenwick, 2012). The literature on reflection also acknowledges that factual content of other persons provides a credible artifact to promote reflection. Moon (2005, p. 158-182) presented a synthesis of various techniques of reflection under the following broad categories - learning from current experience, learning from work experience, learning from past experience and learning from creative activity (poetry, drama, graphic depiction, and story.) Stories, or case studies, present the construction of other persons’ experience. This can help in reflection for the learner, by presenting a ‘had I been in that situation’ scenario (Eisner, 1990; Bolton, 1999, Moon, 2005). Thus, material artifacts in the form of case studies of other persons in the same system, if used in the online training curriculum, are likely to promote reflection among the learners. The process by which such artifacts are used includes understanding the given factual situation, locating oneself in that situation vicariously, and relating the situation to one’s personal experience. As Connelly and Clandinin (1990) note, humans are predisposed to learn from narratives by their virtue of putting events into a sequence. When this happens, different perspectives of the same problem are likely to emerge, “descriptive reflection.” Following this, it is possible that participants would reach “dialogic reflection” where they are able to distance themselves from the issue and think about the different perspectives (Hatton & Smith, 1995).

In India, participants of the program lack experience of online programs, and so their identity is largely formed on the basis of their interaction with institution’s structural and cultural components. At one end, the content of the program should be reflected upon individually. At the other, collective reflection can happen in sub groups that may emerge based upon the cohesion among members. So we propose that the following:

*Proposition 5: As the participants bring with them the identity of a role player in the lower levels of a bureaucratic hierarchy, which encourages passive learning or vicarious learning, the demands made by an online community to become an active learner are likely to lead to tension between the two roles.*

*Proposition 6: The quality of reflection is likely to be moderated by the nature of the emergent community. Thus, the emerging community, is likely to be characterized by high levels of*

*dialogic reflection on the basis of the artifacts, but lower levels of sharing with a view to engaging in collective reflection.*

This reflection, individual or collective, takes place in the context of learning, which is provided by the content of the leadership training—the main purpose of the online professional development program. We now turn to a review of this particular context for the learning process in the program.

## **2.6 Leadership**

### **2.6.1 Definition of Leadership**

Leadership is often used as a term with various associations. In scientific disciplines, it has been defined on the basis of approach to leadership – trait, behaviour, power-influence, situation, and integrative approach (Yukl, 1981). Katz and Kahn (1978, p.258) define leadership as the “influential increment over and above mechanical compliance with the routine directives of the organization.” Many researchers describe it as a process whereby influence is exerted upon individuals to direct, structure, and facilitate towards a common objective (Yukl, 2006, p. 21). Rauch & Behling (1983, p.46) described it as a “process of influencing activities of an organized group toward goal achievement.” Schein (1992) presented it as an individual’s ability to “step outside culture...to start evolutionary change processes that are more adaptive.” Many parallel debates are going on, structured around the following: who exerts influence, what is the purpose of influence, manner of influence, and the outcome of influence.

In this thesis, we adopt the definition given by Yukl (2006) which considers leadership as both a role and influence. It acknowledges that leadership should include both rational and emotional aspects. “Leadership is the process of influencing other to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives” (p. 26). In schools, principals are responsible for implementing every function with the help of teachers, using both the role and influence approaches.

### **2.6.2 Leadership and management debate**

There is a controversy regarding the differences between leadership and management. Researchers have positioned themselves on a continuum, with Bennis and Nanus (1985) saying that both are mutually exclusive and cannot occur in the same person, and Mintzberg (1973) describing leadership as a part of managerial role where the leader has to motivate subordinates

and manage resources. Kotter (1990) differentiated leadership and management on the basis of their outcomes wherein management's objective is to create order and stability by creating processes, assigning jobs, and monitoring the results and solving problems, whereas leadership aims to produce change by creating a vision of future change, communicating the new vision and motivating people to achieve it. Both processes are important for an organization. Since many researchers agree that both functions are essential, empirical research has sought to bring about a convergence on what to include in the domain of leadership behaviour. Three behavioural dimensions – task, relation, and change-oriented behaviour, are considered as fundamental on the basis of an analysis of almost five decades empirical research (Yukl, Gordon, & Taber, 2002).

### **2.6.3 School Leadership and management practice: Why is it important?**

The relationship between principal leadership and its effect on student achievement is indirect but has been studied extensively. It is mediated through motivation, commitment, working conditions, and capacity to change practices, thereby affecting pupil learning and achievement (Jacobson et al., 2005). Marzano, Waters & McNulty (2005) in their meta-analysis calculated the effect of 21 leadership skills on pupil achievement. Principals' improvement in all these 21 results in increase in pupil test scores. Leithwood and Jantzi (1999) presented evidence showing the effect of leadership on student engagement.

Hallinger, Bickman, and Davis (1996) showed that principal leadership can affect school effectiveness through learning climate. In their framework, principal leadership was a part of school organization and its environment. Though the study did not show any direct effect on student learning, it can affect school effectiveness through the school's learning climate. In itself, principal leadership is influenced by both personal and contextual factors such as gender and parental involvement. King and Bouchard (2011) named principal leadership as an important component of organizational capacity that can influence other aspects in school.

Leithwood et al. (2008) in their review presented four broad categories of leadership roles, which correspond closely with the managerial roles conceptualized by Yukl (1981, 1989, 2006) in a non-school context. The first category deals with "building vision and setting directions" with colleagues. Teachers and colleagues should be motivated to work towards a shared vision. More specifically, the practices are sharing a vision, laying down goals and expectations (Hallinger & Heck, 2002). The second category, understanding and developing people, focuses on personal aspects of colleagues where the principal has to ensure that teachers

have the right knowledge and skill to realize the goals (Leithwood et al., 2008). Only knowledge and skill will not work if teachers and other staff do not have the commitment or capacity to apply them. It becomes the principal's responsibility to provide individualized support to model appropriate values and behaviours (Gray, 2000). In the third category, the focus is on "redesigning the organization", to ensure that work conditions are conducive with proper infrastructure to make teachers believe that they have sufficient facilities to implement their strategy. The conditions at the organization level and the leadership practices can have an effect on teachers' beliefs (Leithwood & Slegers, 2006). At the school level, "building collaborative cultures, restructuring...the organization, building productive relations with parents and the community, and connecting school to the wider environment" is important (Chrisman, 2005; West et. al, 2005, cited in Leithwood et al., 2008). The fourth category, "managing the teaching and learning program", has elements that work in conjunction with the third category to strengthen organizational stability and school's infrastructure. Specific practices include "giving teaching support, monitoring activity, and buffering staff against distractions." A principal would not be using all these practices all the time and the extent of application is also highly contingent on the context. Leithwood et al. (2008) claim that successful leaders are sensitive to context but they do not use a completely different set of practices in another context, they would use different combinations of these same practices.

In this study, we examine the effect of online professional development program on leadership behaviour through two different routes: 1. Subordinate responses about the principal by using Yukl's Managerial Practice Survey (MPS)<sup>3</sup> assessing three dimensions of leadership that closely aligns with principal's role in school; 2. Detailed qualitative interview of selected participants to assess the effect of the program on change oriented behaviour leadership dimensions. Subordinates can report their perception of their leaders' behaviour on task, relation, and change-oriented behaviour. The main focus of the program with curriculum made up of innovative practices of teachers is to see the effect on change-oriented behaviour, but as Yukl et al. (2003) gave a complete framework including other dimensions on task and relation that may have correlation among them. So there is a possibility that we can also see some effect on task and relation oriented behaviour due to spill over effect of change-oriented behaviour.

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<sup>3</sup> This is different than management practice index which takes an approach of looking school as an organization and assesses the process implementation in operations, monitoring, target setting, and people management.

Some researchers have critiqued the use of survey citing possibility of attribution and stereotype biases which can be countered by using qualitative approaches like detailed case study or comparative case study, as suggested by Yukl (2006, p. 470). So, in the context of the school, the principal is the leader and teachers become the subordinates. Based on the discussion of identity trajectories that can emerge based on the individual and collective or dyadic reflection, we can expect differential results on the corresponding behavioural dimensions. So, we propose that:

*Proposition 7: The professional development program will have a positive effect on the behavioural dimensions but it is likely that the non-emergence of communities of practice will make the overall change insignificant.*

*Proposition 8: The effect of negotiated identities in participant's behaviour is likely to be reflected by subordinates' response as one may assume that the identities will be acted out in day-to-day practice. So, participants in the online program will show larger effect in change-oriented behaviour compared to task and relation-oriented behaviour.*

#### **2.6.4 Organizational learning and change**

Organizations are collection of individuals; so when individuals learn, can we say that organizations also learn? Leadership is considered to be the most important aspect that drives other factors to build organizational capacity so that organizations learn. So, it is expected that leaders facilitate the conditions that enable organizations to learn. This aspect is relevant in the context of this study as the participants of the study are school principals, leaders of school, and the intention of the program is to promote change in leadership behaviour within the organization. As mentioned in the previous section, in Gujarat, change in “change orientation” is expected to be more compared to task and relations oriented behaviour. Change orientation can help in finding answers to questions that are unique to their school. So can leaders’ learning and organizational learning i.e. modification of behaviour by members go hand in hand?

Organizational learning is defined differently by many researchers, for instance, Argyris and Schön (1978) (p. 29) noted that “organizational learning occurs when members of the organization act as learning agents for the organization, responding to changes in the internal and external environments of the organization by detecting and correcting errors in organizational

theory-in-use, and embedding the results of their inquiry in private images and shared maps of organization”. On the other hand, Senge (1990) has defined it as “where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together”. Garvin (1993) gave another definition after the reviewing existing literature and focussed on practice to define learning organization as an “organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behaviour to reflect new knowledge and insights.”

Ulrich, Jick, and von Glinow (1993) noted that change in organizations happen when they exhibit features of learning organizations. They described a two by two matrix, as shown in table 2.1, that explains how change is dealt with when organization is a learning organization or not. Some organizations do not change and learn thereby maintaining status quo, on the other hand, there are organizations where multiple initiatives are taken but as they are not synchronized learning do not happen. When changes are promoted in the organization across departments by explaining the need for change and a call is made for collective action, organizational learning happens. In absence of these aspects, individual learning and efforts for change may not benefit organization.

In the case of professional development program, similar scenarios may arise. Principals learn and are able to bring change in school, principal learn but change is not visible. Participants do not learn but still there are features of change and participants do not learn and status quo is maintained. We have taken participation in the program as a reflective measure for learning of principal.

Table 2.1 – Learning organization and adoption of change initiatives

		Learning organization	
		Low	High
Change (Extent to which change initiatives are adopted)	High	Random change initiatives are taken. Such cases are episodic in nature.	Change happens as the school exhibits features of learning organization.
	Low	Low learning and low change resulting in status quo.	Individual learning happens but fails to take shape at organization level.

Argyris and Schon (1978) described different types of learning in organization. The first level also known as called single loop learning happens when minor modifications are made after sensing changes in the environment with the larger objective of stability. Such changes can be adjustments in the strategies or the assumptions which is done at the surface. The second level of learning is termed as double loop learning where the change has to be addressed at the organizations' policy or norm level. For example, when talking about performance, not only the strategy for certain performance has to be changed but the underlying policy for performance, that is, what is to be called performance, has to be changed. Such learning was termed as innovative learning by Senge (1990). Third level of learning questions the basic philosophy that directs policy and strategies. Here the question is "what is leading me and other to have a predisposition to learn in this way at all? Why these goals?" (Issacs 1993, p. 30). Such learning can overhaul the entire system and may prove effective in certain scenarios where transformation is required for sustainability.

Literature prescribes a number of suggestions to build learning organizations like creating commitment to learning in organization, creating learning opportunities, and learning but all these suggestions are contingent upon the leadership (Yukl, 2002). Garvin (1993) noted that for organizations to learn it is essential to spread knowledge throughout, along with experimenting with new approaches, learning from previous experiences, learning from other actors in the field, and taking systematic route to solve problems. In order to create learning organizations, leaders have to lead by example where the commitment to question existing norms and strategies can be manifested by taking members of the organization on board. It is essential to break the boundary between groups and departments to infuse the feeling of collective action (Berson, Da'as, & Waldman, 2015). At times, ideas and feedback from outside can help in realizing the change required in organization. By giving value to external feedback and ideas, leaders show the openness to new experience which is a characteristic of learning organization. In the context of schools, Thoonen, Slegers, Oort, & Peetsma (2012) noted that improving leadership is a crucial first step in developing school capacity to learn.

## **2.7 Third space and SETU program**

The theory of third space is derived from the concept of hybridity (Bhabha, 1994) that sought to explain identity in postcolonial scenarios where indigenous peoples' identities were shaped by the colonizers, resulting in something whose history cannot be traced to either the

colonizer or the colonized. The concept has been applied in different ways. For instance, Soja's conceptualization of third space relies on a rejection of binaries, arguing instead that interaction between a dominant discourse of first space and a not-so-popular second space should take place to "set aside demands to make an either/ or choice and contemplate instead the possibility of a both/ and also logic" (Soja, 1996, p. 5). Moje et al. (2004) noted that hybridity theory has been applied to multiple dimensions of one's life, for instance, "to the integration of competing knowledge and Discourses; to the texts one reads and writes; to the spaces, contexts, and relationships one encounters; and even to a person's identity enactments and sense of self" (Moje et al., 2004). Gutiérrez, Baquedano-López, Alvarez, et al., (1999) applied the concept of third space to language, noting that students who are exposed to multiple discourses treat them as resources to understand the classroom content and their regular lives (p. 92).

'Third space' has also been used in the domain of teacher education programs. While the application to pre-service programs has been noted earlier, the theory's application to in-service programs seems very limited (Zeichner, 2010; Cochran-Smith & Lytle, 2009; Zeichner, 2003; Dyson et al., 1997; Wells, 2001). The concept helps us address one of the major limitations of conventional teacher education programs: the divide between theory and practice. Time and again, teachers have voiced their dissatisfaction with teacher education programs that do not prepare them for actual field scenarios but teach them something that is too abstract to be applicable (Zeichner, 2010). In this context, the 'third space' acts as a bridge to connect university programs and school teachers, a suggestion that has been proposed in literature as illustrated by Feiman-Nemser (2001, p. 1042). Professional development activities should be structured with "teachers' experience, voices, and thoughts at the core" (Burbank, Kauchak, & Bates, 2010 cited in Willegems, Consuegra, Struyven, & Engels, 2017).

### **2.7.1 Teacher collaboration for in-service teacher programs or professional development**

Pre-service programs that include the practitioner element show a number of variations. Bullough et al. (2004) describe a program at Simon Fraser University in British Columbia where P-12 teachers are hired for short terms to teach pre-service teacher students. Another example of this type of program (Zeichner, 2010) from the University of Wisconsin-Milwaukee involved highly competent teachers contributing to different aspects like student recruitment, program evaluation, and mentoring graduates during their early years.



Another variation involves bringing teachers' practices and writings to campus-based curricula. Pointer-Mace (2009) noted that the Carnegie Foundation created a website using websites of different P-12 teachers explaining how specific practices of teachers can be incorporated into regular sessions. Such practices can be part of the curriculum, as Flessner (2008) demonstrates with the example of the University of Wisconsin-Madison, where video clips were used as examples of practices.

In a program of the University of Washington a portion of the course is conducted at the partner K-12 schools. This started after research showed the participants were not willing to implement practices that were taught in the program. So classes for the methods courses were held at schools where regular teachers were actually using the prescribed methods. Zeichner (2010) noted a slight variation in this type where the University of Wisconsin-Madison integrated the methods course with exemplary teachers who were masters of certain practices. These teachers were contacted by the internal coordinator who organized the methods part such that student-teachers could interact with expert teachers.

Literature presents very few studies that conceptualize in-service teacher education programs using the 'third space'. Dyson and colleagues compiled a book describing the experiences of a group of teachers in San Francisco, with questions at the end of each chapter for individual reflection. In this project, teachers of Oakland Public Schools and Berkeley Unified School District collaborated to discuss issues concerning student diversity once a week. These discussions were observed by Dyson and a few students, and served to induce learning in young teachers through the stories of experienced teachers (Dyson et al., 1997).

Another collaborative project described by Wells (2001) was carried out in the domain of pedagogy. This collaboration was between teachers, graduate students, and university researchers, and focused on building a group of inquirers discussing aspects related to teaching science. The model for action research that was evolved had four components – vision, practice, theory, and data. Chand and Shukla (1998) and Chand (2014) offer two sets of case studies of innovative teachers in an Indian province that have been used by teacher educators in in-service training of government primary schools. Each of the 55 case studies had a set of questions for discussion and prescribed some learning activities.

Most of the pre-service programs based on 'third space' have focused on preparing teachers for their immediate entry into teaching, and not for further learning. This warrants more

study of in-service teacher education programs, especially those that are based on an alternative to the usual ‘first-space’ approach (Zeichner, 2010). This provided the rationale for assessing the effectiveness of an in-service training curriculum in a ‘third space’ to bring about change in “change-oriented behaviour” (Yukl et al., 2002). The third space allows for an alignment of the relevant theory with the specific practices of teachers in the form of case studies, which reflected reified forms of situated knowledge of teachers. Before we describe how the curriculum under study was prepared, we briefly touch upon the structure of teacher education in India.

### **2.7.2 In-service teacher education in India**

Teacher education in India is structurally different from that in countries such as USA and European countries where universities and their programs for teacher education play a major role. After independence from Britain in 1947, India followed a top-down approach of teacher education where curriculum was made at the national level and delivered at the provincial or state level through a State-level Council for Educational Research and Training, the SCERT (NCTE, 2009). A major structural change was introduced in the late 1980s when District Institutes of Education and Training (DIET) were set up (Saigal, 2012).<sup>4</sup> This was seen as a move to decentralize the teacher education system (Dyer, 2005). MHRD (1989) listed three broad objectives for DIETs: Training and orientation to elementary teachers, head-teachers (or principals), Education department officers, non-formal education and adult education, resource persons and other community volunteers; providing resource support to elementary education system; and action research to address local problems to achieve educational objectives.

DIETs and their parent structure, SCERT, suffer from various weaknesses as pointed out by Dyer and colleagues (2004). The major criticisms were that DIETs did not perform the intended task of adapting the curriculum to the local needs, they did not do any research to solve local problems of teachers and followed a target-driven approach which was concerned with covering a certain number of teachers regardless of their needs (Dyer, 2005). The result was that the programs failed to develop in teachers the belief in their potential to initiate change to overcome barriers created due to years of systemic routinization that Pryor (1998) considers important. At the same time, the role of local knowledge that teachers develop through their practices in solving specific problems they faced has been recognized (Chand & Shukla, 1998;

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<sup>4</sup> A district is a sub-provincial administrative unit comprising about 1000 villages. There are more than 600 districts in India.

Chand, 2014; Dyer et al., 2004). Dyer et al. (2004) noted that teachers themselves can devise solutions to overcome the limitations of top-down training. One method of initiating this process is to present evidence of solutions evolved in contexts that are similar to those of the in-service program participants. This was a key principle of SETU, the program under discussion.

### **2.7.3 SETU program as third space**

The concept of third space relies on a rejection of binaries (Soja, 1996; Bhabha, 1994). In the domain of teacher education the dichotomies of the expert trainer and the untrained teacher, the experienced teacher and the novice; the teachers and the teacher educators; theory and practice are common (Zeichner, 2010). By rejecting binaries, third space aims to provide a conceptual space where the inherent hierarchies are challenged—as Zeichner et al. (2015) put it, the question of who is an expert needs to be asked. In other words, the assumption that the teacher educator always knows better than the teacher or that the novice teacher does not have anything to share with the experienced teacher, or that theoretical knowledge must always take priority over practice, is challenged. This means that one should not overlook the different competencies of individuals, but rather one should put them in a space which is open enough for the dominant view to negotiate and learn from other perspectives for mutual benefit. In such a space people can have different identities of trainer and trainee, learner and teacher, teacher and policy maker, and researcher and practitioner, at various points of time (Taylor, et al., 2014), or the interaction of spaces can valorize local practices with the help of theoretical knowledge (Moje et al., 2001; Morrell, 2002; Grossman, Hammerness, & McDonald, 2009). In the program being studied, these two principles underpinned the idea of identifying good local practices and validating them using theoretical inputs, through an “Educational Innovations” (EI) Bank. This collection of validated practices formed the basis of the curriculum of the online professional development program under discussion, though as Klein, Taylor, Onore, & Abrams (2013) note, the development of the third space is never ever complete, and the EI Bank remains an ongoing project.

### **2.8 Theory of change**

Reviews of professional development programs (Opfer & Pedder, 2011; Cohen & Hill, 2000) have noted that the reasons for ineffectiveness can be of two kinds, failure to incorporate components in the professional development program that motivate teachers, and failures in the

process of change that is targeted. Teachers are attracted to professional development programs by the promise of skills and knowledge that can help them directly or indirectly in day to day practice, apart from the view that these activities will help them grow professionally (Fullan & Miles, 1992). If the training does not meet these expectations, there is disappointment. Second, most programs are geared to changing attitudes and beliefs, assuming that change in practice will follow, though this assumption may not be true for experienced teachers (Huberman, 1985; Guskey & Huberman, 1995).

Guskey (2002) proposed a model of change in which behaviour change takes precedence, especially in in-service training that deals with experienced teachers. After the professional development program, teachers try the new practice not because they believe in it but because they wanted to try and see whether these practices work or do not. Teachers then evaluate the effects of the changed practice and depending upon the feedback, continue or discontinue the practice. With repeated feedback about the efficacy of a new practice, teachers' attitudes and beliefs change and the new practice gets internalized.

In the SETU program, participants saw the evidence that presented practices which have worked for other teachers in similar contexts. These practices are practice-based innovations generated through practice-based knowledge. Practice-based knowledge (PBK) has been differentiated from research-based knowledge (RBK) on the basis of rationale, desirable attributes, generalizability, articulation, and accessibility (Nilsen, Nordström, & Ellström, 2012). PBK's objective is to solve problems unlike RBK which aims at primarily understanding the problem. In PBK, the end results are solutions that answer day-to-day problems, whereas, in RBK, objectivity and generalizability are desired. PBK provides context-specific solutions which may or may not apply to other situations; on the other hand, RBK focuses on generalizability. Another difference between the two is the nature of articulation. PBK usually relies on tacit knowledge and RBK relies on explicit codified knowledge; PBK is usually associated with individuals and is difficult to access (Nilsen, Nordström, & Ellström, 2012). The case studies used in SETU were clearly derived from PBK of individual teachers. When this knowledge is employed to bring change, in this case to positively influence leadership behaviour, they become innovations as ideas are put into action (Amabile, Hill, Hennessey, & Tighe, 1994). Ellström (2010) defined practice-based innovations as employees' or management's modification in the existing practices, routines, services, and methods and implementation of the new methods. This

modification is based on the informal learning employees have acquired through experience. Such practice-based innovation goes against the notion that innovation can happen only through top-down approach where solutions are developed externally and implemented by employees.

Nilsen and colleagues (2012, p. 158) noted that people can learn and innovate in their workplace depending upon their inclination towards adaptive or creative learning. This learning is an interaction among four levels of knowledge and action – skill-based action, rule-based action, knowledge-based action, and reflective action. Skill-based actions are routinized and can be performed smoothly without much thought. Rule-based action is based on prescribed rules where the actor has learned from previous experience by following given rules. With time, people develop another skill, heuristics, to make the action more efficient by eliminating certain middle steps. This gives rise to adaptive knowledge that gets transformed into adaptive learning. Ellström (2001) defined adaptive learning as “establishment of routines or habits for handling problems and demands in daily life through mechanisms of learning”. Adaptive learning is also considered to be the usual *modus operandi* for people joining the organization. It shows how to act, how to think, what is permissible and what is beyond the boundaries. This helps in reducing variations in an organization (Ellström, 2010). The flip side of such learning is that it becomes difficult to change or unlearn through verbal and intellectual forms of knowledge. So, when professional development programs are delivered through conventional modes like workshops and lectures, expecting change is difficult (Frese & Zapf, 1994).

The second type of learning, creative learning, is associated with questioning of established protocols, routinized actions, and pushing the boundaries to formulate new methods, services, and products. It requires a fair deal of experimentation that involves the risk of failure and requires risk taking capacity (Ellström, 2006). Such learning can be triggered by reflective action where an individual carefully analyzes the task at hand along with the consequences of the action (Schon, 1987; Mezirow, 1991).

In the context of government primary schools in a developing country, many tasks can be dealt with adaptive learning through routinization of activities. However, these schools also face challenges that are unique to their contexts, for instance, changes in students’ attendance on the basis of agricultural season; disconnect between habitus of children belonging to marginalized communities and the official textbook and curriculum; lack of disabled-friendly infrastructure; and so on, where adaptive learning is not sufficient. This requires principals to have creative

learning. Elmholt & Brinkmann (2006, p. 179) argued that exclusive focus on creative learning has the risk of destabilizing existing systems' efficiency. To overcome this, Ellstrom (2010) proposed that innovations can perform the balancing act between adaptive and creative learning as both are complementary to each other and indispensable in organizations.

Fenwick (2010) noted that reflection can be mediated by artifacts in a professional development program, a key point made in the "sociomaterial" perspective of learning. The literature on reflection also acknowledges that factual content of "other persons" provides a credible artifact to promote reflection. Moon (2005, p. 158-182) presented a synthesis of various techniques of reflection under the following broad categories: learning from current experience, learning from work experience, learning from past experience and learning from creative activity (poetry, drama, graphic depiction, and story.) Stories, or case studies, present the construction of other persons' experience. This can help in reflection by presenting a "had I been in that situation" scenario (Eisner, 1990; Bolton, 1999; Moon, 2005). Thus, material artifacts in the form of case studies of other persons in the same system, if used in the online training curriculum, are likely to promote reflection among the learners. The process by which such artifacts are used includes understanding the given factual situation, locating oneself in that situation vicariously, and relating the situation to one's personal experience.

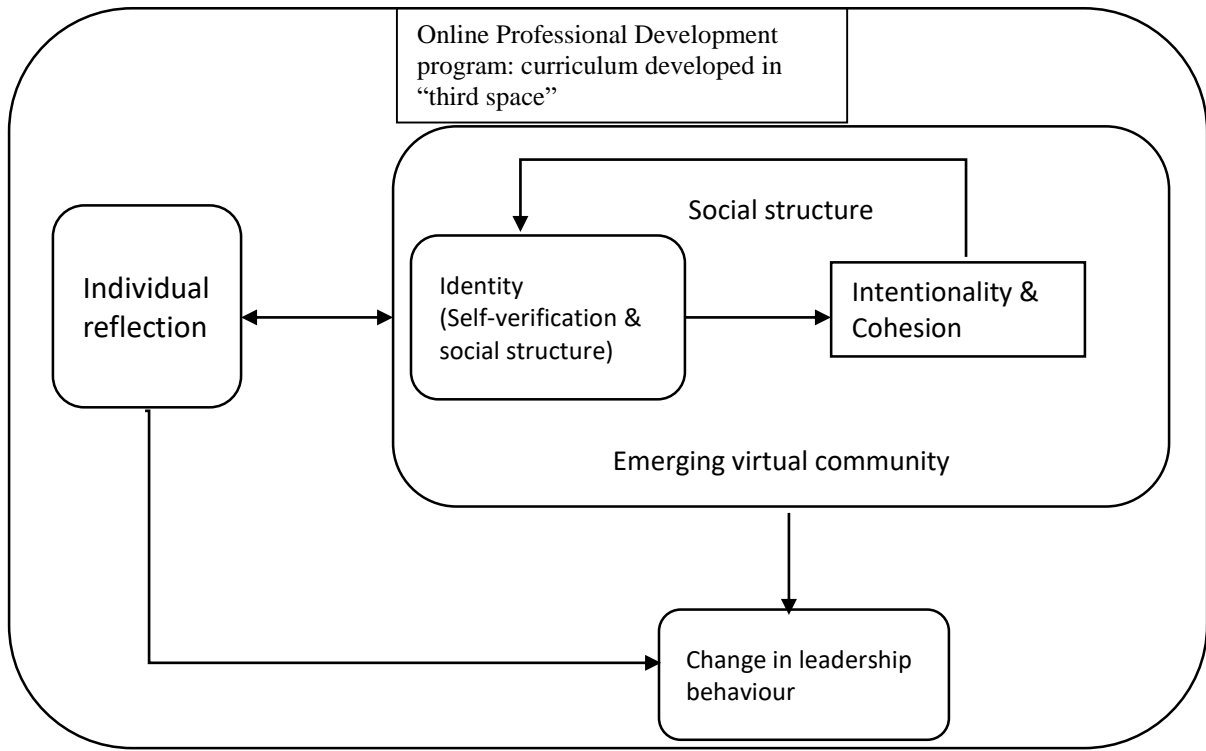
## **2.9 Framework**

In brief, the discussion above can be summarized as follows. Online professional development is a very new activity in the Indian state-run educational system, and hence principals and teachers are likely to be unfamiliar with its philosophical underpinnings, delivery modes and participation requirements, all of which assume the importance of the concept of 'community'. This underpinning informs the design of most online professional development programs, and it usually takes the form of the community-of-practice (CoP) framework which assumes collaborative learning and reflection as key mechanisms to promote learning. However, the concept of 'community' assumed by CoP framework has been seen to be problematic, necessitating a more open interpretation of the community that emerges for collective learning as an online program takes shape. Such an interpretation of community is possible by studying the intentionality and cohesion that characterize an emerging community. How these two dimensions combine determines the kind of community that results. The community-of-practice is the strongest version of the community in which intentionality is strong and cohesion high. Other

kinds of communities, such as learning communities, goal-oriented community of interests, and plain communities of interests, are also possible. Since the group processes of cohesion and intentionality depend for their meanings on the identity that individuals bring to the situation—the meanings attached to a person, both by the self and others, and embracing the structural features like group affiliations, role occupancy and memberships, and the character traits—we use the interaction between identity and intentionality and cohesion to understand the emergent community. The trajectories that the identity takes as its interaction with the emergent community takes place can be studied in terms of how they correspond to peripheral, inbound, insider, boundary and outbound trajectories. The second channel for learning operates through individual reflection i.e. individual learning on the basis of training artifacts. This individual reflection can either interact with emerging community to affect leadership behaviour or it can operate individually in absence of that member's participation in community to influence leadership behaviour.

The learning process is built around the professional development content of the program, namely leadership development. The content made in a conceptual domain of “third space” presents practice of other teachers working in the similar environment but, solved similar problems in their respective schools. By observing and reflecting on these practices through individual reflection and/or interaction within the emerging community, participants of the program may want to try them in their school. After implementing these practices they would assess the effectiveness and may change their attitude and belief accordingly. In other words, the leadership training curriculum, including its artifacts and requirements provides the content for the group processes and individual reflection which inform the emergent community and may influence leadership behaviour positively.

**Figure 2.1: Conceptual framework- interaction of identity, cohesion, and intentionality defining the nature of community**





## Chapter 3: Research Question

### 3.1 Questions

The overarching question is - *How do changed perceptions of leadership behaviour emerge in an online professional development program for leaders?*

Given that any member in an online community learns through individual reflection and through participation in the ‘virtual community’ processes, the specific sub-questions are:

- a) *How do identity, cohesion, and intentionality interact to form a virtual "community"?*
- b) *How does this emergent community interact with individual reflection to change perceptions of leadership behaviour?*
- c) *What is the overall change in **perceptions of subordinates** about leadership behaviour?*

The literature of online professional development programs presents various studies with different objectives. As mentioned in the literature review section, studies carried out to influence teachers’ behaviour were largely related to pedagogical methods. We did not find any rigorous study which tests the effectiveness of online professional development programs in changing behavioural aspect (in this case, leadership). This study aims to test such leadership behaviour change. We are focusing not only on the effectiveness of program but also on tracing how the individual learning process interacts with the emerging virtual community for such behavioural change to chart out the contextual factors that are working in SETU, the selected program, through an interpretive study.

This kind of mixed method approach for online professional development program is missing in the literature and has been pointed out by Dede et al. (2009) as necessary. They explicitly said that the literature on online professional development program consists of studies that are anecdotal in nature, often unaccompanied by rigorous research design, and no discussion of the necessary elements of study - what is working in a given program, for whom it is working, what are the contextual factors, etc.

Another literature gap is the role of identity in the formation of the community itself in countries with high context (HC) culture, like India. In HC culture, it is considered to be offensive and impolite to ask a question. The communication style show introvert qualities, people think in silence, do not interrupt, and use diplomacy above truth in their conversation (Nishimura et al., 2008.) Henri & Pudelko (2003) categorized different type of virtual communities on the basis of two dimensions – intentionality and cohesion - with CoP being

strong on both. Other types of communities are also based on the principle of situated learning with sociocognitivist and constructivist approach. CoP presents the foremost type where learning happens collectively through participation and reification. In other formats, the true nature of community remains unachieved due to weak nature in one or both the dimensions. We are exploring the interaction of identity with these dimensions of intentionality and cohesion, in HC culture country, that decides the nature of community and the subsequent effect on leadership behaviour. So, while evaluating the nature of emerging community, we have to see how the context of program, and leadership behaviour (change, relation, and task-oriented behaviour), get influenced.

### **3.2 Purpose and objective**

The findings of this study could be useful for the upcoming programs that wish to leverage the benefits of technology in imparting quality education. The potential of the given program is huge as in Gujarat state itself there are more than 2.5 lakh government primary school teachers who need continuous professional development. So the contribution of this study in the domain of online education could be significant.

## **Chapter 4: Research Design & Methodology**

This chapter explains the research design to answer the research questions raised in the previous chapter. In the first part, the design of the professional development program developed for school principals is discussed. In the next section, methodology for data collection and data analysis is discussed in two sub-parts. To answer the question on the effectiveness of the program in influencing leadership behaviour, structural equation modelling is used. To answer the questions regarding the emerging learning community and its interaction with individual reflection, case study method is adopted.

### **4.1 Professional development program design**

The online professional development program under study was in the vernacular language, Gujarati, and had three modules – Good Governance (GG), School Development Plan (SDP), and Infrastructure usage (IU). Each module followed the same structure of “topic – theory – case study – case study reflection.” As mentioned above, these case studies are actual practices of teachers collected and registered by Educational Innovation Bank (EI Bank) maintained by RJMCEI at IIM Ahmedabad. Each case was a real time application of the theoretical topic given to the participants in text form, along with pictures and a short video, thereby trying to bridge the gap between the theory and practice, a general critique of many face-to-face professional development programs (King, 2014). Each case study was followed by a few reflective questions that had to be compulsorily answered before a participant could move to the next topic. These questions were added with the objective of promoting comprehension and reflection.

The program was conducted in the Indian state of Gujarat, which has 33 districts. Professional development courses/activities/training in these districts were coordinated by 25 DIETs (District Institute for Education and Training.) State Council of Education Research and Training (SCERT), a government entity for supporting research and education training for school teachers, coordinated with 25 DIETs to collate a list of head teachers (principal)<sup>5</sup>. Since 2012, the state has been holding a qualifying exam, Head Teacher Aptitude Test (HTAT), for existing principals and for teachers who wanted to become principals. This exam evaluates the candidates on administrative management, education policy, pedagogical concepts, and issues of primary

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<sup>5</sup> In the given state, Head teachers are appointed only after HTAT exam whereas the designation of principal can be acquired through promotion. So, even when there are more than 33000 primary schools, there are only 5500 head teachers. Although, these two terms have been used interchangeably in this study.

school syllabus (CSF, 2015). A list was compiled from all the DIETs to get total population of principals.

#### **4.1.1 Sample selection**

We used randomized controlled trial design to assess the effectiveness of online program in influencing the change-oriented leadership behaviour. From the total population of 4614, a sample of 2100 principals, was randomly selected. This was further divided into two groups of 1100 and 1000 in the treatment and control, respectively. Out of 2100 principals, a sample of 150 principals, 75 each from treatment and control, was randomly selected for subordinate teachers' response about their principal's leadership behaviour. Since such an online program was happening for first time in India, we did not have any reference of effect size and sample was calculated on the basis of rule of thumb for structural equation modelling (SEM) analysis. Kline (2011) suggested that in order to use SEM more than 400 individual responses should be present for each group. In our case, for each principal, we wanted subordinate teachers to respond, hence with 6-10 responses we reached the count of 75.

When the program started for the treatment group, the control group was informed that they will get access to this program in the next phase which was supposed to be conducted by SCERT. Their program started in January 2018, one month after the data collection for post-test was completed for the treatment group.

#### **4.1.2 Intervention**

School principals of treatment group were given an orientation program and access to a portal (<http://setu.inshodh.org/login.php>) having individual accounts with the content. Along with this, a separate Facebook closed group (<https://www.facebook.com/groups/SETUIIMA/>) was made to facilitate discussions. A team of moderators provided technical support to all the participants through Facebook and helpline numbers. In addition to this, one moderator posted specific questions to stimulate discussion. The program duration was four months.

### **4.2 Methodology**

#### **4.2.1 Program timeline and data collection**

The SETU program started in the second week of April 2017 and ended in the second week of August 2017. A team of researchers visited all the 150 schools in the treatment and control groups to collect subordinate teachers' response about their principals before and after the professional development program. Data for the pre-test was collected from all the 150 school principals, before the program started, in March 2017. The pre-program data collection

saw subordinates data collected from 465 teachers from the 75 schools of the planned treatment group and 452 responses from the 75 schools of the control group. For the post-program round, data was collected from 55 participants of treatment group (341 of the 465 subordinate teachers) and 73 participants from control group (445 out of the 452 subordinate teachers). Data for the post-test was collected four months after the program ended, in December 2017. Anonymity was ensured by coding the response sheets of the schools through a unique code. The subordinate teachers filled the responses in the absence of the principal or any other school functionary. The process of anonymity was explained in detail and consent to participate obtained from the respondents. It is through these consent letters that it was ensured that the same people filled out the questionnaire in both rounds. A timeline summarizing the major events of the whole program is presented below:

March 2017	Mid-April 2017	Mid-August 2017	December 2017	April 2018
Pre-test data collection	Online program started	Online program completed	Post-test data collection	School visits for case study data collection

#### 4.2.2 Selection of participants for case study analysis

From the analysis of pre-post response given by subordinates for their principals, change was assessed for treatment and control group. From the treatment group, participants were selected on the basis of two parameters – participation and change. Participation was assessed on the basis of time spent online in completing the program. On an average, participants spent 770 minutes online to complete the program. So, this figure was used as a cut-off to divide the participants into two broad groups, those below the cut-off were grouped into “below average”, and those at the cut-off or above were grouped into “above average” category. For ease of understanding, the former is henceforth referred to as “low participation” group and the latter as “high participation” group. The first part of this thesis has described the assessment of change in leadership behaviour on the basis of pre-post feedback by participants’ subordinates. This was used as the second criterion to divide the participants into two broad groups, high change group and low change group. Based on the two criteria, a two by two matrix was formed as shown below:

	Program participation	
	High	Low

Change in leadership behaviour	High	High-High (1)	High-Low (2)
	Low	Low-High (3)	Low-Low (4)

From the 55 participants in the treatment group, two cases were selected for each of the four quadrants satisfying the criteria mentioned above. In each quadrant, participants were first sorted in descending order on the basis of magnitude of change and then asked for detailed interview and visit through phone in sequential manner from the top of list. For instance, high participation and high change participants were the ones showing highest positive difference in change-oriented behaviour along with time spent greater than 770 minutes. Similarly, participants of low participation and low change group were the ones with minimum difference in the survey and spent lower time than the average. Though change-oriented behaviour was the main construct of interest, participants who exhibited high and low change in this construct also showed similar corresponding difference in task and relation-oriented behaviour. Participants were selected in this manner by following the recommendation of Stake (1995) and Yin (2009) to ensure richness in information. It is important to note that for quadrant one and four, two cases were selected for “literal replication” i.e. to test whether the second case follows similar findings. Participants of second and third quadrant are selected for “theoretical replication” i.e. to see how these other cases can be explained on the basis of theory when the participation in program varies to give different results. (Yin 2009, p. 54). These are known as rival cases which do not follow logically from the selection parameters. In other words, high participation resulting in high change and low participation resulting in low change are expected outcomes in the program. What is not expected is high participation in program and still low change is being reported and vice versa.

In each school visit was made by the researcher four months after the data was collected for post-test response i.e. April 2018. This is almost one year after the program was launched in April 2017. This gives ample time to try out various activities in the school with the help of teachers. During the visit, the participant of the program and the subordinate teachers were personally interviewed and wherever possible, physical artifacts<sup>6</sup> were also noted in order to

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<sup>6</sup> Physical evidence like teaching learning material, assessment sheet, and details of adapted activity.

triangulate the claims made by principal and teachers. The case study protocol is attached in the appendix 3.

#### **4.2.3 Methodology for data analysis**

The complete study can be divided into two major parts: 1) assessing the effectiveness of online professional development program in influencing the leadership behaviour; 2) understanding the nature of the emerging virtual community among the program participants and the corresponding interaction between the identity, cohesion, and intentionality of participants.

##### ***4.2.3.1 Measures for assessment of program***

Data was collected through a pen and paper questionnaire which was translated to local language and then back translated to English for accuracy. In this study, we examine the effect of online professional development program on leadership behaviour through subordinates responses about the principal by using Yukl and colleagues' Managerial Practice Survey (MPS) which assesses three dimensions of leadership that closely align with principal's role in school. The justification for using subordinates response comes from the acceptance of a similar method in various leadership behaviour questionnaire like MLQ, CK Inventory, TRCQ, etc. which should be filled by subordinates only on the basis of their experience of leadership behaviour of leader (Yukl 2006, p. 86). Based on daily interaction, subordinates can report their perception of their leaders' behaviour on task, relation, and change-oriented behaviour. Each of these, along with their sub-dimensions is explained below on the basis of definitions given in Yukl's book "Leadership in Organizations".

#### **Task-oriented behaviours**

- **Short term planning:** it can be defined as scheduling activities to meet a defined objective by focusing on who is doing the task, when the task is done and how the task will be completed. For example, a principal or head teacher can plan the weekly functioning of mid-day meal by assigning teacher, preparing an inventory plan, etc.
- **Clarifying responsibilities:** it is a core component of initiating a task by clearly laying out plan, policies, and standard operating procedure; it also includes defining specific performance goals and objectives. For example, a student is given a chapter plan with specific class work and home work which is then assessed through an exam.
- **Monitoring operations and performance:** this involves continuous evaluation of task progress and quality by checking how well it was performed. It also assesses the

performance of all the members in a specific manner. For example, student performance can be monitored through classroom observation, class assessment, or progress report.

- **Problem solving:** this requires problem identification and taking necessary actions priority to avoid delays. For example, lack of sufficient teachers would require getting temporary help from village's educated youth/parents.

### **Relations oriented behaviours**

- **Supporting:** it means showing concern for the needs and feelings of other people. It also means that leader shows confidence in the subordinate and provide support to them in difficult time. For example, teachers can provide support to students by being more receptive towards their emotional or financial problem.
- **Recognizing:** it involves praising or showing appreciation for significant achievement of others by rewarding them. For example, praising or rewarding teachers for consistently good results.
- **Encouraging participation:** involving subordinates in decisions which concern them; asking them to share their opinion or ideas; modifying the plan to include ideas or suggestion. For example, including teachers' suggestion in school development plan for rain water harvesting to ensure water availability throughout the year.
- **Delegating and Empowering:** giving autonomy and discretion to subordinates. Allowing them to take decisions on how they want to do a job; giving them the power to find and implement a solution of a problem on their own. For example, if a principal allows teachers to take independent decisions concerning his/her class then teachers are empowered.
- **Developing:** providing advice, help, and opportunities to develop skills. Helping members to utilize the available opportunities to develop skills. For instance, principal can help organize sessions for teachers to improve their computer related skills.

### **Change-oriented behaviours**

- **External monitoring:** this involves close observation of external environment and identifying 'threats' and 'opportunities'; this can do through many ways, for instance, reading reports, attending seminars, meeting clients, trade fairs, and through a network of external information sources. For example, internet's contribution in changing the role of the teacher from "knowing all" to facilitator.



- **Envisioning:** articulating a vision about the possibility of a new objective; proposing change with enthusiasm and optimism; showing how this change is exciting and provide opportunities for all. For example, online testing is a measure which has been implemented by many schools. This helps in reducing the task of a teacher in administering the assessment, thereby, teachers can focus more on learning objectives.
- **Encouraging Innovative Thinking:** encouraging subordinates to solve problems with different methods; use different perspectives; devise new methods and evaluate their effectiveness. For example, reasons for frequent absenteeism can be known and dealt with having group leaders among students who are better informed about real issues.
- **Explaining need for change:** explaining the problem; explaining why current policies or measures are unable to deal with the problem; and how an event can become a threat or opportunity in long run. For instance, explaining why technology has become an integral part and how it can be included into pedagogical practices by experimenting with new methods.
- **Encouraging collective learning:** encouraging subordinates to try out new methods and assessing the effectiveness; new practices can come from other organizations. Principal can help in adapting practices from other schools by contextualizing it with teachers' inputs.

The original instrument was adapted for school principals which was translated in to local language and then back translated in English for accuracy. Same instrument was used in the previous phase of the program, not part of this analysis, with a different set of participants where it showed satisfactory reliability. This justified the continuation of MPS in the second round.

#### *4.2.3.2 Data analysis for assessment of the program*

For the assessment of professional development program we have two hypotheses:

*Hypothesis 1: The given professional development program has positive influence on leadership behaviour i.e. participants of the program shows an improvement as compared to their previous leadership behaviour but the overall effect could be insignificant (Proposition 7).*

*Hypothesis 2: The effect of professional development program is relatively high on the change-oriented behaviour as compared to task and relations oriented behaviour (Proposition 8).*

#### 4.2.3.3 *Multilevel Aggregation Method*

To aggregate the responses of subordinate teachers and SMC members, we used  $r_{WG}(j)$  index given by James, Demaree and Wolf (1984) that compares the observed group variance with an expected random variance.

#### 4.2.3.4 *Analysis*

A preliminary data analysis through “t” test was conducted first to compare the pre-post response of subordinates in the following order:

1. Pre-test leadership behaviour of the treatment and control groups were compared to ensure whether they behaved similarly before the program.
2. Post-test leadership behaviour of the treatment and control groups were compared to see if there is significant difference between them.
3. Pre-Post leadership behaviour of the treatment group should show significant difference and control should not show significant difference.

#### **Covariance based analysis**

The analysis is based on covariance based structure equation modelling in AMOS22 which works with latent variables by incorporating measurement error. Methodologically this is considered to be a more robust analysis compared to working with observed data.

Measurement model was examined for task-oriented behaviour, relations oriented behaviour, and change-oriented behaviour for both the times. For model fit, we checked four indices that included comparative fit indices(CFI), standardized root mean square residual (SRMR), goodness of fit indices (GFI), and root mean square error of approximation (RMSEA). Hu & Bentler (1999) noted that for CFI, GFI > .95, SRMR ≤ .08, and RMSEA ≤ .1(Fan, Thompson, & Wang, 1999) shows a good model fit.

To evaluate the change in task, relations, and change-oriented behaviour, a structural model was made where prior behaviour was correlated with treatment and control variable. We wish to see the change in behaviour by controlling for age, educational qualification, total experience and dummy variables for caste and gender.

#### 4.2.3.4 *Case study method*

Case study method seems to be most appropriate as the research question focuses on the nature of community that emerges from the interaction among the participants during the professional development program. It is important to note that in this study we used case study research method from the postpositivist paradigm with realist ontology. We can try to get close

to this reality by collecting evidence through multiple sources, termed as triangulation (Harrison, Birks, Franklin, & Mills, 2017). Yin (2009) noted that case study method is suitable in situations when the boundary between the phenomenon and context is not clear, the focus is on contemporary issues, questions like how and why have to be asked, and when the behaviour of participants cannot be controlled. Other methods like histories and experiment can be eliminated due to the imposed conditions. Histories are usually employed when the participants concerned are not alive and access to archival records is available. Experiments, on the other hand, require control of the behaviour of participants (Yin 2009, p. 11). In this case, the objective is to explain the behaviour of participants in the program and not to control it.

Hence the method adopted was multiple embedded case studies with school as the unit of analysis, as the two research questions are interrelated. Embedded case study design is needed because the first question focuses on the emergence of virtual community resulting from participants' interaction with different actors like other participants of the program, other school principals (not part of the program), school staff, and family members. The second question is about the interaction of community discussion with individual learning that influences the leadership behaviour. As the question is about behaviour, it has to be judged by others, in this case, subordinate teachers. This is because the domain of principal's leadership is limited to the school, and can be observed at the school by its members. So, even though the first question is inclined towards the individual participant, it has to take into account the school, as interaction can also happen with subordinates that aid learning. Hence, it would be more appropriate to consider school as the unit of analysis with principals, subordinate teachers, and school artifacts as points of data collection.

In order to judge the quality of case study research design four criteria should be justified. This is explained below with respect to the given program.

1. Construct validity: The research question is concerned with the nature of virtual community that emerges by the end of professional development program. To identify the type of virtual community, literature presents a framework classifying virtual community on the basis of two parameters – intentionality and cohesion (Henri & Pudelko, 2003). These concepts interact with individual participants' identity and evolve with time. Participation was observed from the online behaviour that was recorded digitally and change in leadership behaviour was calculated on the basis of quantitative

study from the first part of this study. Participants were then selected to understand how cohesion, intentionality, and identity interacted.

2. **Internal validity:** This aspect is most important in an explanatory case study and should cover all the rival explanations. Since the objective of this study is to explain the process of emergence of virtual community and how it influenced the leadership behaviour, we intend to cover the rival explanations by including four cases with two different characteristics. The first would include participants where participation in the program, taken as a proxy for learning, is less and still subordinates reported higher change in leadership behaviour. The second is where participants exhibited high participation but subordinates reported low change in leadership behaviour.
3. **External validity:** This aspect is related with the generalization of results to other cases but with case study method the generalization is concerned with analytic generalization and not statistical generalization. Analytic generalization means that the case study can be explained with a given theory whereas statistical generalization means that finding from sample can be extended to the population. In order to ensure external validity, we selected multiple cases from all the four quadrants to ensure replication and saturation.
4. **Reliability:** This is concerned with the reliability of results i.e. if the same case study is repeated again, results would be similar. In order to establish this aspect, all the details regarding case study protocol and data is attached in appendix 3. In order to triangulate the response/behaviour of program participant, interview was conducted with subordinate teachers and physical artifacts were observed wherever possible.

#### ***4.2.3.5 Case study analysis***

Interview data of program participants and subordinate teachers were collected and recorded following the BERA (2013) guidelines. The interviews were then transcribed and coded for thematic analysis following the recommendation given by Yin (2009). While coding the data, first level of codes were taken from the data itself; second level and third level of codes were guided through the framework developed for this study given in the literature review chapter.

For the data analysis, the process suggested by Yin (2014) was adopted for within-case analysis, cross-case pattern search, and testing. The analysis was first completed for one pair selected from two opposing quadrants i.e. high participation high change and low participation low change. First, similarities within the selected case was mapped and combined within a single

code family, for example, all the codes related with participants interacting with other actors (participant and non-participant ), was coded under the “involvement” family. In the second step, cross-case pattern, similarities and differences were noted between cases of same and opposite quadrant within families, for instance, for the same “involvement” family, the intention of interaction varied in nature of discussion showing signs of high and low involvement. High involvement manifestation included intention of building relationship with participants whereas low involvement manifestations include no interaction or discussing just the mechanics. So after the cross case comparison, “involvement” family was divided into “high involvement” and “low involvement” families. In the third step, this condition of involvement was tested for all the cases. After completing these four cases, rival cases were analysed from the remaining two quadrants of high participation low change and low participation high change. At first, cases from high participation low change were analysed for similarities within and between the two. For instance, in the first school, tension between subordinate teachers was evident from the interaction for the changes that were implemented. This explains that the boundaries between different groups were not addressed before going forward with changes. Such signs were also visible at second school. Hence these were coded together. Likewise, cases of low participation high change were first looked for similarities and differences. In the first school, the learning condition of applicability did not qualify as the context of school was different. But the subordinates and principal worked together to contextualize them for school. Similar behaviour was noted at the other school giving evidence of literal replication. These four cases were then compared with the remaining cases to test the propositions. In the process, theoretical saturation for coding was attained i.e. by the end of last case less than 20% codes were new.

## Chapter 5: Assessment of professional development program

This chapter explains the assessment of the SETU program on the basis of data collected from subordinates. As mentioned in the previous chapter, subordinates responded to MPS before and after the program. A preliminary analysis was done through “t” test to compare the treatment and control groups and this was followed by the main analysis through covariance based structure equation modelling.

### Descriptives

The total sample of 128 principals comprised 18% females and 82% males. The caste breakdown is as follows: 42.2% Other Backward Classes (OBC), 6.3% Scheduled Castes, 3.1% Scheduled Tribe, and 51.5% General category.<sup>7</sup> Among the participants, 51.6% reported postgraduation as their highest educational qualification and 48.4% reported graduation as their highest qualification. The average age of the principals was 38.9 years with standard deviation of 5.8 years. The average total experience was 14 years with 6.3 years standard deviation. Participants of the treatment and control group were tested for any prior difference in their composition, Table 5.1 presents the comparison for demographics and Table 5.2 shows reliability and correlations between pre-test and post-test observed variables.

Table 5.1. Descriptive statistics

	Treatment (N = 55)						Control (N = 73)					
	Number	Percentage	Min	Max	Mean	SD	Number	Percentage	Min	Max	Mean	SD
Female	7	12.73	--	--	--	--	16	29.09	--	--	--	--
Scheduled Castes	1	1.82	--	--	--	--	7	12.73	--	--	--	--
Scheduled Tribe	1	1.82	--	--	--	--	3	5.45	--	--	--	--
Other Backward Classes	25	45.45	--	--	--	--	29	52.73	--	--	--	--
General	28	50.91	--	--	--	--	34	61.82	--	--	--	--
Age	--	--	30	55	39.15	5.26	--	--	29	57	38.86	6.21
Total experience	--	--	5.0	30.0	14.15	5.26	--	--	2.5	36.0	14.40	7.03
Graduate	36	65.45					43	78.18				
Post-graduate	19	34.55					30	54.55				

<sup>7</sup> Reliable figures of the proportion of Other Backward Classes in the general population are not available, since they are not reported. It is believed that they make up about 45% of the population. Scheduled Castes constitute 7.5% and Scheduled Tribes about 15% of Gujarat’s population.

Table 5.2 Reliability and correlations of observed data

S. No.	Variable name	$\alpha$	M	SD	1	2	3	4	5	6
1	Task pre-test	.91	4.41	0.31	1					
2	Relation pre-test	.92	4.40	0.34	.87**	1				
3	Change pre-test	.93	4.32	0.32	.92**	.88**	1			
4	Task post-test	.90	4.56	0.28	.18*	.12	.15	1		
5	Relation post-test	.93	4.57	0.29	.13	.10	.08	.90**	1	
6	Change post-test	.94	4.52	0.30	.16	.11	.14	.94**	.89**	1

Note.  $\alpha$  = Cronbach alpha reliability; M = mean; SD = Standard deviation

\*\* Correlation significant at  $p < 0.01$

\* Correlation significant at  $p < 0.05$

## 5.1 Analysis through t test

### 5.1.1 Comparing pre-test leadership behaviour of treatment and control group

The first t test was conducted to compare the leadership behaviour before the intervention between the treatment and control group to ensure whether they behaved similarly before the program. Results of the test presented below in Table 5.3 indicate that both the groups behaved similarly as the p was greater than .05 for all the constructs.

Table 5.3 - Independent sample t test for pre-test response

Construct	Independent sample t test for pre-test response	P value (2-tailed)
Task-oriented behaviour	Clarifying	.87
	Short-term planning	.86
	Monitoring activities and performance	.81
	Problem solving	.31
	Supporting	.74
Relation-oriented behaviour	Encouraging participation	.87
	Recognizing	.61
	Delegating and empowering	.88
	Developing	.99
Change-oriented behaviour	Envisioning	.66
	Encouraging innovation	.99
	Explaining need for change	.54
	Monitoring external environment	.87

Note: n = 150 with 75 from treatment and 75 from control group.

### 5.1.2 Comparing post-test leadership behaviour of treatment and control group

To compare the effect of program on the leadership behaviour, t test was conducted on the post-test leadership behaviour of the treatment and control groups. The table 5.4 below indicates that the behaviour reported for treatment group was greater than the control group in a few constructs of task-oriented behaviour and change-oriented behaviour.

Table 5.4 - Independent sample t test for post-test response

Construct	Independent sample t test for post-test response	P value (2-tailed)
Task-oriented behaviour	Clarifying	.92
	Short-term planning	.72
	Monitoring activities and performance	.06
	Problem solving	.001
Relation-oriented behaviour	Supporting	.73
	Encouraging participation	.70
	Recognizing	.80
	Delegating and empowering	.85
Change-oriented behaviour	Developing	.99
	Envisioning	.18
	Encouraging innovation	.01
	Explaining need for change	.001
	Encouraging collective learning	.01
	Monitoring external environment	.55

Note: n = 128 with 55 from treatment and 73 from control group

### 5.1.3 Paired t test for treatment and control group

Paired t test was performed to compare the pre-post leadership behaviour for task, relation, and change-oriented behaviour independently to see the effect on each group independently after eight months (four months program duration and four months for dissipating recency effect). Though the control group did not participate in the program, it could have learned from other sources, including learning on their own. Hence, it is necessary to compare the post-test effects of both the groups.

Preliminary analysis shows that the program had an impact on the leadership behaviour of members of treatment group, supporting our first and second hypothesis. The effect is significant for few sub-constructs of task-oriented behaviour as shown in table 5.5. Relations-oriented behaviour, table 5.6, shows similar results for both the groups. And change-oriented behaviour shows significant difference for both treatment and control group, but if we look at the



t statistic in table 5.6, the effect was higher on treatment group. In addition to paired sample t test, we did difference in difference analysis for all the sub-dimensions by subtracting the difference of control group, post-test minus pre-test, from the treatment group. Out of the task, relation, and change oriented behaviour only one sub-dimension of task, problem solving, showed significant difference as compared to the change oriented behaviour where three sub-dimensions are showing significant difference. These results, presented in table 5.7, supports first and second hypothesis.

*Hypothesis 1: The given professional development program has positive influence on leadership behaviour i.e. participants of the program show an improvement as compared to their previous leadership behaviour but the overall effect could be insignificant (Proposition 7).*

*Hypothesis 2: The effect of professional development program is relatively high on the change oriented behaviour as compared to task and relations oriented behaviour (Proposition 8).*

Table 5.5 - Paired Sample t test for task-oriented behaviour (pre-post)

Constructs	Paired Sample t test for task-oriented behaviour (pre-post)	t	df	P value (2 tailed)
Control	Clarifying	-3.14	72	.00
	Short-term planning	-2.89	72	.01
	Monitoring activities and performance	-1.42	72	.16
	Problem solving	-1.82	72	.07
Treatment	Clarifying	-2.54	54	.01
	Short-term planning	-3.09	54	.00
	Monitoring activities and performance	-3.13	54	.00
	Problem solving	-5.02	54	.00

Table 5.6 - Paired Sample t test for relation and change-oriented behaviour (pre-post)

Paired sample t test for <b>relation-oriented behaviour</b>		t	df	p value (2 tailed)	Paired sample t test for <b>change-oriented behaviour</b>		t	df	p value (2 tailed)
Control	Supporting	-4.32	72	0	Control	Envisioning	-3.03	72	0
	Encouraging participation	-2.46	72	0.02		Encouraging innovation	-3.04	72	0
	Recognizing	-1.94	72	0.06		Explaining need for change	-2.81	72	0.01
	Delegating and empowering	-2.93	72	0.01		Encouraging collective learning	-1.74	72	0.09
	Developing	-4.07	72	0		Monitoring external environment	-3.15	72	0
Treatment	Supporting	-3.21	54	0	Treatment	Envisioning	-3.55	54	0
	Encouraging participation	-1.83	54	0.07		Encouraging innovation	-4.83	54	0
	Recognizing	-2.02	54	0.05		Explaining need for change	-5.5	54	0
	Delegating and empowering	-2.54	54	0.01		Encouraging collective learning	-5.52	54	0
	Developing	-2.93	54	0.01		Monitoring external environment	-3.6	54	0

Table 5.7. Difference in difference test of all the variables.

	Control (n=73)			Treatment (n=55)			Difference in difference	P value
	Pre-test	Post-test	Difference	Pre-test	Post-test	Difference		
<b>Task oriented behaviour</b>								
Clarifying	4.42	4.58	0.16	4.43	4.59	0.15	-0.01	.94
Short term planning	4.43	4.56	0.14	4.42	4.58	0.17	0.03	.68
Monitoring activities and performance	4.45	4.52	0.08	4.46	4.63	0.17	0.09	.24
Problem solving	4.36	4.45	0.09	4.29	4.63	0.34	0.25	.003**
<b>Relation oriented behaviour</b>								
Supporting	4.40	4.61	0.21	4.43	4.63	0.20	0.00	.97
Encouraging participation	4.41	4.56	0.15	4.42	4.54	0.11	-0.04	.68
Recognizing	4.50	4.61	0.11	4.47	4.60	0.13	0.02	.81
Delegating and empowering	4.25	4.45	0.20	4.26	4.44	0.17	-0.02	.81
Developing	4.41	4.64	0.23	4.41	4.65	0.23	0.00	.99
<b>Change oriented behaviour</b>								
Envisioning	4.40	4.54	0.14	4.43	4.61	0.18	0.05	.49
Encouraging innovation	4.31	4.46	0.15	4.31	4.60	0.29	0.14	.07*
Explaining need for change	4.17	4.32	0.15	4.13	4.52	0.39	0.24	.008**
Encouraging collective learning	4.40	4.50	0.10	4.35	4.66	0.31	0.21	.01**
Monitoring external environment	4.35	4.53	0.18	4.34	4.56	0.22	0.05	.57

\*\* Correlation significant at  $p < 0.05$ ; \* Correlation significant at  $p < 0.1$

## 5.2 Analysis through structure equation modelling

### Task-oriented behaviour

Task-oriented behaviour was measured through MPS. Five subconstructs were measured – clarifying, short term planning, monitoring activities and performance, and problem solving. The participants rated items such as “*our principal explains the rules, policies, and standard procedures that must be followed*” (clarifying); “*identifies the sequence and schedule of action steps needed to carry out a unit project*” (short term planning); “*checks on the progress and*

*quality of the work” (monitoring activities and performance); “resolves work-related problems quickly to prevent unnecessary costs or delays” (problem solving).* This scale is widely used by researchers. All the items were measured on a five point scale with 1 as “not at all” and 5 as “to a very great extent”. As the sub-constructs were measure of a single construct, they were mapped as single construct and fitted the data well with  $\chi^2 (2) = 1.49, p = .470; CFI = .99; GFI = .99; RMSEA = .01; SRMR = .01$  for pre-test. For post-test also, the data fitted the model well with  $\chi^2 (2) = .48, p = .78; CFI = .99; GFI = .99; RMSEA = .01; SRMR = .01$ .

### **Relation-oriented behaviour**

Relation-oriented behaviour is also a very important part of leadership behaviour with supporting, encouraging participation, recognizing, delegating and empowering, and developing as sub-constructs. The participants rated items such as *“our principal provides support and encouragement when there is a difficult or stressful task” (supporting); “consults with members before making decisions that will affect them.”(encouraging participation); “provides recognition for member achievements and contributions” (recognizing); “trusts members to make decisions without getting prior approval.” (delegating and empowering); “provides advice and coaching to help members develop their skills”(developing).* All the items were rated on a five point scale with 1 as “not at all” and 5 as “to a very great extent”. The data for both the pre-test and post-test fitted the model quite well with  $\chi^2 (5) = 2.86, p = .72; CFI = .99; GFI = .99; RMSEA = .01; SRMR = .01$  for pre-test and  $\chi^2 (5) = 8.17, p = .15; CFI = .99; GFI = .97; RMSEA = .01; SRMR = .07$  for post-test.

### **Change-oriented behaviour**

Change-oriented behaviour has five sub constructs – envisioning, encouraging innovation, explaining need for change, encouraging collection learning, and monitoring external environment. The items were rated on a five point scale with 1 as “not at all” and 5 as “to a very great extent”. Participants rated items such as *“our principal describes a proposed change or new initiative with enthusiasm and optimism” (envisioning); “Encourages innovative thinking and new approaches for solving problems” (encouraging innovation); “Explains why changes are necessary to deal with an emerging problem” (explaining need for change); “Analyzes external events and trends to identify threats and opportunities” (encouraging collection learning); “Encourages members to try new methods and evaluate their effectiveness” (monitoring external environment).* The data fits well for pre-test with  $\chi^2 (4) = 4.99, p = .29; CFI$

= .99; GFI = .98; RMSEA = .04; SRMR = .01 and for post-test as well with  $\chi^2 (2) = 1.59$ ,  $p = .90$ ; CFI = .99; GFI = .99; RMSEA = .01; SRMR = .01. Since change-oriented behaviour is the main focus of the program we wanted to explore which dimensions are positively influenced due to intervention. Hence, we also looked for individual dimensions with measurement model described below.

**Envisioning.** This sub-construct captures the following: The principal describes a “clear, appealing vision of what the school could accomplish or become; describes a proposed change or new initiative with enthusiasm and optimism; and describes a new initiative or project that offers exciting opportunities for the school.” Subordinates of principals of treatment and control group rated items such as “*Describes a proposed change or new initiative with enthusiasm and optimism*” on a five point scale with 1 as “not at all” and 5 as “to a very great extent”. The observed data for pre-test fits the model well with  $\chi^2 (1) = .09$ ,  $p = .29$ ; CFI = 1.00; GFI = .99; RMSEA = .00; SRMR = .01 and likewise for post-test with  $\chi^2 (1) = .42$ ,  $p = .51$ ; CFI = 1.00; GFI = .99; RMSEA = .00; SRMR = .01.

**Encouraging innovation.** Here the principal “encourages innovative thinking and new approaches for solving problems; encourages members to examine a problem from different perspectives; and encourages members to try new approaches and evaluate their effectiveness.” All the subordinates included in the study rated the items on a five point scale for items such as “*Encourages innovative thinking and new approaches for solving problems*” and both the pre-test and post-test data fits satisfactorily with  $\chi^2 (1) = .04$ ,  $p = .84$ ; CFI = 1.00; GFI = 1.00; RMSEA = .01; SRMR = .01 for pre-test and  $\chi^2 (1) = .28$ ,  $p = .59$ ; CFI = 1.00; GFI = .99; RMSEA = .001; SRMR = .001 for post-test.

**Explaining need for change.** The principal “explains why changes are necessary to deal with an emerging problem; explains why a policy or procedure is no longer appropriate and should be changed; and explains why an external event is a threat or an opportunity for the unit.” Sample item such as “*Explains why changes are necessary to deal with an emerging problem*” were rated and the data fits well for the pre-test with  $\chi^2 (1) = 0.14$ ,  $p = .71$ ; CFI = 1.00; GFI = .99; RMSEA = .001; SRMR = .01. For the post-test, the model fit indices are  $\chi^2 (1) = 0.28$ ,  $p = .59$ ; CFI = 1.00; GFI = .99; RMSEA = .001; SRMR = .001.

**Encouraging collective learning:** The principal is also expected to “encourage members to try new methods and evaluate their effectiveness; looks for ways to adapt best practices used

by other organizations; and conducts a review session after a activity to learn what can be improved.” A sample item includes “*Encourages members to try new methods and evaluate their effectiveness*”. The data for both pre-test and post-test fits well with model fit indices of  $\chi^2 (1) = 0.58$ ,  $p = .44$ , CFI = 1.00; GFI = .99; RMSEA = .001; SRMR = .01 for pre-test and  $\chi^2 (1) = 0.09$ ,  $p = .75$ ; CFI = 1.00; GFI = .99; RMSEA = .001; SRMR = .001 for post-test.

**Monitoring the environment.** In this dimension the role of principal is to “analyze information about events, trends, and changes in the external environment to identify threats and opportunities that are relevant for the organization or unit.” A sample item is “*Analyzes external events and trends to identify threats and opportunities.*” The data fits well for pre-test with  $\chi^2 (4) = 3.39$ ,  $p = .06$ ; CFI = .99; GFI = .98; RMSEA = .13; SRMR = .01 and for post-test as well with  $\chi^2 (2) = 0.05$ ,  $p = .82$ ; CFI = 1.00; GFI = 1.00; RMSEA = .001; SRMR = .001.

#### ***Control variables***

We controlled for demographic variables of participants like principal’s gender, total experience, age, caste, and educational qualification. Gender was modelled as nominal variable with females as 1. Experience and age were taken as continuous variable. Caste was modelled as categorical variable with four categories – Scheduled Caste, Scheduled Tribe, Other Backward Classes, and General. Dummy variables were created with respect to general category participants. The last control variable was educational qualification which was again modelled as categorical variable with graduate and post graduate as two categories.

### **5.3 Results**

#### **Attrition and missing data analysis**

From the total population, schools were randomly selected and randomly assigned to the treatment and control groups, 1100 and 1000, respectively. After this, 75 schools for subordinate data collection were selected randomly to check for behavioural response. As mentioned above, data for first round was collected from all the 150 schools. As reported above, in the treatment group, 19 principals did not started in the program for a variety of reasons. It is difficult to consider them as part of treatment though the intention to treat and willingness to participate were present. One principal completed only first few topics of the first module of the program. Path analysis in their pre-test leadership behaviour shows that there is no inherent difference in the leadership behaviour between who completed the program and who did not complete the program. We also looked at their individual characteristics like gender and educational

qualification and found no significant difference. These results and individual characteristics are present in appendix 2. On the basis of this, we can say that drop was at random and we could not find any specific reason for not taking the program.

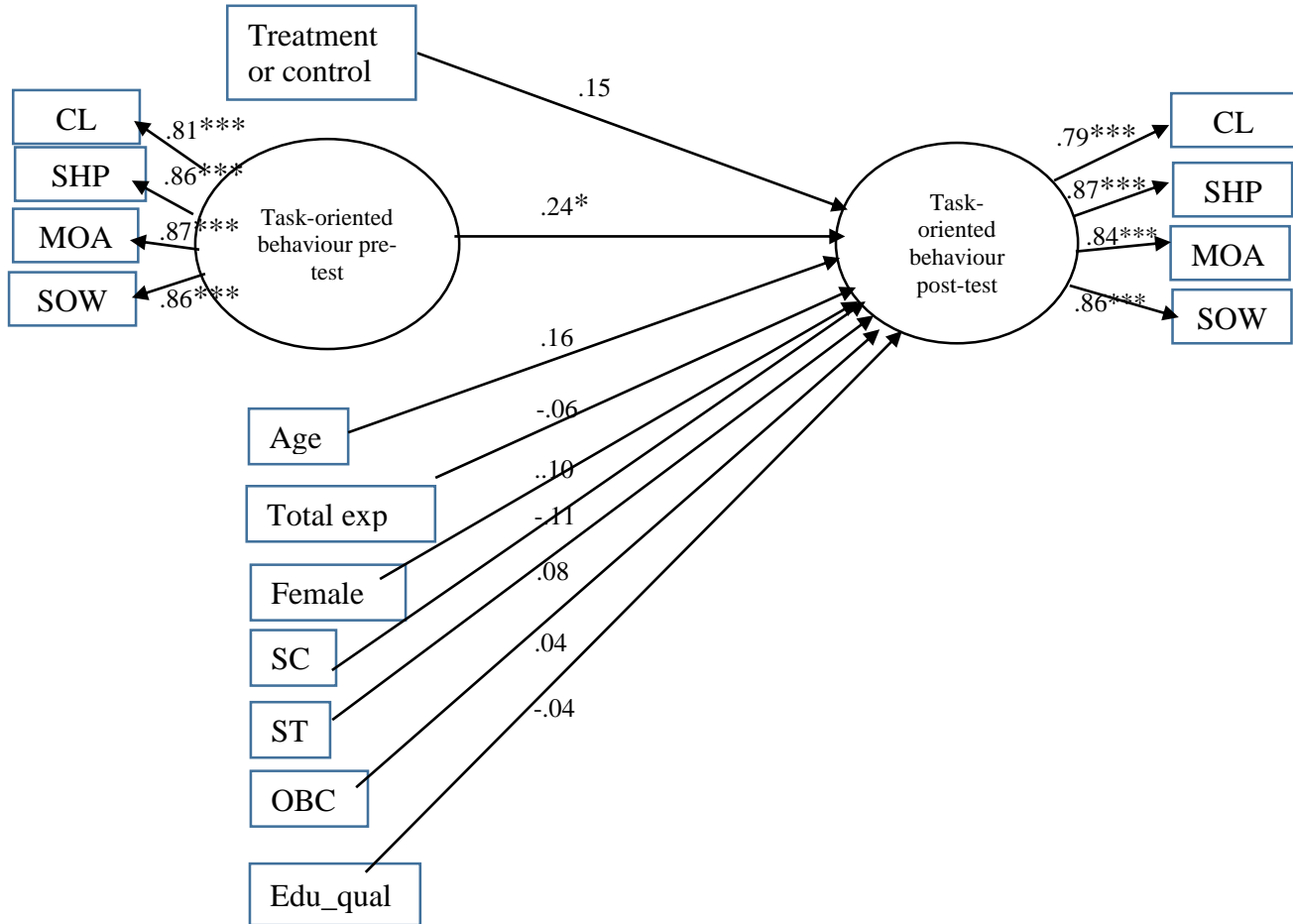
In the treatment schools, two subordinate responses in two different schools which were missing were deleted, leaving 339 responses. Similarly, in the control group, three subordinates, from three different schools, did not respond, and so were removed from the analysis. Since the response from one school ranges from 6 to 10, removing these responses did not affect the analysis at aggregate level. Apart from this, the few missing responses in items were replaced with average.

### **Data analysis**

The factor structure of task, relation, and change-oriented behaviour was checked separately through measurement models. For task-oriented behaviour the data fitted well with  $\chi^2(19) = 19.54$ ,  $p = .42$ ; CFI = .99; GFI = .97; RMSEA = .01; SRMR = .005. Structural model, as shown in figure 5.1, does not show any significant difference between the treatment and control group with  $\beta = .15$ ;  $p = .11$ . Similarly, for relation-oriented behaviour the model fit indices for the observed data were well within range with  $\chi^2(34) = 32.21$ ,  $p = .56$ ; CFI = 1.00; GFI = .95; RMSEA = .01; SRMR = .004. Structural path analysis, as shown in figure 5.2, did not show any significant difference between the treatment and control group with  $\beta = .01$ ;  $p = .91$ . These results support our second hypothesis that effect on change-oriented behaviour will be greater than task and relations oriented behaviour. For change-oriented behaviour, the observed data fitted the model well with  $\chi^2(33) = 43.78$ ,  $p = .10$ ; CFI = .99; GFI = .94; RMSEA = .05; SRMR = .006. Structural model in figure 5.3 shows that the change in change-oriented behaviour after the program in the treatment group was significant with  $\beta = .22$ ;  $p < .05$ . The squared multiple correlation with and without the treatment & control dummy variable for change-oriented behaviour are .126 and .084, respectively. Results for change-oriented behaviour and its sub-dimensions are summarized in table 5.8 and 5.9.

*Hypothesis 2: The effect of professional development program is relatively high on the change-oriented behaviour as compared to task and relations oriented behaviour (Proposition 8).*

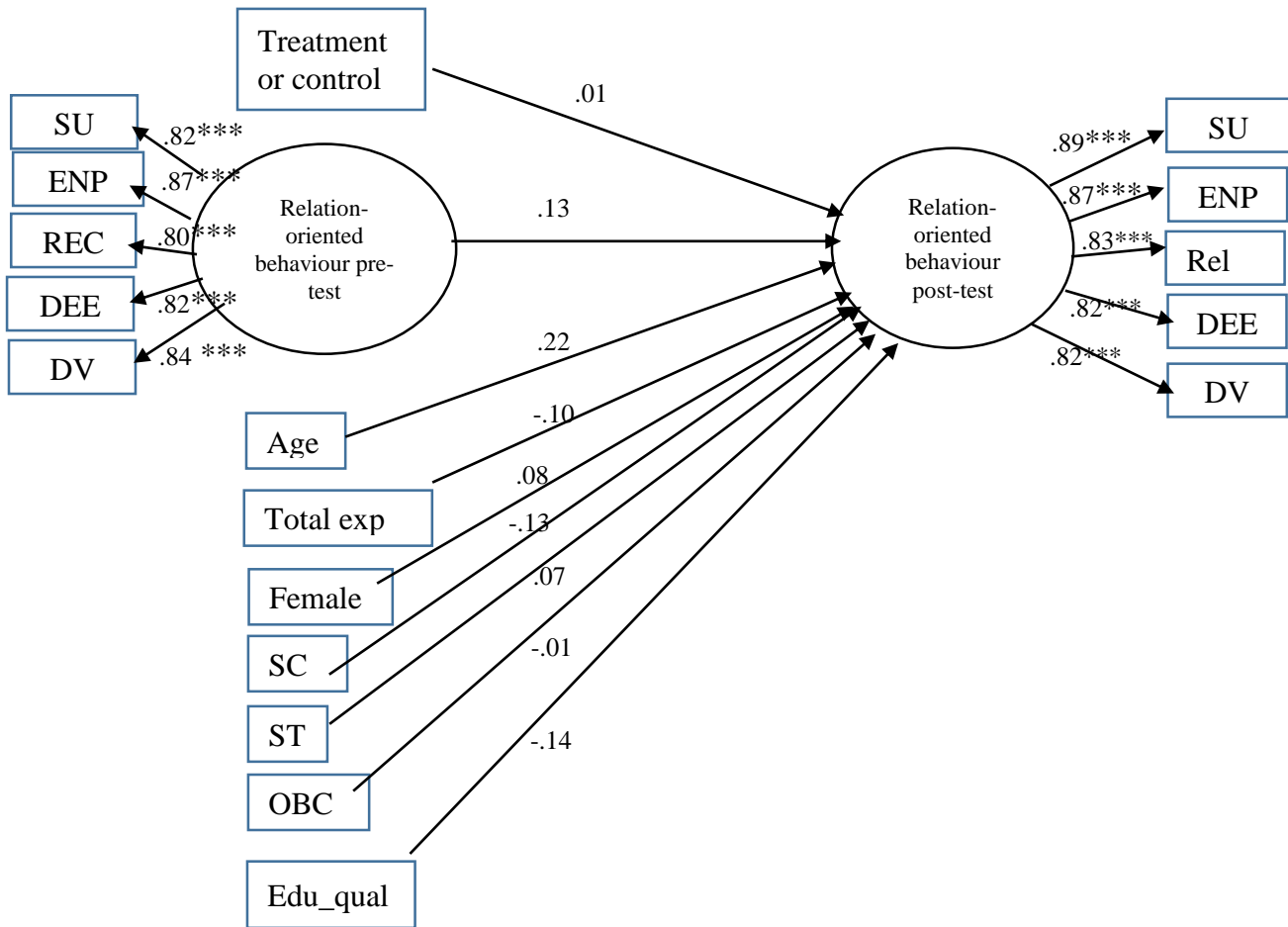
**Figure 5.1 Structural equation model with standardized path coefficients for task-oriented behaviour**



Notes: n= 128. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2(74) = 97.78$  p = .03; CFI = .98; GFI = .92; RMSEA = .05; SRMR = .05. CL-Clarifying; SHP-Short term planning; MOA-Monitoring activities and performance; SOW-Solving work related problems; SC-Scheduled Caste; ST-Scheduled Tribe; OBC-Other Backward Caste; Edu\_qual-Educational Qualification; Total-exp -Total experience.

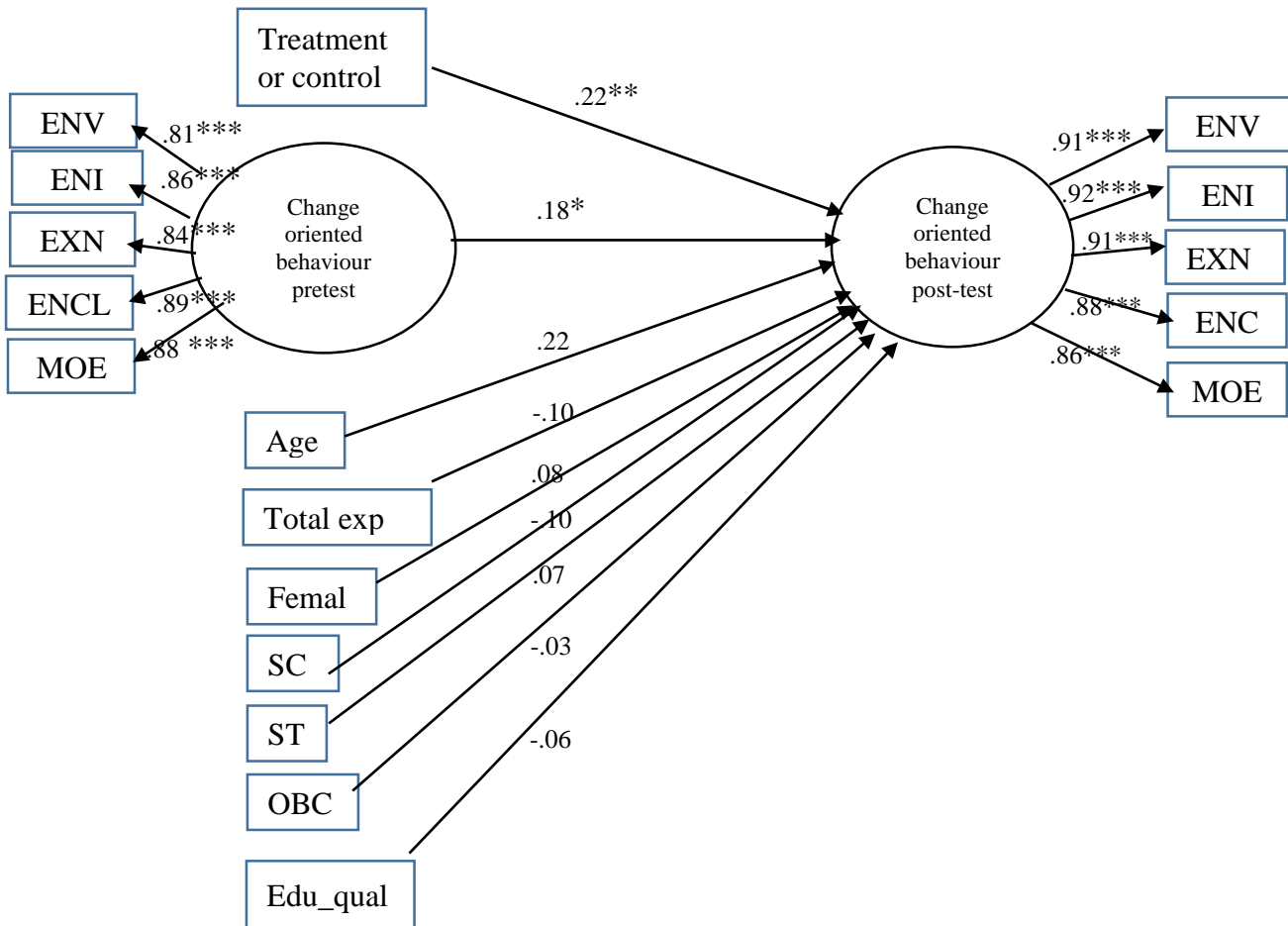


**Figure 5.2 Structural equation model with standardized path coefficients for relations-oriented behaviour**



Notes: n= 128. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2 (105) = 106.25$ ;  $p = .45$ ; CFI = .99; GFI = .92; RMSEA = .01; SRMR = .04. SC-Scheduled Caste; ST-Scheduled Tribe; OBC-Other Backward Caste; Edu\_qual-Educational Qualification; Total-exp -Total experience; SU-supporting; ENP-Encouraging participation; REC-Recognizing; DEE-Delegating and Empowering; DV-Developing.

**Figure 5.3: Structural equation model with standardized path coefficients for change-oriented behaviour**



Notes: n= 128. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2 (104) = 134.17$  p = .03; CFI = .98; GFI = .90; RMSEA = .05; SRMR = .06. SC-Scheduled Caste; ST-Scheduled Tribe; OBC-Other Backward Caste; Edu\_qual-Educational Qualification; Total-exp -Total experience; ENV-Envisioning; ENI-Encouraging innovation; EXN-Explaining need for change; ENCL-Encouraging collective learning; MOE-Monitoring external environment.

Table 5.8. Results – Change-oriented behaviour  
Structural Model Completely Standardized Parameter Estimates and Model Fit  
Statistics

	With treatment control variable	Without treatment control variable
Change-Oriented Behaviour (Post-test)	.18*	.17*
Age	.22	.29
Total experience	-.10	-.15
Female	.08	.06
Scheduled caste	-.10	-.13
Scheduled tribe	.07	.06
Other backward caste	-.03	-.03
Educational qualification	-.06	.003
Treatment control dummy	.22**	
R <sup>2</sup>	.126	.084
Model fit statistics		
Chi-square	134.17	107.45
df	104	96
p-value	.03	.20
CFI	.98	.99
GFI	.90	.92
RMSEA	.05	.03
SRMR	.06	.07

Note. \*p<0.1, \*\*p<0.05. CFI = Comparative Fit Index; GFI = Goodness of Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

For change-oriented behaviour, individual sub-dimensions were also checked as shown in figure 5.4.

Panel A, for “envisioning” dimension, shows the data fits well for pre-test and post-test behaviour measurement model with  $\chi^2(8) = 3.10$ ,  $p = .93$ ; CFI = 1.00; GFI = .99; RMSEA = .001; SRMR = .003. The structural model shows that though there is significant change from pre-test to post-test, the change is not significant for the treatment group with  $\beta = .12$ ;  $p = .19$ .

Panel B shows the model for “encouraging innovation”. The observed data for pre-test and post-test fits well on the measurement model with  $\chi^2(8) = 6.94$ ,  $p = .54$ ; CFI = 1.00; GFI =

0.98; RMSEA = .001; SRMR = .01. In the structural model, the change is significant for the treatment group with  $\beta = .31$ ;  $p < .01$ .

Panel C shows the model for “explaining need for change”. The model fit indices of the measurement model are  $\chi^2 (8) = 613.32$ ,  $p = .10$ ; CFI = .98; GFI = .97; RMSEA = .07; SRMR = .01. The structural model shows significant change in the treatment group with  $\beta = .30$ ;  $p < .01$ .

Panel D shows the model for “encouraging collective learning”. The observed data for pre-test and post-test fits well on the measurement model with  $\chi^2 (8) = 11.65$ ,  $p = .17$ ; CFI = .99; GFI = .97; RMSEA = .06; SRMR = .01. In the structural model, the change is significant for the treatment group with  $\beta = .35$ ;  $p < .001$ .

Panel E, for “monitoring external environment” dimension, the data fits well for pre-test and post-test behaviour measurement model with  $\chi^2 (8) = 10.88$ ,  $p = .21$ ; CFI = .98; GFI = .97; RMSEA = .05; SRMR = .01. The structural model shows that though there is significant change from pre-test to post-test, the change is not significant for the treatment group with  $\beta = .08$ ;  $p = .36$ .

Table 5.9. Results – Individual dimensions of change-oriented behaviour

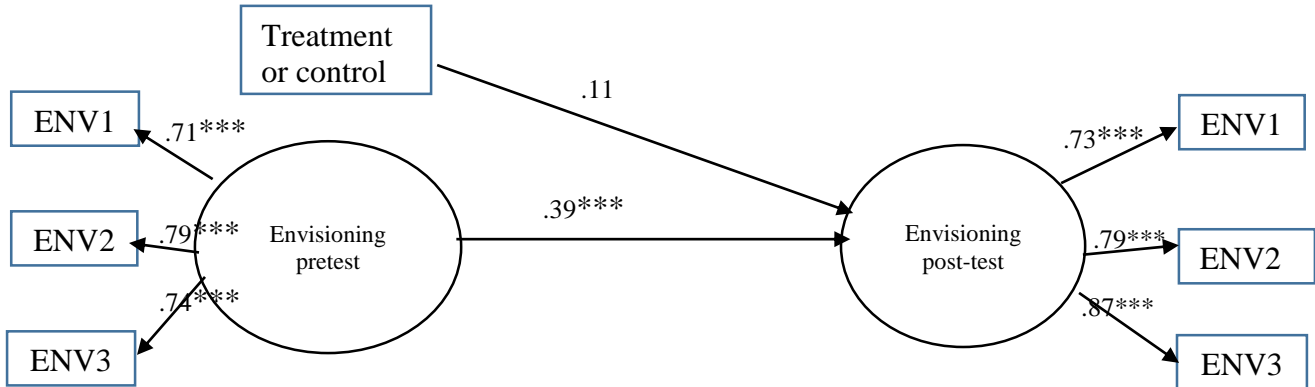
	Envisioning	Encouraging innovation	Explaining need for change	Encouraging collective learning	Monitoring external environment
Pre to post structural path coefficient	.42***	.16	.20*	.06	.21*
Age	.13	.38	.19	.19	.16
Total experience	-.01	-.28	-.01	-.13	-.06
Female	.05	.01	.11	.14	.11
Scheduled caste	-.11	-.10	-.06	-.12	-.13
Scheduled tribe	.08	.04	.11	-.04	.06
Other backward caste	-.01	-.12	-.003	.004	.01
Educational qualification	-.06	-.07	.02	-.12	-.04
Treatment control dummy	.12	.31**	.29**	.36***	.08
<b>Model fit indices</b>					
Chi-square	39.86	69.77	58.71	54.47	49.74
df	47	47	47	47	47
p-value	.76	0.02	.12	.21	.36
CFI	1.00	0.95	.98	.98	.99
GFI	.96	0.93	.94	.94	.95

RMSEA	.001	0.06	.04	.03	.02
SRMR	.10	0.07	.07	.09	.06

Note. \*p<0.1, \*\*p<0.05, \*\*\*p<.001. CFI = Comparative Fit Index; GFI = Goodness of Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual

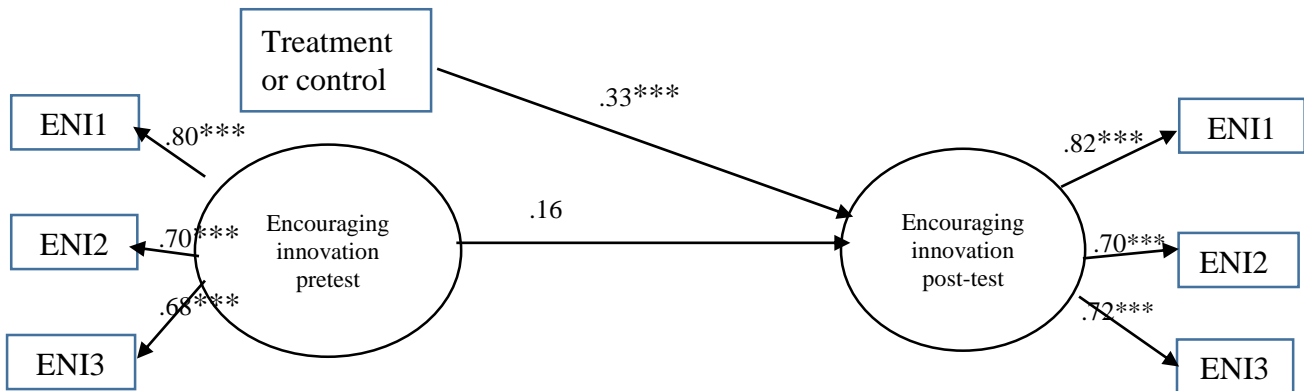
**Figure 5.4: Individual dimensions of change oriented behaviour**

**Panel A**



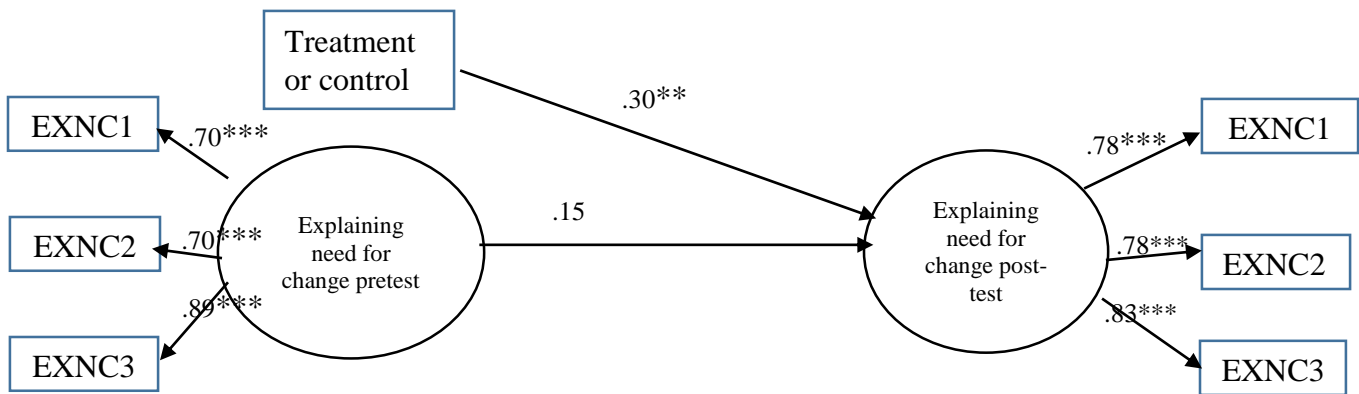
Notes: n= 128. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2 (8) = 5.59$ ;  $p = 0.93$ ; CFI = 1.00; GFI = .97; RMSEA = .001; SRMR = .001. ENV-Envisioning

**Panel B**



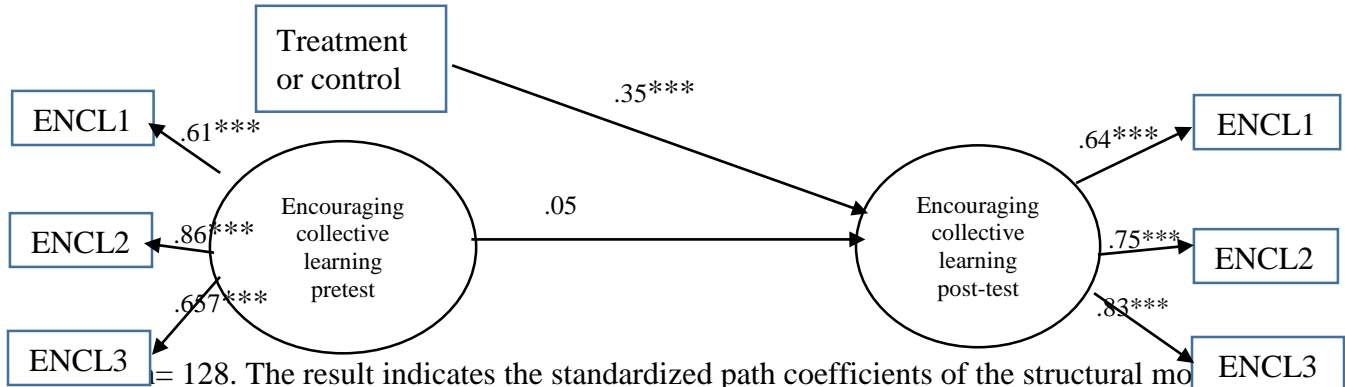
Notes: n= 128. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2 (8) = 75.63$ ;  $p < 0.05$ ; CFI = 1.00; GFI = .98; RMSEA = .001; SRMR = .01. ENI-Encouraging innovation.

**Panel C**



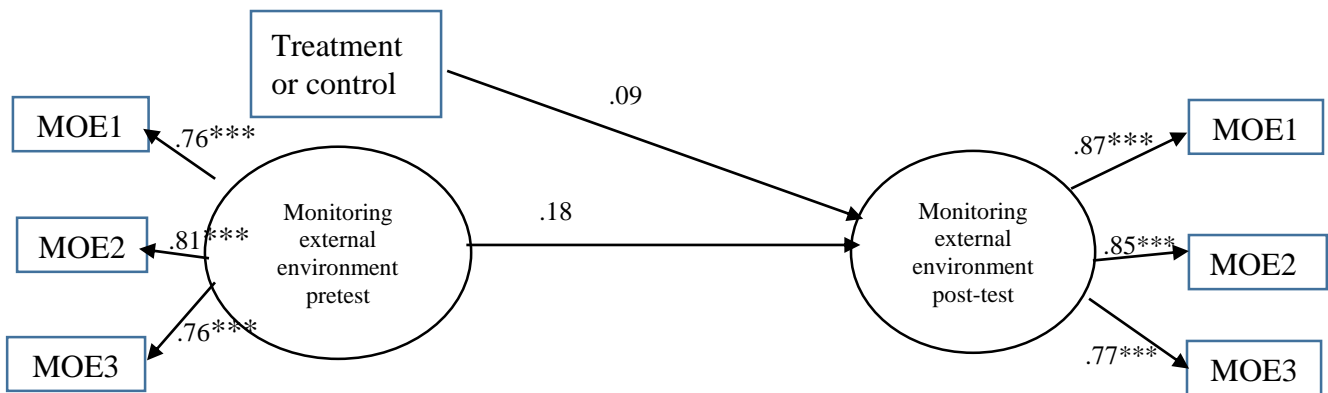
Notes: n= 128. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2 (8) = 75.63$ ;  $p < .05$ ; CFI = .97; GFI = .95; RMSEA = .08; SRMR = .01; EXN- Explaining need for change.

**Panel D**



n= 128. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2 (8) = 21.45$ ;  $p < .05$ ; CFI = .95; GFI = .95; RMSEA = .08; SRMR = .01; ENCL- Encouraging collective learning.

**Panel E**



Notes: n= 128. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2 (8) = 13.21$ ;  $p = 0.35$ ; CFI = .99; GFI = .97; RMSEA = .03; SRMR = .01; MOE-Monitoring external environment.

#### **5.4 Summary**

The results of independent and paired t test shows that both the treatment and control group were behaving similarly before the intervention but as the treatment group attended SETU program, it showed significant improvement in few sub-constructs of task and change-oriented behaviour, supporting the first hypothesis. When a more robust path analysis is conducted through structured equation modelling, task-oriented behaviour did not show any significant improvement on the treatment group as compared to the control group. The effect on change-oriented behaviour as a whole remains significant on the treatment group as compared to the control group. With further analysis of the sub-constructs of change-oriented behaviour, the effect was found to be significant on encouraging innovation, explaining need for change, and encouraging collective learning. In the analysis, age, caste, gender, and educational qualification were controlled but none of them were significant. This supports our second hypothesis where it was expected that change-oriented behaviour would show higher impact as compared to task and relations-oriented behaviour as the program was made with innovative practice of teachers that would promote change-orientation.

## Chapter 6: Case Study Analysis

This chapter aims to answer the following questions: how do identity, cohesion, and intentionality interact to form a virtual community and how does the emergent community interact with individual reflection to change leadership behaviour? To answer these questions, eight participants from the program were selected on the basis of two criteria – participation and change as explained in the methodology chapter. To summarize, participation was assessed on the basis of time spent online in completing the program. A cut-off based on average time was used to divide the participants into two broad groups, those below the cut-off were grouped into “below average”, and those at the cut-off or above were grouped into “above average” category. For ease of understanding, the former is henceforth referred to as “low participation” group and the latter as “high participation” group. In the previous chapter, we have already described the assessment of change in leadership behaviour on the basis of pre-post feedback by participants’ subordinates. This was used as the second criterion to divide the participants into two broad groups, high change group and low change group. Based on the two criteria, a two by two matrix was formed.

		Program participation	
		High	Low
Change in leadership behaviour	High	High-High	High-Low
	Low	Low-High	Low-Low

From each quadrant, two cases were selected as explained in the methods chapter. It so happened that the selected participants for case studies conformed to the average age of the whole sample. Details of program participants who were interviewed is given in table 6.1.

Table 6.1: Details of interview participants

Pseudonym	District	Age	Experience	Educational Qualification
RK	Rajkot	38	13	Post-graduate
SR1	Surat	55	32	Graduate
SR2	Surat	38	14	Graduate
AD	Anand	33	10	Graduate
GDH	Gandhinagar	37	12	Post-graduate
BH	Bharuch	39	14	Post-graduate



KD	Kheda	37	12	Post-graduate
BK	Banaskantha	36	11	Post-graduate

The analysis below explains the different behaviour on the basis of interviews with program participants, the teachers in the schools of the participants, data collected during the online program, and artifacts<sup>8</sup> observed during the personal visits. The research question explores three concepts – 1) identity of individual participants as it manifests during the program, during self-learning and during the interaction with other actors; 2) intentionality, the objective of the group as it emerged in the program; 3) cohesion, the social bond between participants which developed during the program. The interaction of these concepts is also discussed. The last part of this chapter explains the behaviour of participants and how it corresponds to the change in their leadership behaviour as reported by their subordinates. The analysis of all the eight schools resulted in the following themes:

### **6.1 Identities of self-directed learner (SDL) during the program**

At an individual level, the identity of self-directed learner emerged in the professional development program. As described in the conceptual framework of Song and Hill (2007) (see literature review chapter), individual learners assess the reliability and validity of evidence, enter the learning process accordingly, and then evaluate the result for themselves.

Participants showed a number of identities during the reflection part of the program. They showed the identity of an evaluator who assesses the reliability and validity of the program for themselves. With the help of pictures, videos, and mobile numbers of case study teachers, they were able to establish the credibility of the program. Each component of the program like picture, video, and case study details were examined through this lens to assure themselves of the veracity of the evidence and applicability to their own schools. In addition to looking for signs of authenticity, participants also assessed the usability of videos and pictures in improving understanding. Participants mentioned that pictures and videos were complementary in nature; but they also felt that pictures were more authentic than videos, as videos were made specially and could involve some distortion of reality. This formed the precondition for learning where if the participants' context matches with the content, their personal attributes like motivation and strategy would be influenced positively resulting in more involvement in the program. Among

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<sup>8</sup> Evidence of reported changes like activity details, assessment sheet, and teacher feedback, among others.

the four quadrants, participants of low participation and high change showed such behaviour where the context of school did not match with that in the case studies i.e. a school under city municipality getting infrastructure solutions at quick pace unlike other schools, and students are migrants from other states and do not know the local language and culture unlike the case in the majority of the cases in the program's curriculum. Due to this, the participation in the online program was less. However, they tried to contextualize the practices at their school with the help of school teachers, which was reflected in the new practices that were reported by subordinate teachers.

The second identity, learner's identity can be inferred from the data which aligns closely with the learning process of SDL. This was reflected in the process of completing the program. Participants gave answers to the reflective questions at the end of each case study. These questions helped in reflection through vicarious learning i.e. participants had to situate themselves in the position of the case study teacher and think in those terms. All the participants noted that reflective questions helped in facilitating this learning but two of them were in favour of not answering the questions or answered because they had to with minimum detail. These participants were more inclined to complete the program quickly. The effect of motivation can be interpreted through the assessment at the end of each module<sup>9</sup> as the performance of two participants who had an objective of finishing program quickly performed relatively poorer than other participants.

The whole process resulted in a situation where participants were able to reflect on the role played by different artifacts in improving understanding. Participants interacted with the design elements of the program for learning and simultaneously assessed the impact on understanding. For instance, the importance of case study was clearly highlighted in almost all the interviews. But some participants liked videos more than pictures and vice versa. This influenced their strategy of interaction with remaining topics in the SETU program. Participants who inferred that videos were more effective, skipped the photographs, and, in certain occasions, case study text too. Another element of assessment comes with module end questions i.e. when the understanding of topic was not sufficient to comfortably answer the question, the content was revised again in few cases where learner's identity was invoked. This identity was termed as "identity assessing impact on learning". It can be inferred from SDL's conceptual framework for

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<sup>9</sup> Refer to appendix 1 for detailed description.

evaluating the result. Participants showed the awareness for “dialogic reflection” where multiple perspectives on a situation were clearly shown. We cannot infer such awareness from one participant in low participation and low change segment as the objective was to complete the program quickly with little reflection. For the remaining participants where the precondition for learning was satisfied, it can be inferred clearly from the data that the objective was to take inspiration from others’ practice and develop detailed understanding.

#### *Self-verification route to identity formation*

As mentioned in the self-verification part of identity, an individual behaves in a given situation depending upon his/her perception of the shared meaning. In a given situation, an individual compares the culturally prescribed identity standard with the perceived situation and behaves in a manner to reduce discrepancy either by altering the situation or by creating new situations. In this part of self-reflection, individual participants’ internalized role expectations that were developed due to their role as a self-directed learner expects them to be critical about credibility of new program. Hence, all the participants assessed the reliability and validity of the program through different lenses; some considered it synonymous to institutes’ reputation, some assessed it by crosschecking with expert teachers, and some agreed with the evidence (videos and pictures) given in the program itself.

*“this [training content] knowledge....and there are many parts...videos...case studies...photographs...which is authentic...if I just say about things...they might not be real...but when we had so many proofs...we can even contact them through mobile...then the person [expert teacher] says that you can ask anything at any time through phone..”*(SR1)

*“Photograph....because they might have been taken during real time when they [expert teacher] might be doing [the activity], whereas video is specially made...so from that you get to know like this has happened....although in video they say it is like this... I like photographs more.”* (AD)

*“And when I came to know about SETU that it will be conducted by IIM, I felt very proud about it... as IIM is a great institution and when they guide you, certainly you gain so much knowledge. I liked it very much.”* (RK)

Likewise, the second identity, learner’s identity, was manifested in adopting different approaches like following the given sequence of theory, case study, reflective questions, videos, and pictures or skipping some part or following different sequence to complete the program.

Though the structural components of the program had affordances to keep the participants engaged with the material, the degree of engagement was dependent upon the individual. During the interview, participants reported their motivation as to what kept them going throughout the program. This engagement was also dependent upon the precondition for learning i.e. if the context of the participant was different from that of the content, the motivation to be involved in program would be less. In this part, participants acted out learners' identity by following the role of learner; the engagement varied with the salience attached to this identity.

*“Because in the first one....shala sushasan [school governance], the theoretical questions were there....where had to think that what all can happen and what we can do....after thinking this....we have to answer and in the last one...infrastructure...you are sure... to bring more things [pertaining to infrastructure] what to do....so we were aware only of the idea so the answers can be given faster.”(AD)*

*“I took a lot of interest in the first module where I took a lot of time also, I took approximately 2 ½ months. It means where we had problems we took more time, where we have least problem we take less interest... like you must have seen our school has infrastructure that is among the best, in this there were a lot of problems in case study also [related to infrastructure] but we took less time.”(SR2)*

Next comes the identity of assessor i.e. identity assessing impact on learning. After going through the program component, each individual developed different levels of understanding of how various parts of the program content helped in enhancing the understanding. This was inferred through the responses of participants as to what was the role of case study, videos, and pictures in the program. Depending on the assessment of the efficacy of program components in improving understanding of theoretical content, the strategy for completing the case studies and respective questions was modified. For instance, participants who believed that videos are not a true representation of case study skipped them and focused more on pictures.

*“First [I] used to watch video, then article and at last case study...this is the approach...if we talk about reading, if it is a person's hobby, he would read it deeply and then give answers but who doesn't have that hobby, will even try to give answers without reading. Reading is mental process and when you read any book apart from some interesting novel, you get tired after reading 4-5 pages. But in video, people see to that with interest and then read article and give answer, they give better output.” (RK)*

*“don't look it from the perspective of administrator...I can tell you from the perspective of trainee...when I don't have sufficient time...I'll see only pictures...if I don't want to watch video...even when I should... but due to time constraint...I cannot do it...but after seeing the pictures, I may get inspired...I will watch video too... so this is like window shopping...while seeing, if I find something good, then I will enter into the store...and see it thoroughly... ” (SR1)*

*“Yes...trust [pictures establish trust]... and in video...what will happen like for example if I have made a video....I may not have made it of the regular class....I made it in a particular setting... sir [school teacher] teaches every day in the same way but I [program participant] haven't put that video....I [he] have made a special video and kept....so it cannot be called as proper video of the case study.... ” (AD)*

In this component of self-reflection of program, participants showed the collective identity of a self-directed learner who assesses the credibility of program, learns the content, and then assesses the result for themselves. This process also gives rise to queries of different types of queries varying from basic technical questions about how to upload a video to queries regarding contextual applicability of certain case studies.

*“people [other participants] faced problem in uploading videos...so took help....many people shared their guidelines... I made video [project component] for many people [other participants of program]...by going personally to them” (SR1)*

*“Mostly the discussion was about the case study. After reading if I asked any doubt in the group related to case study, 4-5 members replied ... for example one teacher of Ahmedabad used one online software on the computer and its price was Rs. 6000/- to Rs.7000/-... I had asked for its feedback in Valsad group... They said that they had tried and the font doesn't run properly and it is good up to six months but after that we don't get anyone for maintenance...so this was the nature of conversation.” (BH)*

From the perspective of communities of practice, given the affordances to facilitate community of practice, these queries should have been raised and negotiated in public domain, but that is not the case as identities of participants are also shaped by social structure.

## **6.2 Social structure route to identity formation**

### **6.2.1 Cultural context along with the density of ties of particular identity shapes nature of interaction in emerging community.**

The second route through which identity is informed is through social structures. This stream acknowledges that individuals have multiple identities that are organized hierarchically

on the basis of salience. Salience is the commitment reflected for a particular identity that is dependent on the density of ties, number of people an individual is connected through a given identity. Connectedness increases the salience for a particular identity. The role occupied densely will have more salient identities associated with that role.

In high context (HC) cultural discourse where questioning in the public domain is considered offensive and disrespectful, the salience attached to the self-directed learner's identity that wants to solve query(s) and negotiating it among participants seems to be less as compared to the identity of a role player of a school principal who wants to resolve the query for better understanding and functioning of school. The participants as school principals are connected in a bureaucratic network of the public school system that requires them to respond to various requests on a daily basis without questioning the directives.

*“we have a school WhatsApp group of pay centre<sup>10</sup>.... \*\*\* pay centre...it's for administrative purpose...we get all the circulars coming from government for school because everything is becoming paperless....so we get all the government circulars and notices in WhatsApp group and we have to implement it.....government should legitimize this WhatsApp group....if anything is received on the group it should be considered received....And if I reply on that group, that should also be accepted...” (GDH)*

*“I have 4-5 groups of HTAT...one is this \*\*\*...Somabhai and I are part of this group...school with numbers...so this group...second group is \*\*\* district...all the HTAT of the district...earlier I was at district... so I'm associated with this group also...and next is state group...there also I'm associated..” (SR1)*

In this situation, the salience attached to identity of role player is high and the behaviour reflected is such that it should reduce the discrepancy between expectation of critical self-directed learner and role player. So participants started interacting in small groups and dyadic structures, especially with expert teachers, and other participants to resolve the query. This “risk averse” identity was exhibited by all the participants, irrespective of their expectation and objective for themselves in the program. This tension was anticipated in our fifth proposition.

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<sup>10</sup> Pay centre schools' principal manages salary and administrative tasks of all the schools under it. This include processing teachers' salary, leave management, salary upgradation, student scholarship, material distribution, and deputation of teachers.

*Proposition 5: As the participants bring with them the identity of a role player in the lower levels of a bureaucratic hierarchy, which encourages passive learning or vicarious learning, the demands made by an online community to become an active learner are likely to lead to tension between the two roles.*

The difference that facilitated the change in their leadership behaviour was in the corresponding nature and intensity of interaction they had with other participants of the program along with their school teams. In principle, all the participants of the study interacted with the other actors in their networks; some of these actors are participants of the program, the nature and intensity of interaction varied for participants who exhibited high change versus low change. From the data, it can be inferred that these interactions and self-reflection shaped the identity of the participants. This, in turn influenced both cohesion and intentionality affecting the behaviour. The overall change in identity as to whether they followed a peripheral identity indicating low participation or inbound trajectory indicating high participation was verified through the changes that were implemented in respective schools over a period of one year, as reported by the teachers. Since the interviews were conducted in April 2018, one year after the program started or eight months after the program ended, almost one full term was available with the schools to implement and assess new activities.

### **6.2.2 Intentionality and Cohesion interacting with identity**

**1. Apprehensions of trust in open groups curtailed interactions to small groups through direct contact.**

**2. Reciprocation of help & support directed nature of interactions and involvement resulting in a feeling of community.**

Henri and Pudelko (2003) explained cohesion as the strength of social bond in the group. Intentionality, on the other hand, was explained as the objective behind creating a group. There is a temporal aspect associated with both cohesion and intentionality. Intentionality becomes more concrete with explicit declaration of objective behind organizing a community and it gets formalized with selection of participants, communication tools, creating environment for resource sharing like website or databases, and adopting rules of operation. Cohesion, on the other hand, can be characterized through “involvement, assessment of mutual help and support, sharing of common meanings, and affirmation of common identity” (Henri & Pudelko 2003, p. 477). How these concepts are applied is discussed next. On the basis these two concepts, a

virtual community can be categorized as one of the four types – community of interest, goal-oriented community of interest, learners’ community, and community of practice.

Since the online professional development program was mandated by the state government, the participants were required to attend the program, and so their intentionality was circumscribed. This aspect of intentionality was influenced by the risk-averse identity of participants where they selected members with whom they discussed and negotiated the practice. Largely, these members are part of existing groups at local level – school, pay centre or block. Apart from selecting other participants, people in the vicinity like family members and school staff were selected to discuss different aspects of practice/case studies. The mode of communication for interaction was either face-to-face discussion or direct calls. Even when participants were part of some common “WhatsApp” group that was created specifically for this program, discussion was not conducted in public domain where other members of that group could follow the responses to query(s); it happened either through personal message, direct call, or personal meeting. Participants who were interviewed strongly believed that interaction involving clarification, question, and suggestion should happen only privately. The reason cited for such behaviour was the apprehension that their intention will be misinterpreted by others which could affect their personal and professional relations. For the same reason, participants ruled out any discussion on Facebook group. Data also showed that “WhatsApp” group was made at different level for official communication of notices and government orders. The flow of information is majorly top down and any query is resolved with personal communication.

*“what would they [other online participants] understand...if we don't know other person... he don't know me...and if I give any negative comment then what will he think of me...he do not know me... because of one answer he will come to conclusion that I'm such and such a kind of person, but here they know me very well [personally]...we have met many times”*  
(RK)

*“Yes, it [WhatsApp group] was made for Setu talim only... When we took talim [training] in DIET \*\*\* that time saheb [officer] suggested us to make a WhatsApp group. So this group was made for SETU talim only.... We used to share case study which was liked the most...but no discussion.”* (KD)

So, almost all the participants showed this apprehension that open discussion can be misinterpreted and preferred direct interaction. These interactions remained in close groups



where participants knew other actors in person. In those cases where query had to be resolved with an expert teacher, dyadic interactions through direct call or one to one discussion happened supporting the first proposition:

*Proposition 1: Based on the familiarity of the participants with offline modes of interaction in the conventional onsite training model and the cultural impregnation of communication style, it is likely that bounded interactions, as illustrated by dyadic interactions, will characterize the emerging community.*

Participants followed similar rules in contacting participants or other members for discussion about case studies of program. Their inner circle of interaction varied with the objective as to whether they wanted to develop detailed understanding or complete the training program like other programs (*“physically present, mentally absent”*).

*“One principal of the nearby school was not interested in completing his training as he was not having that much time.... He has a shop in the market, so in the evening when I used to go to buy vegetables we used to sit and discuss....He was not interested in completing but I gave him some tips, so that it gets completed in limited time.”(GDH)*

*“I find those [questions] to be very interesting...means...if anyone has not developed understanding in any area...their they [questions] will force you to develop detailed understanding by going back to case study... .if anyone has not developed understanding...then they have to go back...they are very important to get [hold of]understanding and should be there [in program]”(SR1)*

The second dimension, cohesion, can be understood through involvement of participants, assessment of mutual support, and display of common identity. Participants interacted within their close circles to varying degree that can be categorized into high and low involvement depending upon the nature and degree of interaction. In low involvement, the interaction was minimal with other participants of program and also within the inner circle of teachers and family members. In a few cases, occasional mention about family members was noted but there was no discussion. For example, in two cases, the spouse of the participant was a government employee with whom the discussion was limited to when and where the orientation program is scheduled. In another case, the participant reported that discussion used to happen but was not able to support it with any example. High involvement was noted where participants’ intention was to clarify query, to discuss case study, and to build relationships. This high involvement

resulted in mutual assistance in alleviating anxiety about the program, clarifying misunderstanding, convincing others about the benefit of program, and assisting with technical queries.

From the above discussion it is apparent that the emergent virtual community did not show the feature of strong intentionality and cohesion characterizing communities of practice. These were captured in the second proposition.

*Proposition 2: Following from the above, it is likely that open discussion and debate characteristic of strong cohesion, will be less in evidence and hence, it is likely that the emergent community even by the end of program will not show the features of communities of practice.*

These dimensions match closely with the goal-oriented communities of interest based on the framework given by Henri and Pudelko (2003). The categorization of different virtual communities is explained on the basis of context of emergence, activity, and learning and identity. These aspects were result of interaction between emerging intentionality, cohesion, and identity.

- a. Context of emergence: this group was created externally with the mandate to disseminate the identified practices to inspire school principals to initiate change in their respective locations. The group had contact details of expert teachers in the case studies and they were added in the Facebook closed group to facilitate interaction with other members.
- b. Activity: members discussed, though in small groups, and especially in dyadic structures to negotiate the meaning of practice. This negotiation helped certain participants showing high involvement to replicate or appropriate the case studies in their schools. The activity aspect differentiates SETU program from “learners’ community” where the reification results in publication of individual productions. In case of SETU program, reification happened in small structures which were not published in public domain.
- c. Learning and identity: the participants closely associated themselves with SETU program but lack of public negotiation of practice did not instil the intention of collective learning. So, individual goals were developed further directing them to either finish the program as early as possible with superficial understanding or to

develop detailed understanding of topics of interest. This variation in goal resulted in different types of identity trajectories like peripheral and inbound.

From the above discussion, the third proposition gets supporting evidence with dominant peripheral and inbound identity trajectories in the program. This high and low involvement can be traced to following the inbound and peripheral identity trajectory, respectively. Data clearly showed that participants who implemented new practices or showed an inclination to implement new practices supported other participants and interacted with their staff members regularly. In a few cases, the program content was shared with colleagues and the feasibility and challenges of a given case study discussed at length. This was triangulated in separate interaction with teachers and staff members, confirming the inbound trajectory. In cases of low participation and low change program, participants showed less involvement and support, subordinate teachers were unable to recall any instance of discussion or change in school governance. This corroborates the peripheral identity trajectory.

*Proposition 3: Peripheral and inbound trajectories are likely to dominate identity negotiation, with insider trajectories playing a secondary role.*

As mentioned above, some participants were part of different WhatsApp groups at local level like pay centre and district among others, though most of these groups used to share information without any discussion or negotiation of practice. So, the membership in these groups is equivalent to being a passive recipient, hence, it is difficult to call them boundary trajectory. In a few cases membership in different groups helped in initiating discussion of case studies in different circles.

With respect to insider trajectory, the participants belonging to high participation and high change group showed substantive evidence to become expert teachers with an understanding of the variations at school level that require contextualization of practices. Still, it cannot be said that they followed insider trajectory, as would have been the case if they had adapted an existing case study to suit a different context. So the fourth proposition holds true that boundary and insider trajectory are likely to be minimal.

*Proposition 4: Boundary and outbound trajectories are likely to very minimal, and if present, are unlikely to influence community formation.*

During the interviews, almost all the participants reflected that in spite of similar problems in government schools in the state, the solutions require appropriation by the teachers

at local level. This was clear from the response of the participants irrespective of the action taken at school i.e. school principals from all the quadrants showed this understanding. In the context of SETU program, this aspect of realizing multiple perspectives for similar problem was facilitated through the artifacts like case studies, videos, and pictures.

*“If the same problem is there in the other school, it is not necessary that both the teachers will resolve that problem in the same way. Both will bring the solution in their own way. Everyone has his own way to work, his own capability to work or to take risk. It is not same every time. They must have seen the case study or video or photograph but it’s not necessary that they will work the same way.”(GDH)*

*“even now I have this understanding...that all these things are good in giving direction...and you have to do it on your own...because...I also mentioned that the greenery which we are able to see...this may not happen in another school...even if I were there...then also this may not have been possible...because the context is different...right...” (SR1)*

*“Problem is same but the solution has to be implemented by looking at the local situation....for example children in hilly areas or tribal area....they have to come from far of places...that is the problem....here I have a problem where parents are unaware....children have to come from places that are near to school...but they might to their uncle's place....so all the problems are different....We can go in particular direction [with case study solution]....but a straightforward implementation might be possible only in 10,20 percent cases only....not possible for all the cases....the problem might be similar, but its solutions are different..” (AD)*

Participants agree that negotiation of practice in public would have helped but they discussed these issues in their small circles or with their staff members due to trust and contextual familiarity. Hence the members of emergent virtual community, goal-oriented community of interest, showed awareness towards multiple perspectives i.e. dialogic reflection with the help of program artifacts but discussions were limited to small circles. This supports our sixth proposition:

*Proposition 6: The quality of reflection is likely to be moderated by the nature of the emergent community. Thus, the emerging community is likely to be characterized by high levels of dialogic reflection on the basis of the artifacts, but lower levels of sharing with a view to engaging in collective reflection.*

### **6.3 School as learning organization**

#### **Program participants who were able to impart features of learning organization in respective schools reported high change in leadership behaviour.**

##### **Low participation and high change**

As mentioned earlier in this analysis, participants exhibited identities of self-directed learner and developed a precondition for learning or participation in program. When the context of a participant's school matched with that in the program material, participation was higher and when it did not match, participation was lower. Difference in school context formed the dominant reason that came out in the interviews with participants of low participation and high change group. In the first school, most of the students belonged to families of migrant workers with limited understanding of local language and culture. This was cited as the main reason for not spending more time online. What was more interesting was that the principals shared the case studies with teachers and discussed them in great detail to assess their applicability to their own schools. Teachers gave their suggestions to make them suitable to the school's context and then applied some aspects. In the interaction with teachers, a number of innovative practices were mentioned that were implemented in the one year that had passed since the program. Since the context of school was different, teachers participated and made new material and practices to engage students and also to increase their attendance, for instance, in order to explain the process of election and cabinet ministers, all the teachers organized an election activity at school where students had to create parties and contest elections. A committee, similar to cabinet ministers, made up of only students, now takes care of school management. The principal clearly showed intention to submit this innovative practice to become an "expert teacher". The second school also showed similar feature where teachers implemented new activities by discussing them with principal, for instance, kitchen garden, maintained by students only, is made in school compound and vegetables were used for mid-day meal program—this was also derived from one of the case studies in the program material.

*"My subject is social science...So to teach that we discussed with sir [principal]...and taught the election process....we made three parties...discuss the cabinet.... right from making their symbol... campaigning, we had taken the students from V-VII and they were more than 300 students, we gave them the time to campaign in their class and all that, then we had election counting for votes... out of 375 children only 3-4 votes were disqualified so they learnt it well....."*

*we discussed the case studies....sir got that training and we also saw many videos...sir discussed and we modified some cases to our needs...”(SR2)*

As mentioned in the literature review chapter, change in organization happens when it shows the feature of learning organization and leader plays a crucial role in this aspect. When the leader shared the case studies with all the teachers in school and discussed the nuances in detail for implementation, he/she essentially broke boundaries and appealed for collective action. This was appreciated by subordinates which became apparent in their feedback where they gave credit to the principal for inspiring changes. Such a gesture indicates that the leader is able to initiate steps that facilitate the journey towards learning organization.

### **High participation and low change**

High involvement behaviour was present in the cases that were categorized as high participation but low change. Along with online presence, these participants interacted with a number of actors like participants, experts, peers, and in one case staff. In the interaction with teachers of corresponding school, it became clear that there was tension between teachers and small groups that had been formed between those who favoured change versus those who resisted change. During the combined interaction with teachers while discussing recent changes at the school, tension was palpable between teachers as one group of teachers described the changes as:

*"...those changes are also brought which should not have been implemented...this school is running for last 30 years without these changes...it means that you were not coming on time earlier!". (RK)*

This was the response of one of the teachers who worked as principal in the same school for 29 years. With the HTAT policy, a new HTAT qualified principal joined in 2014. With the new changes, groups have been formed favouring and opposing the changes. Teachers were well aware about the new practices implemented in school for both teachers as well as students. It was changes related with teachers' working style that seems to have created a rift between them resulting in "poor" change in leadership. Another peculiar aspect for this particular principal was his prior experience. This principal worked for 11 years in private schools and clearly pointed out that authority available with government school principals is lower. This participant discussed different aspects in details with other actors.

Similar trends of conflict were noticed at the other school in this segment. The difference here was that the teachers were largely unaware of the program, perhaps the reason was that the principal did not discuss aspects related to the case studies in detail. In the interview with the principal, it was mentioned that discussion with staff members was minimal. Two new practices were implemented, as reported by principal, but teachers were not familiar with one of them and for the other there seems to be a tension about the specific subject. Though the participation of the principal in the online program was high, the discussion with different actors, especially staff was superficial in nature with only the mechanics being discussed. Discussions, however, happened between peer HTAT teachers and participants of the program which usually happened during official meetings.

*“we wanted to work on English of students....so this [new practice] was started....some teachers objected for English subject...but this is important...M (researcher): okay...so how it got resolved....R: everyone knows that English is important...if we want to improve knowledge of students...english is compulsory...parents' feel good when their child is able to spell English words...”(KD)*

In these cases where tension was visible between subordinate teachers or they were not included in the discussions, it can be inferred that leader is unable to infuse the feeling of collective action among the team and organization fails to understand the necessity of change. This inhibits organizational learning which was reflected in the feedback given through assessment of leadership behaviour after the program. Hence, the learning from the analysis can be summarized as - Individual reflection is a necessary element but not sufficient to bring change at school level. Facilitating organizational learning within school community was a necessary element for change orientation.

## **6.4 Summary**

This chapter explained the major themes that emerged from the analysis to explain two major questions – 1) interaction of three concepts – identities of participants, emergent intentionality, and nature of group, cohesion. Interaction among these concepts describes the nature of virtual community; 2) how interaction with multiple actors influenced the change in leadership behaviour.

Participants of the program interacted with the design elements in a predictable manner by evaluating the reliability of the content through measures like photographs, videos, and contacting the expert teachers to assure themselves about the authenticity. Another aspect, contextual applicability to own school was also evaluated. This formed a learning condition that had a strong influence on the motivation and strategies of the participant. While interacting with the artifacts of the program, participants learned and simultaneously assessed the learning, so there was a constant interaction between learners' identity and identity assessing the impact on learning. This interaction helped learners to infer which artifacts were more effective to reach the respective goal of gaining detailed understanding or completing the program quickly. Except one participant of low participation low change, almost all of them showed interest to develop fair understanding. As these goals were set by individual themselves, they were subjective in nature with the notion of detailed understanding in the participants' mind. So to reach their individual goal, participants interacted with various actors around them. These interactions shaped the nature of emergent community.

The nature of community matches closely with the features of "goal-oriented community of interest" on the basis of context of emergence, activity, and learning and identity. The community emerged due to the external mandate where participants of the program were selected externally by the state. This fact along with the structural conditions operating in the high context cultural discourse curtailed interactions to small circles. Even in small groups, discussion element was absent and query (s) was resolved through direct interaction eliminating the risk of misinterpretation. So, the risk averse identity of participant got more salience than the identity of SDL who would have appreciated solving query in public that increases the chances of resolution. With respect to the nature of interaction, participants who wanted to gain detailed understanding exhibited manifestations of high involvement by discussing case studies, resolving technical queries, and alleviating anxiety of other members to reach their own goal. The nature of interaction was limited to discussing mechanics when the objective was to complete the program quickly.

The second aspect noted in this chapter was how interaction with emergent community helped in changing the perceptions of leadership behaviour as reported by subordinates. Participants of the programs interacted with a number of actors who were members of the program, colleagues working as principals in other schools, school teachers, and family



members. So, though the emergent community was bounded on the basis of membership, the interactions were not bounded. These interactions could have effect on the participants' learning which cannot be separated out. Although, in absence of rich discussions with other program participants it was fair to assume that the effect on learning would be more systematic where interaction was frequent and requires working on daily basis as compared to the cases where interaction was not a systemic element and did not have any specific direction. Another aspect that favoured the argument of relatively higher impact on learning with subordinates than with other actors was the awareness of context and direct role in influencing outcomes i.e. subordinates were aware of the school's context and can directly influence implementation of any new activity. Interactions with other actors outside the school can be normative in nature and may not have this aspect. So, in the absence rich discussions negotiating the practice among program participants, the perception of leadership behaviour can be influenced more by discussion with actors in close vicinity, especially subordinates, compared to the virtual community bounded by membership.

Since the objective of the program was to influence the leadership behaviour and more specifically to promote change-orientation, this required experimentation, adoption, and adaptation of new activities. Analysis showed that schools work similar to organizations where changes were accepted when it exhibits features of organizational learning. Schools belonging to 'low change' segment did not show features of organizational learning with 'low participation low change' group maintaining status quo and 'high participation low change' group could not translate individual learning to organizational learning as evident from the tension among teachers. Schools from 'high change' segment showed exhibited features of organizational learning where the need and applicability of new activity was collectively judged by teachers. Even in the 'low participation high change' group, teachers were taken on board before implementing new changes and they helped in contextualizing external practice to suit the local need. 'Low participation', in such cases, was attributed to difference in the curriculum content and context of the school.

## **Chapter 7: Discussion & Conclusion**

This chapter discusses the results described in the previous two chapters. This discussion relates the results of this study with previous research and also highlights the study's contribution in the field. The last part of this chapter discusses the implications for policy makers and practitioners.

### **7.1 Impact of professional development program**

This thesis assessed the online professional development program developed for public school principals implemented in the province of a developing country with the objective of influencing leadership behaviour positively. Many researchers have explored the grounds of online programs but most of them have been focused on improving content knowledge in subjects such as Mathematics and Science; enhancing efficacy of administrators; influencing pedagogical practices and learning new technology. Our review indicates that the use of online professional development programs to influence behavioural aspects like leadership is rare. In addition to this, the literature points out that assessment of the online programs is largely based on self-reports, collected just before and just after the program. These are critiqued on the grounds of immediacy effect that influence the participants' response positively towards the program.

With this study, we present robust evidence for program effectiveness that addresses the common concerns raised in literature. Through structure equation modeling we found that the treatment group showed significant changes in "change-oriented behaviour" as compared to the control group. This analysis was conducted on the subordinates' response (instead of self-reports) collected four months after the program was completed. This would dissipate any immediacy effect as subordinates were asked to fill the survey by considering the changes eight months after the program began. As expected, only the change-oriented behaviour is positively influenced and not the task and relations oriented behaviour. Research in a similar context had revealed that many tasks like new enrollments and mid-day meal program had been institutionalized with the help of community over last two decades. Thus, it is to be expected that change in task and relations oriented behaviour would be less significant. A second important reason for the impact in change-oriented behaviour is that the program was designed only with change in mind—task and relations oriented behaviour were not the main objectives of the curriculum that was developed.

We examined change-oriented behaviour as a whole and also the sub-constructs to find out the ones that are impacted most. Among the five sub-constructs, three - “encouraging innovation”, “explaining need for change”, and “encouraging collective learning”- showed statistically significant improvement in relation to the control group, and two – “envisioning” and “monitoring external environment” did not show significant change. This is an indication that participants of the program may have experimented with new initiatives and encouraged subordinates also to experiment with new ideas. The aspect of collective learning shows that the program was able to encourage the feeling of team building in the leader’s behaviour. This is reflected in the responses of the subordinates. No difference in envisioning and external environment indicate that perhaps participants did not give due attention to long term vision about what the school can achieve and who could be the possible sources of threat or opportunity. Analysis was controlled for gender, total experience, age, caste, and educational qualification to explore the effect on leadership behaviour due to these factors. None of the control variables show any significant difference between treatment and control groups.

This study presents new evidence in the domain of online professional development program. Our review indicated that most of the studies tried to positively influence content knowledge, or pedagogical practice by focusing on attitude or skill. It is rare that a program has tried to influence the behaviour; this study has examined this phenomenon and also measured program effectiveness through subordinates’ response, after allowing for a significant period of time to elapse. This approach is similar to some studies that have examined programs trying to influence teachers to adopt or try out a new pedagogical practice. For instance, a recent study by Edinger (2017) noted positive results of online professional development in influencing pedagogy of teachers working in the gifted education domain. The model in that study was based on five aspects – practice, attitude, collaboration, content knowledge, and goal effectiveness. The assessment was rigorous in that it tried to assess the sustainability of the change by evaluating the effectiveness six months after the program ended. These results were also positive but they were based on self-reported data. Another study by Dana et al., (2016) reported adoption of practices that require teachers to see activities around them through different lenses in Mathematics. They also found positive results and noted that online programs are helpful in inculcating principles that support conceptual and procedural knowledge.

Such results, however, have been reported for a long time. For instance, Schaverien (2003) showed that online programs can be used to improve the theorization of learning in science and technology. He noted that “research-based-e-learning” can positively improve learning theorization. The study found that participants reported gains in their understanding, developed better understanding and articulation of the learning. A few participants also reached a stage where the learning was significantly developed as they realized how to learn, what they knew currently, and what was missing.

What is significant in our study is that it provides evidence that a program built on the basic pillars of the “third space” can be used for professional development of educators through the online medium. The “third-space” was premised on the usefulness of teachers’ practices that were known to be good and had worked. The randomized control experiment gives robust evidence that such programs are effective in bringing about change even in aspects that are difficult to measure, such as leadership. Existing literature presents very few studies where “third space” has been used for professional development of in-service teachers. Zeichner (2010) mentions many pre-service programs that involve a combination of practice and theory in some form in the program curriculum. The results presented in this thesis also provide evidence for a particular view of change—that adoption of a practice is the first step indicating behavioural change (Guskey, 2002). Change in attitude and belief follows when the new practice gives promising results to teachers.

## **7.2 Discussion of case study analysis**

The literature on online professional development program points out that the majority of programs are built around the concept of communities of practice even when the explicit objective is to develop the pedagogical practices of teachers, content knowledge of teachers, improve students learning, or to promote the development of CoP in students (Dede et al., 2009). This is done on the assumption that when teachers negotiate practice, they inherently learn and implement the learnings in their respective areas (Barab, Barnett & Squire, 2002). Though CoP is highly desirable, can it be developed when the contextual conditions regarding hierarchy, power distance, cultural conditions change? When these conditions that are usually taken for granted in western contexts are changed, what effect does such change have on virtual community and how is learning impacted? These are the literature gaps that are addressed in this thesis. So, understanding these two aspects was the prime focus while trying to study the virtual

community in the program under study— first, how does a virtual community emerge in a developing country context with high power distance, severe hierarchies, and high context cultural discourse; and second, how does participation in such community interact with individual learning to influence change in leadership behaviour. Both these aspects seem to be missing in the current literature that makes the contribution of this thesis significant.

Findings related to the first question indicate that the taken-for-granted assumptions regarding negotiation of practice in the community do not hold when contextual conditions change. As pointed out by Hofstede (1983), at a macro-level, India ranks high in power distance and uncertainty avoidance. While this will certainly show variation in different microsites, it is reasonable to assume that this cultural condition, in the context of an organizational structure, would result in a situation in which debate or open discussion are affected. This is clearly evident in the nature of interactions among participants of the program who interacted within close circles in spite of being aware and/or being passively active on public forums of the program. Nishimura et al (2008) noted that in HC cultural discourse, it is considered impolite and offensive to ask questions as people value diplomacy above truth in their conversations. This was visible even in the small groups created by participants themselves. In these WhatsApp groups, primarily information is shared, and discussion elements downplayed. When a query is raised, either it remains unanswered or answered through personal communication. Stryker (1991) noted that identities are formed through social structures. The participants being the principals of schools, are part of the bureaucratic hierarchy that operates through top down information flow. This is a clear indication that the usual affordances to facilitate community of practice in western countries operating in low cultural context discourse do not work in the context in which the principals under study were situated. Due to the absence of negotiation of practice in the public domain, the emergent virtual community in the given professional development program exhibited features of “goal-oriented communities of interest” (Henri & Pudelko, 2003).

Participants’ behaved in a predictable manner in matters of becoming a self-directed learner and learning through individual reflection. They created a condition for learning before moving ahead i.e. participants evaluated the program’s validity and reliability to check the authenticity of the material and its applicability to their own contexts. This aspect is very important as it characterizes programs meant for experienced adults (and not inexperienced principals). The former are quite aware of their working environment and would evaluate

learning from the applicability lens; the latter group may not have such a detailed idea about their work context. Creating conditions for learning can have a direct impact on the strategies adopted by learners for involvement. During the program, various identities emerged that can be explained in the behaviour of self-directed learner. These identities evaluated the condition for learning, entered the learning process, and then assessed the results for themselves.

At each stage, identities interacted with the design elements of the program and simultaneously took decision on actor with whom query(s) can be discussed i.e. whether dyadic interaction with expert teacher, trustworthy actors is sufficient or interaction with school teachers would be more helpful. For instance, with regard to learner's identity, case studies were noted as a significant contributor to improving the understanding of theoretical content. Participants had a unanimous opinion that the world of practice, reflected in the case studies in the curriculum, contributed to their understanding to a large extent. Without this component, each would have their own direction of understanding developed on the basis of abstract theory. For example, the understanding of the concept of shared leadership might be limited to delegating work to teachers, but with the exemplary practice, the boundaries are pushed to include community members and even students. Zeichner (2010) noted that teachers are often dissatisfied with the abstract nature of knowledge since that makes it difficult to apply the knowledge. While learning, the learners' identity would require the raising of questions and their discussion publicly. But the risk-averse identity of a member very low in the bureaucratic hierarchy would discourage questioning in the public domain. As Stryker and Burke (2000) suggested, in such cases, individuals act to resolve the discrepancy or create new situations. Here, participants resolved the discrepancy by discussing their queries in small circles, through mechanisms that were private. It was also noted that salience is associated with the density of interaction of a particular identity. Since principals are members of multiple groups, both official and unofficial, which encourage resolving queries through direct contact and the use of social media groups only for sharing information, the salience attached with the risk-averse identity is more as compared with that of a self-directed learner. So the query would be discussed with the members of a trustworthy circle mainly through direct communication. Here it is important to note that practices from similar working environments are crucial as they inspire the participants to take initiatives in their own schools. If the practices had been from some other contexts, it would have been easy for the participants to discard them as unimplementable on account of different

structural conditions such as poorer infrastructure, non-availability of support staff, and lack of parental awareness.

The first design element discussed above was interaction with the practice presented in the form of case studies. The second design element appreciated by “learner’s identity” is that of reflective questions and formative assessment enabling individual reflection. Learner’s identity interacted with the “identity assessing impact on learning” to reflect the depth of understanding. Participants shared their views on how reflective questions helped in developing a better understanding about the topic which otherwise would have become a simple reading activity. When the assessment activity indicated that understanding needed to be revised, the participants were motivated to refer to the content again and/or to discuss their understanding with other actors in their closed circles.

These factors indicate that at an individual level, design elements can evoke the expected response only when the content’s reliability and applicability is assured. Thus online programs should include various mechanisms through which participants can convince themselves about these aspects. With regard to interaction with other participants of the program, the findings clearly indicate that interaction can be facilitated in small groups and dyad structures, especially with expert teachers. In order to facilitate negotiation of practice in public domain, it is essential to overcome this structural barrier. As one participant suggested, this can be facilitated through a one or two-day exercise where people get to know each other through interactive sessions to build trust. Questioning can be promoted through different activities to encourage public discussion. This can be an attempt to increase the density of the identity attached with the self-directed learner. Currently, this identity gets lower salience compared to the rise-averse identity that a minor functionary in the bureaucratic hierarchy tends to adopt.

The first part explains how the “goal-oriented community of interest” (Henri & Pudelko, 2003) emerged in SETU program in India characterized by high power distance and hierarchy. The second part focused on understanding how interaction within community interacts with individual reflection to influence perceptions of leadership behaviour. During the program, participants’ interaction was not limited only to SETU participants, they interacted with principals of other schools, teachers of other schools, teachers of their own school, and family members. All these interactions could have an effect on participants’ understanding which cannot be segregated to SETU and non-SETU actors. Since the focus of the program was on

leadership behaviour, especially change-oriented behaviour, actors within school domain becomes most important as they observe principal's behaviour on daily basis. Due to this reason, leadership behaviour was reported by subordinate teachers and interview was conducted separately with them. The findings clearly indicated that changes are favoured when the school exhibited the features of a learning organization (Ulrich, Jick, & von Glinow, 1993). Among the four quadrants, schools belonging to 'low participation low change' noted a few changes that were associated more with the teachers than the principal or school i.e. the teachers took the initiative and implemented them in isolation in their own classrooms. This was expected as the principal's learning seemed to be superficial. Lack of coherent initiatives supported the status quo in these schools. School reflecting high change clearly showed the features of learning organizations starting with the crucial role of the principal in sharing the learnings of the program with teachers, taking the initiative, and urging teachers to help in contextualizing the new practice. Garvin (1993) clearly noted that the boundary between the groups has to be broken and that knowledge had to be shared with members in order to bring them on board for change. By taking the initiative, the principals reflected the commitment but this commitment may not be well-founded with subordinates if the feeling of collective learning is missing. This happened in the case of high participation low change schools. New initiatives were taken but they were seen as forced and unnecessary measures. Change in any aspect related to routine work can be difficult for people develop habit through adaptive learning. Ellström (2001) noted that change in routinized tasks are difficult and requires significant convincing. In the context of school leadership, this was clearly visible from the study that in spite of signs of individual learning, schools where subordinates were not included in the collective learning process gave poor feedback on leadership behaviour of the principal. This indicates that individual learning of leader is a necessary element but the sufficient condition in promoting collective learning in the organization.

### **7.3 Conclusion and Implication**

Third space is a concept that acts a bridge connecting theory with practice. With respect to pre-service programs, several models are operational in various universities with the objective of preparing new teachers for immediate entry; for in-service programs, however, this area is underexplored. This thesis explored a "third space" curriculum and provided evidence for its use in in-service programs targeted at improving behavioural aspects. Such a curriculum was based



on the situated knowledge of teachers who had designed solutions for persistent problems in difficult environments. These solutions were then converted into real-life examples in the form of case studies, which were then linked to theoretical concepts of leadership. The case studies seemed to have helped in improving understanding and also inspiring the principals to try out similar or new solutions in their schools.

We selected an online program for study as such a program overcomes geographical as well as the cost-related barriers that limit classroom programs. The literature on online professional development programs notes two gaps. One is related to the methodology where evidence for effectiveness of such programs is largely based on self-reports even for practice and the other is related to the application of such programs largely for attitude and skill, leaving out the behavioural aspects of change. The findings reported in this thesis indicate that online professional development programs can be used to target not only attitudes and skill but also behaviour. It is crucial to note that the effect can be attributed to both the content of curriculum and the program design. One cannot separate the two. In the program studied, the target of leadership behaviour change was limited to change orientation. This aspect is important for school principals and has been noted consistently in the literature; it is especially important in developing countries where principals in the public system face problems of teacher absenteeism, learning disabilities in students, limited resources, and inadequately prepared first generation learners.

Part of the learning in online program happens through discussion within the virtual community of participants. However, the community that was formed reflected limited negotiation among participants on public platforms. The interactions were confined to smaller closed circles of participants' actors. Participants of countries strongly influenced by a high context communication discourse would not negotiate their practice in public spaces and would prefer to interact only in closed circles through direct calls or one-to-one discussion. Their prior experience with interaction in primarily bureaucratic structures that are premised on top-down communication only, compounds the problem. Hence, while developing a community, only affordances may not work as participant identities are influenced through various social structures. In order to overcome the structural barriers, perhaps a few ice-breaking sessions with open questioning can help in increasing the salience of learning through public discourse. These sessions can be organized at regional centres to avoid the high costs associated with travelling

and face-to-face meetings. However, the feasibility of such initiatives in terms of cost has to be assessed by the bureaucratic system responsible for teacher professional development.

This thesis indicates that the “third space” can be used profitably in in-service teacher education programs, especially in combination with the internet and mobile technologies that have made low-cost large-scale communication possible. However, technology has a few limitations. For example, in a well-conducted face-to-face program, the discussions among the participants are bound to be richer. Nonetheless, given the other advantages of technology, and the ease with which “third space” material can be developed in the form of videos and case studies, a trade-off with more in-depth discussion can be made. With time, perhaps, if the broader communication context within which principals operate were to become more open and supportive of open discussion, the virtual communities of such online programs would also reflect richer discussion. Another implication that has to be pointed out is that a third-space program has to be carefully designed, paying attention to both content and design, and keeping the local requirements in mind. It is necessary that practices should be from similar environments and should have been validated by an independent agency, as was the case with the program studied. .

#### **7.4 Strengths, Limitation, and Scope for Future Research**

This thesis is one of the first study in India where the curriculum was developed in a conceptual ‘third space’ with real time practices of teachers working in public schools. SETU program was delivered online to overcome the conventional barriers of cost and geographical distance to influence the leadership behaviour of school principals. To assess the effectiveness, we were able to collect primary data from the same school teachers about their principal at two times. Along with this, through case study analysis we were able to provide insights on two aspects - 1. factors affecting the development of virtual community in Indian context; 2. when does individual learning translates to organizational learning in the context of school.

The study employed rigorous measures to assess the sustained effects of the program. As the administrative structure of primary education is not very different across states, roles and responsibilities of public school principals are also not very different, we believe that the findings can be applied to other states of India. Though, one can find differences in the cultural context which can influence the findings, hence, caution should be exercised. Further studies can

include other states of India employing similar programs to see how cultural context influences the results.

From the treatment group, there were few participants who did not complete the program. Though we have compared their pre-test leadership behaviour and could not find any significant difference with those who completed the program, there could be difference in their context which forms a limitation of this study. Another aspect that did not turn out as per our expectation was the richness of individual reflection in written form. Participant's responses were expected to be thick description while responding to reflective questions after case studies. But these responses were not elaborate in nature as expected by researcher, due to this, they could not be mapped to respective sub-dimensions of change oriented leadership behaviour. This aspect can be explored by further research that even when the program duration was almost ten times the average time of completion why responses did not have depth and how to improve the nature of individual responses through online medium. Along with this, research is also needed to examine various mechanisms that can increase the richness of the public discussion that can happen among members of virtual communities forming in contexts characterized by hierarchy and high power distance.

In order to answer the question, how individual reflection interacts with participation in virtual community to influence perception of leadership behaviour, we conducted interviews of school teachers with whom principal interacts on daily basis. Though principal's learning would have been influenced through interaction with other actors, there wasn't any specific direction. This restricted us to actors within school which is a limitation of this study.

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## **Appendix 1: Details of SETU program**

SETU is a professional development program designed to influence the leadership behaviour of government school principals. Curriculum of this program is designed by including practices of teachers working in the government schools of Gujarat state. Theoretical content is designed to align with appropriate practice where both of them complement each other to enhance understanding. The program had three modules – Good governance, School Development Plan, and Infrastructure and its effective usage. All the modules followed a consistent design of theory, case studies, video, photographs, reflective questions, and module questions. These design elements of the structure are explained in detail with the example of a topic from first module, shared leadership.

### **1. Theoretical topic**

In a module there are multiple topics aligned with the module theme and also with leadership values. The example given below is of “shared leadership” in the context of school. Leadership in the context of the school—shared leadership

Intention: to achieve academic and non-academic goals through shared leadership by involving all the members of school and community.

In school, all the arrangements should be updated. Program or process implementation requires established systems. Each teacher should be assigned a certain responsibility for which required power to take necessary decisions should also be given. Apart from that, in any program one should be able to incorporate new ideas and take decision.

Shared leadership means allocation of responsibility along with decentralization of power. This would result in a situation where everyone shares accountability of the delegated task. When it happens, then the basic requirement for shared leadership is fulfilled. There is a saying English “power and responsibility goes together”. Responsibility and power should be given together as one without the other is incomplete. This is a necessary condition to develop shared leadership. In school when responsibility is given with power to take decisions, trust develops among teachers. Developing such work culture gives confidence to members.

In order to develop such culture grand planning is not required, and can be developed with small steps for example, if teacher wants to innovate then freedom should be given to do things as he/she feels.

Below are the steps to develop a culture of shared leadership:

1. A work distribution plan can be made at school level with time frame.
2. Distribute the task to staff members along with students and community members.
3. Discuss a possible time frames with allocated members.
4. Task can be allocated to students and School Management Committee (SMC) members also with required power. For example, mid-day meal management, morning assembly, and management of school infrastructure can be done with the help of students and SMC members.

Work outside the school premises can be done in this manner:

1. Engage SMC members and specific task can be given to them along with power. For example, contacting parents of irregular students through SMC members.
2. Involve SMC members in various programs in planning and management.
3. School can be represented by SMC members in front of village community and local government authority. School development related tasks can be done in this way.

Outcomes of shared leadership:

1. Self-confidence increases among staff members and community members.
2. Equal division of responsibility.
3. Everyone gets opportunity to work and take decisions according to their strengths.
4. Everyone is aware about everyone's work which is going on in the school.

Consequences of absence of shared leadership

1. No one is ready to take responsibility which will affect the quality of work.
2. Information is not shared with members which will affect the achievements of goal.
3. School members will not take active participation in work when power is centralized.
4. Different groups can emerge which can have negative impact.
5. If members are not motivated, they will not cooperate or take active participation in school work.

Note: Please read the case studies in detail.

## 2. Case study

These are the actual practices of teachers which were collected and validated independently by a team. The format and details of one of the case study is explained below:

*Innovative experiment title - Shared leadership*

Developed by: Mehul Suthar Rohitkumar

Mobile Number: 75\*\*\*\*\*77

Email Id: [mehulkumar341@gmail.com](mailto:mehulkumar341@gmail.com)

People who helped in activity: School teachers, School Management Committee (SMC) members, and students

School Name and Address: Vidyadham Boru Primary School, Taluka Mansa, District Gandhinagar, Gujarat

### **Description of problem that inspired the innovative experiment**

- As a principal, I was unable to do justice to administrative and educational work of school
- A strong desire to lead the school with good leadership.
- Improve the effectiveness of all aspects of school through better leadership.

### **Details of innovative experiment:**

- Initially I was doing all the work, used to impose my ideas/opinions, wasn't providing others the opportunity to think. Due to this, I was able to see weakness in different aspects of school. (For example, teachers' creativity, realization of responsibility, etc.)
- Afterwards, we started working like a team and used to share everything. Students and teachers were given full responsibility to work on their own. Initially, focus was not given to success or failure and focussed only on the work. (For example, in maths-science exhibition student and teachers think on their own and send their entries)
- Wherever required teachers were made as point of contact along with the full freedom to take decision (for example, different task of "Balmela" were allocated to teachers, deadlines were discussed, and backup teachers were allocated in case of emergency. Such

process is implemented for other programs like “swacch shala”, NMMS, “navodaya” and leadership is shared with teachers.

### **Assessment of implementation**

- Motivation of teachers at work.
- Student’s responsibility and interest in work.
- Observation of activities
- Teachers and students both started giving us ideas and information.
- Observation of work processes
- Discussion with teachers and students.

### **Results achieved**

- Leadership qualities were developed in each individual as per their capability.
- Students are not afraid in sharing and implementing new ideas.
- Teachers need not ask anyone to innovate or adopt any new activity.
- For any program or project, implementation in school became easy.
- Everyone gets information instantly through a WhatsApp group.

### **Status of innovative activity**

- At present, decision is taken by respective teacher, student, and SMC members for activity or experiment.
- Task are being led with strong or weak leadership by teachers, students, and SMC members, but team spirit and accountability towards given responsibility has increased.

If you have implemented any new activity in any of the areas mentioned below please share the details:

Activity related to schools’ academic program

Any activity related to RTE

Any new activity/experiment implemented by teacher



### 3. Photographs and Video

Few photographs of the experiment along with a short video is attached with the case study describe the activity in detail. Teachers themselves created a short video that explains different aspects of the activity/experiment.

Link of the video: <https://youtu.be/LS-TdvceIeY>

### 4. Case study reflective questions

1. In your school how activities are undertaken and under whose leadership?
2. Can the activity/experiment implemented by Mehul Suthar sir in his school be applied to your school? If yes, how?
3. As a school principal, what are the challenges that you face in building leadership at school level?

### 5. Module questions

The question given below is a sample question to assess the understanding regarding the principle of shared leadership i.e. delegate responsibility according to strengths of all stakeholder parties, but also give them the needed decision making authority. Similarly, every question in module end questions illustrated one such principle of different topic.

**Directions** - Which of the following option BEST explains shared leadership for the given scenario. Note that you have to choose the BEST option—there is no right or wrong answer; if two answer options are applicable, decide which is better.

**Vignette** - A school has to organize a swacch bharat drive in the village where school is also located. The head teacher has been given the responsibility. How should the function be organized to implement shared leadership to the best possible extent?

- A. The event is best conducted by only the teachers since they can be expected to discharge their responsibility on the basis of their capability and the decision making power given to them.
- B. The event should be conducted by distributing responsibility and decision making power among teachers, community members, and pro-active children, with the delegation of responsibility based on the strength areas of each party.

C. The event should be conducted by teachers and community members by discharging their responsibilities on the basis of their capabilities.

D. The event should be conducted by distributing responsibility among teachers and community members based on their strengths. The decision making power should reside with head teacher.

Most appropriate option:

**Option B**

In shared leadership, responsibility has to be distributed among all the stakeholders based on their relative strengths. This distribution of responsibility will be meaningful when decision making power is also given. Without decision making power, accountability is questionable.

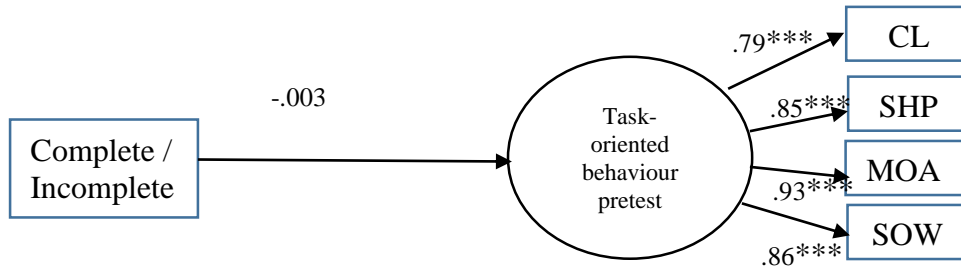
Option A includes only the teachers and ignores other stakeholder parties and so is not the best, when talking of shared leadership.

Option C includes the community members, but takes into account only their capabilities, without mentioning their decision making power.

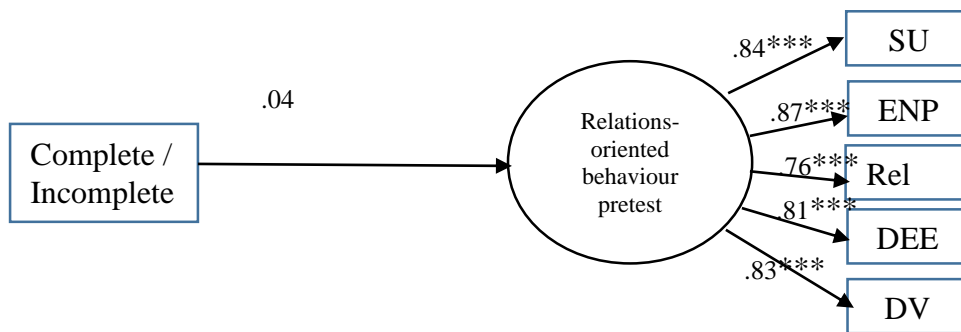
Option D includes the community members, distributes responsibilities according to the strengths of the parties, but the decision making power rests with the head teacher alone.

Most appropriate answers were posted online after the timeline of the respective modules ended.

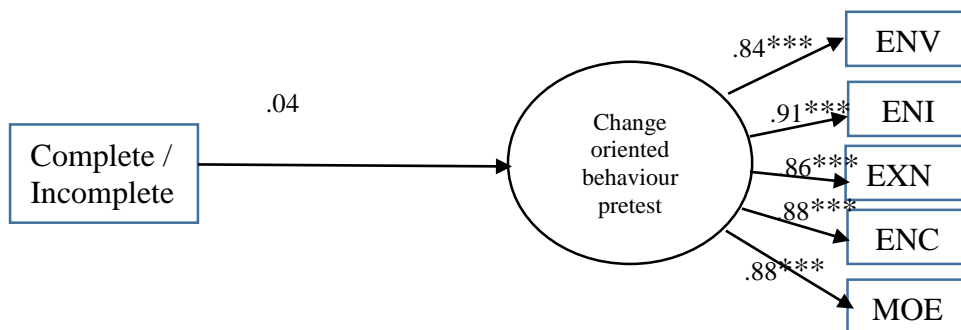
## Appendix 2: Attrition analysis



Notes:  $n = 75$ . The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2(5) = 4.90$ ;  $p = .43$ ; CFI = .99; GFI = .98; RMSEA = 0.01; SRMR = 0.01.

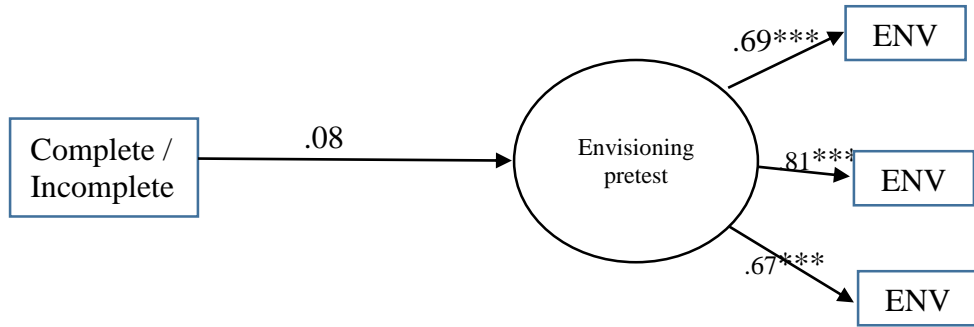


Notes:  $n = 75$ . The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2(9) = 17.06$ ;  $p = .05$ ; CFI = .97; GFI = 0.93; RMSEA = 0.11; SRMR = 0.01.



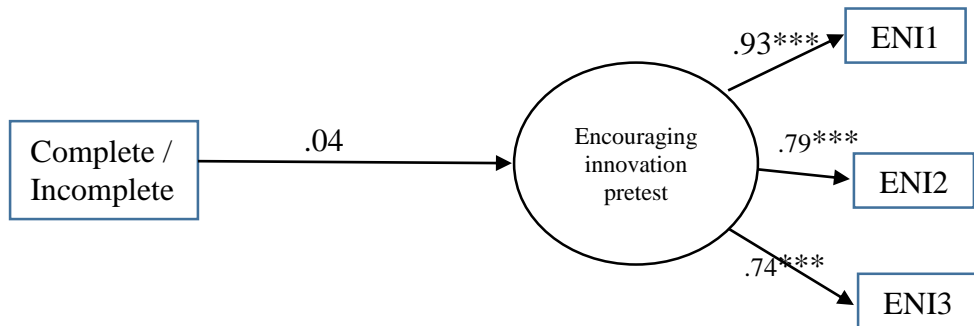
Notes: n= 75. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2 (9) = 19.75$ ;  $p < 0.05$ ; CFI = 0.97; GFI = 0.92; RMSEA = 0.12; SRMR = 0.01.

Panel A: Envisioning



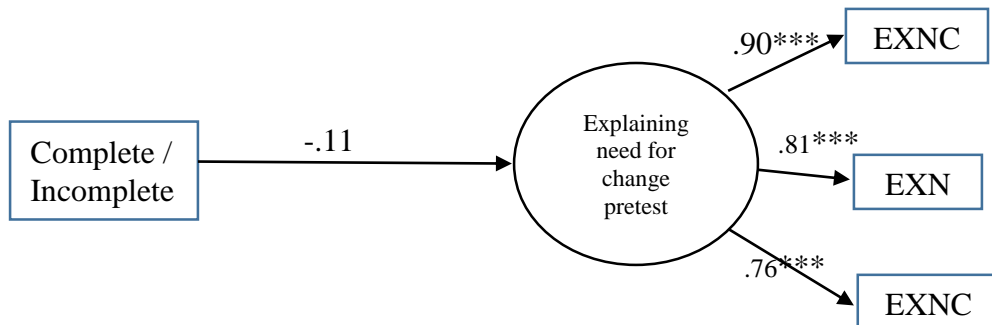
Notes: n= 75. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2 (3) = 2.17$ ;  $p = 0.54$ ; CFI = 1.00; GFI = 0.99; RMSEA = 0.00; SRMR = 0.01.

Panel B: Encouraging innovation



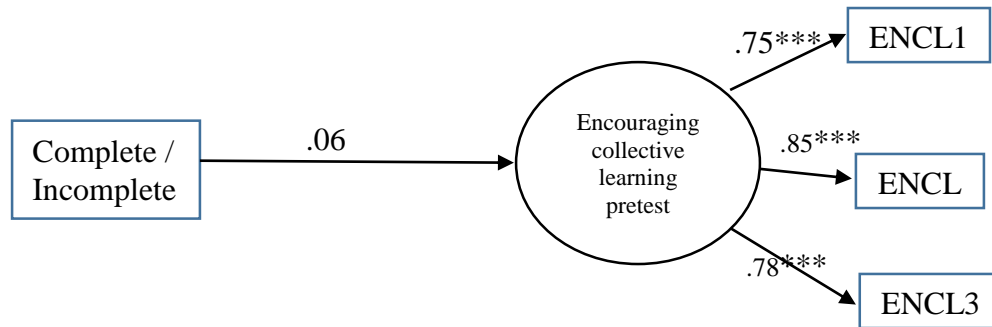
Notes: n= 75. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2 (2) = .40$ ;  $p = 0.82$ ; CFI = 1.00; GFI = 0.99; RMSEA = 0.00; SRMR = 0.00.

Panel C: Explaining need for change



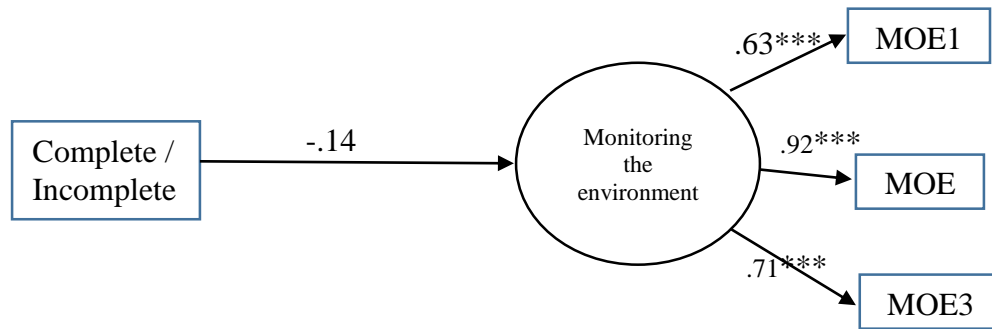
Notes: n= 75. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2(2) = 1.92$ ; p = 0.38; CFI = 1.00; GFI = 0.99; RMSEA = 0.00; SRMR = 0.00.

Panel D: Encouraging collective learning



Notes: n= 75. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2(2) = 1.94$ ; p = 0.38; CFI = 1.00; GFI = 0.98; RMSEA = 0.00; SRMR = 0.01.

Panel E: Monitoring the environment



Notes: n= 75. The result indicates the standardized path coefficients of the structural model. Model fit:  $\chi^2(2) = 0.01$ ; p = 0.98; CFI = 1.00; GFI = 1.00; RMSEA = 0.00; SRMR = 0.00.

The individual characteristics of these 20 participants are presented below.

	Number	Percentage
Female	4	20
Graduate	5	25
Post-graduate	15	75

### **Appendix 3: Case study interview protocol**

Case study interview protocol for detailed interviews of selected participants for markers of identity, cohesion, and intentionality.

Emergence of intention: declaration of intention of existence of community (goal); members need to be aware of the existence or potentiality of existence which can become more concrete with the selection of participants; choosing tools of communications; creating environment for various type of resources and adopting rules of operation. The underlying thought behind questions related to intentionality is to assess the goal of the group. What is the understanding regarding the purpose of training through virtual medium and the role of fellow participants; and resulting artifacts.

1. What is your perception behind creating a group for training?
2. Any discussion among themselves about the need of bringing everyone on a common platform?
3. Motivation during the program
4. Look for indicators where principal wanted training for different aspects: leadership, etc.
5. Taking initiative to make whatsapp group with few members or being a part of such group
6. Interacting with "expert teacher"
7. Suggesting fellow participant to talk to "expert teachers"
8. Is that group/small group still active?
  - a. If yes, what is the nature of conversation?

Cohesion: In the group, members participate in various activities. Through participation, members gain social experience which interacts with reification and help members learn through construction of identity. Participation can be evaluated through involvement, assessment of mutual help and support, sharing of resources, and exhibiting a common identity. The underlying thought behind asking questions is to assess the nature of involvement of participants in the program.

1. Feeling when training order was received?
  - a. Context: comparison with prior training programs - time requirement, content application, flexibility, and applicability in real time
  - b. Orientation program: meeting people, forming ties, contacting them during difficulty
2. People contacted during training

- a. Officials (query), participants of program, in-school teachers
- 3. Nature of conversation with colleagues/fellow participants?
- 4. What made you contact "innovative teachers"? (discussion, or clarification, or what was the nature of conversation)
- 5. Outcome of conversation with innovative teachers, colleague, fellow participant. (Problem clarification, solution, etc.)
- 6. Have you been contacted by other participants? How have you solved the problem collectively?

Identity: Markers have been made on the basis of definitions given by Wenger (1998) and Henri & Pudelko (2003).

- 1. Acknowledging on Facebook page through selfies or post or any comment for being a participant of training.
- 2. Through self-reflection
  - a. Process of answering the questions: discussion with someone (could be family member); own contemplation;
  - b. Process of answering module questions: discussion with someone (could be family member); own contemplation
  - c. Project component: process of selecting and completing the project. Persistent problem of school or suggesting by school teacher or
- 3. Interactions with expert teachers or other participants
- 4. Downloading and distributing training material to other teachers
- 5. Showing the certificate on any social media or using them in office or discussing it in SMC meeting or village gatherings.
- 6. Any specific case study which they remembered/used or intend to use in the school?
  - a. Specific cases that could improve task, relation, change oriented behaviour
- 7. Role of questions in the training program. How they helped or didn't help in learning the content? (Reflection at individual level)
- 8. Have you find any difference in nature of problem faced (different perspective of problem at hand)?