

# Amplification of Tacit Knowledge Through the Positive Deviance Approach

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**Abstract:** Often the answer to solving complex social problems already exists in the community as some type of tacit knowledge, but it is hidden from plain view. By identifying this tacit knowledge, and then making it useful and available for a wider group of potential users, problem-solvers can greatly expand the solution space. In this paper, we demonstrate how tacit knowledge can be identified and amplified through a problem-solving approach known as Positive Deviance (Singhal et al. 2014). The Positive Deviance (PD) approach is premised on the belief that in every community there are certain individuals or groups whose uncommon behaviors and strategies enable them to find better solutions to problems than their peers, while having access to the same resources. This paper contributes to the understanding of the knowledge externalization process (Nonaka 1994). We identify the four stages for the identification and amplification of the tacit knowledge in the PD approach. The first stage concerns awareness and breakout of the community “mental prisons.” The second stage refers to identifying the positive deviants—the carriers of the authentic experience and valuable tacit knowledge. The third phase suggests creation of particular conditions to facilitate the “paradigm shift”. Finally, the fourth phase occurs as community members embrace the new practice, spurred by the self-discovery and the social proof. Through an analysis of a highly effective nationwide PD implementation in Vietnam, we show how unearthing of tacit knowledge is fundamental to the PD approach, and represents a source of creativity and inspiration for finding efficacious solutions.

**Keywords:** tacit knowledge, knowledge amplification, positive deviance, social problems

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## 1. Introduction: The role of indigenous knowledge for social problem solving

Let us begin by invoking a Sufi tale. In one of his hundreds of guises, the mystical Sufi character Nasirudin appears on earth as a smuggler, arriving at the customs checkpoint each day leading a herd of donkeys. The customs inspector would feverishly turn the baskets hanging on the donkeys upside down to check the contents, hoping to nail Nasirudin in an act of wrongdoing. He, however, never found anything of interest, and hence had little choice but to let the smuggler go free.

Years go by, and Nasirudin’s legend as a smuggler grew while the inspector grew ever more frustrated. One day, after Nasirudin and the inspector had retired from their respective occupations, their paths crossed. The former inspector pleaded, “Tell me, Nasirudin. What were you smuggling?”

“Donkeys,” Nasirudin said.

Nasirudin’s donkey story holds important lessons for social change scholars. Often the solutions to highly intractable problems, whether in communities or organizations, stare us in the face, but remain invisible in plain sight. To discover these invisible solutions, we need to be mindful of the concept of tacit knowledge, and how it can be identified and amplified.

Very few studies pay attention to the role of knowledge management practices in solving urgent social problems. In recent years, scholars such as Cortez et al. (2011) have emphasized a wider application of indigenous knowledge and the knowledge management approach in solving complex social problems, especially in communities plagued by high unemployment, extreme poverty, chronic malnutrition, and political instability.

Indigenous knowledge is usually tacit, i.e. not explicitly codified and systematized, and it belongs to a particular community and is embedded in local practices, relationships, and rituals (Cortez et al. (2011) referring to World Bank 2002). This type of knowledge is argued to have no theoretical underpinnings, but is explorative and experimental in nature. It is in constant flux, being reproduced, discovered and sometimes lost. Indigenous knowledge is culturally-specific and provides solutions for everyday tasks whether in land-based agriculture, food preparation, or health treatment (e.g. Ochieng (2007).

Although indigenous local knowledge can be an important source of prosperity and competitive advantage, this knowledge is usually not used effectively. The key challenge is how to identify and amplify this tacit local knowledge. The universal question of importance is: How can valuable tacit knowledge be captured and amplified to be of benefit and value for the whole community?

In this paper, we address the issue of identification and amplification of the tacit indigenous knowledge by applying a particular problem-solving approach known as positive deviance (PD). By analysing the application of the PD approach in Vietnam to combat childhood malnutrition, we demonstrate how the amplified tacit knowledge of individuals can serve for solving social problems at a large scale. This paper is further organized as follows. Section two presents a discussion about knowledge conversion, and in particular, the amplification of tacit knowledge. Section three introduces the key tenets of the PD approach. Section four analyses how the PD approach helped solve the problem of childhood malnutrition in Vietnam; and Section five discusses how tacit knowledge was identified and amplified through a four-stage process. Finally, section six concludes with implications that the PD approach hold for knowledge management theory and practice.

## **2. Knowledge conversion: Amplification of tacit knowledge**

The issue of knowledge and its characteristics has been widely discussed in the scientific literature. Knowledge has practical value--it permits humans to define, characterize, evaluate, and learn to solve problems (Krogh et al. 2000). Further, knowledge can be of tacit and/or explicit character (Nonaka and Von Krogh 2009). Explicit knowledge is formulated and expressed in sentences or graphic symbols, and is universal in that it can be employed across the contexts. Tacit knowledge, a term first introduced by Polanyi (1967), stems more from intuition, common sense, or personal experiences. This type of knowledge comes from actions, routines, values, and emotions (Nonaka et al. 1996). Explicit knowledge is rational and objective, while tacit knowledge is experiential, intuitive, and subjective (Nonaka and Von Krogh (2009). Explicit and tacit knowledge are mutually complementary and are situated in a continuum, which means that knowledge varies from tacit to explicit and vice versa. Tacit knowledge becomes accessible if it moves towards the explicit side of the continuum.

The value of the tacit/explicit distinction lies in the potentiality of how people use their tacit knowledge for dealing with everyday tasks (Nonaka and Von Krogh 2009). In this paper, we are particularly interested in the process by which tacit knowledge of an individual becomes amplified and accessible to a larger group (labelled by Nonaka (1994) as externalization). In Nonaka's terms, the focus is on externalization--when knowledge moves from its tacit to the explicit dimension of the continuum. This mode of knowledge conversion facilitates expansion of knowledge from the individual into the collective domain, forming a basis for conscious action.

However, our understanding about the externalization and conversion of knowledge is still scarce. Nonaka and Von Krogh (2009) argue that recent research in the area of cognitive psychology has provided some insights about how the conversion between tacit and explicit knowledge occurs. However, the critique of the available literature is that the research focuses on understanding individual cognition with not adequate attention paid to the wider social context of which the individuals are a part.

Nonaka and Von Krogh (2009) argue that knowledge conversion produces outcomes both for knowledge per se and for desirable social practice. In this paper, we analyze how amplification of individual knowledge through the Positive Deviance (PD) approach can influence changes in a wider social context. Toward this end, the next two sections explain the essence of the PD approach, and present the case of PD in Vietnam to demonstrate how tacit knowledge was identified and amplified to combat childhood malnutrition in the society.

## **3. Positive deviance approach to solve social problems**

The *Positive Deviance* (PD) approach is premised on the belief that in every community there are certain individuals or groups whose uncommon behaviours and strategies enable them to find better solutions to problems than their peers, while having access to the same resources and facing worse challenges (Pascale et al. (2010). "Positive deviants," against overwhelming odds, find ways to solve problems in a more effective manner than their peers. They are "deviants" because their uncommon behaviours are not the norm; and they are "positive" because they have found ways to effectively address the problem, while most others have not. The PD behaviours evoke innovations in the social, technical, institutional, organizational and policy areas (Ochieng 2007). Previous studies have investigated the role of the PD approach for dealing with such complex social challenges as child malnutrition e.g. Mohammed Imran et al. (2014), Kanani and Popat (2012), Bisits Bullen

(2011); school dropouts (Dura and Singhal 2009); and human trafficking (Singhal and Dura 2009). Further, the PD approach was found to be of great value for (but not reduced to) the issues of public health and health care e.g. Lindberg and Schneider (2013) and Singhal (2010); hospital knowledge management (Griffith et al. 2013), agrarian development (Ochieng 2007), and environmental protection (Walls and Hoffman 2013).

#### **4. Discovering hidden insights in Vietnam**

To understand the PD approach, and how tacit knowledge can be identified and amplified to solve complex social problems, let us analyse the pioneering case in Vietnam to combat malnutrition (Mackintosh et al. (2002); Singhal et al. (2009)).

In December 1990, Jerry Sternin and his wife Monique arrived in Hanoi to open an office for Save the Children, a U.S.-based NGO. Their mission: To implement a large-scale program to combat childhood malnutrition in a country where 65% of all children under the age of five were malnourished.

The Vietnamese government had learned from experience that traditional feeding programs were not sustainable. When the programs ended, the gains usually disappeared. As traditional methods of combating malnutrition do not yield quick and sustainable results, the Sternins wondered if the concept of positive deviance, developed a few years previously by professor Marian Zeitlan might hold promise (Zeitlan et al. 1990).

Childhood malnutrition rates were high in Quong Xuong District in Thanh Hoa Province, and the Sternins decided to begin there. After several days of trust-building and consultation with local officials, four village communities were selected for a nutrition baseline survey. Armed with six weighing scales and bicycles, health volunteers weighed some 2,000 children under the age of three in four villages in less than four days. Their locations were mapped and a growth card for each child, with a plot of their age and weight, was compiled. Some 64% of the weighed children were found to be malnourished. The Sternins asked the quintessential PD question: *Are there any well-nourished children who come from very, very poor families?* The response: Yes, indeed, there are some children from very poor families who are healthy! They are few in numbers but they do exist.

The poor families in Thanh Hoa that had managed to avoid malnutrition without access to any special resources would represent the positive deviants. What were these PD families doing that others were not? As part of self-discovery, community members visited six of the poorest families with well-nourished children in each of the four villages. If the community self-discovered the solution, they were more likely to implement it. Their discovery process yielded the following key practices among poor households with well-nourished children:

- Family members collected tiny shrimps and crabs from paddy fields and added them to their children's meals. These foods are rich in protein and minerals.
- Family members added greens of sweet potato plants to their children's meals. These greens are rich in essential micronutrients.

Interestingly, these foods were accessible to everyone, but most community members believed they were inappropriate for young children. Further,

- PD mothers were feeding their children smaller meals three to four times a day, rather than the two big customary twice a day; and
- PD mothers were actively feeding their children, rather than placing food in front of them, making sure there was no food wasted.

With best practices discovered, the natural urge was to disseminate this knowledge. Such was done through household visits, attractive posters, and informational and educational sessions. However, such "best practice" solutions engendered resistance from most households as they did not fit with their established practices. How could one overcome this resistance? One evening as the discussion was winding down, a sceptical village elder observed: "A thousand hearings isn't worth one seeing, and a thousand seeing isn't worth one doing." On the car ride back to Hanoi, the Sternins talked about the sagacity of the elder's remark. Could they help design a nutrition program which emphasized *doing* more than *seeing* or *hearing*?

A two-week nutrition program was designed in each of the four intervention villages. Mothers, whose children were malnourished, were asked to forage for shrimps, crabs, and sweet potato greens. Armed with small nets and containers, mothers waded into the paddy fields. The focus was on action, picking up the shrimps and crabs,

and shoots from sweet potato fields. In the company of positive deviants, mothers of malnourished children learned how to cook new recipes using the foraged ingredients. Again, the emphasis was on *doing*. An opportunity was created for people to practice the self-discovered behaviours that delivered better outcomes. Just knowing about them was not enough.

Before these mothers fed their children, they weighed them, and plotted the data points on their growth chart. The children's hands were washed, and the mothers actively fed the children. No food was wasted. Some mothers noted their children seemed to eat more in the company of other children. When returning home, mothers were encouraged to give their children three or four small meals a day instead of the traditional two meals. Such feeding and monitoring continued for two weeks. Mothers could visibly see their children becoming healthier. The scales were tipping!

From the original four communities in Thanh Hoa, the project was expanded to another 10 adjacent communities. In these communities, the Sternins insisted that the community members engage in a process of self-discovering the PD behaviours, as opposed to importing them from neighbouring communities. They had realized that "the process of self-discovery was every bit as important as the actual behaviours uncovered" (Pascale et al. (2010), p. 42). Malnutrition decreased by an amazing 85 percent in the first 14 PD communities. Over the next several years, the PD intervention became a nationwide program in Vietnam, helping over 2.2 million people, including over 500,000 children improve their nutritional status.

## **5. Discussion: Amplifying tacit knowledge in the PD**

The Vietnamese positive deviance case demonstrates how the subtle knowledge of "deviant" individuals, once identified, became explicit knowledge and manifest itself in collective practice. This identification and amplification of tacit knowledge in the PD process in Vietnam embraced several stages. The first stage involves a recognition that unearthed tacit knowledge can help the community breakout of their normative "mental prisons." The second stage refers to identifying the positive deviants—the carriers of the authentic experience and valuable tacit knowledge. The third phase suggests creation of particular conditions to facilitate the "paradigm shift"—that is, conscious-raising among community members who themselves see the value of questioning old deep-seated attitudes and praxis, replacing them with newly-discovered insights. Finally, the fourth phase of knowledge amplification occurs as more and more community members embrace the new practice, spurred by the self-discovery of its beneficial outcomes and the social proof that others like them, within their own community, have solved the problem. A more detailed discussion of these stages is presented below.

### **5.1 Breaking the shackles of mental prisons**

Widespread social change involves change at two levels: at the societal and normative group level and at individual level (Amado and Ambrose 2011) where the concerns are more grounded in the subjective, experiential, cognitive-affective experiences. In essence, social change involves a psychosocial process where social phenomena are intertwined with the concerns of individuals who are interconnected through personal networks. A close study of the Vietnam case suggests that at least two psychosocial characterized the process of knowledge amplification and conversion: a breaking out of existing mental prisons, and the experience of self-discovery.

Amplification of tacit knowledge is almost always thwarted by traditional perceptions and habitual ways of doing things. Even though Nasirudin's donkeys stalked before the eyes of the customs inspector every day, they were "unseen" on account of mental traps. Morgan (1998) used the metaphor of "psychic prisons" to describe how organizational members become imprisoned by own ideas, thoughts, beliefs and actions. With reference to Plato, Morgan recounts the story of the cave dwellers who have never left their cave. Once permitted to leave the cave, the dweller wouldn't be able to return to his old cave life style, and perhaps deplore the pitiful cave existence of his mates. Yet, when other cave mates are told about the existence of another better reality, they would show skepticism and fear of the unknown. The familiar old cave would make sense for them, while the world existing out there wouldn't. Not daring to experience the new and unknown, people become "cave dwellers" – the hostages of "mental prisons."

The Vietnamese PD narrative also included the presence of such "mental prisons": the disregard of the sweet potato shoots and tiny shrimps/crabs as being appropriate for children, and the disbelief that the solution to the

problem already existed in the community. To facilitate amplification of tacit knowledge and produce widespread social change, it was important to “release” the prisoners from their “mental prisons” – i.e. to change the ritualistic, habitual behaviors. But how to do so? Akin to the case of cave dwellers whose original reaction to another better reality was met with skepticism and distrust. Altering old behaviors and customary thinking in Vietnam required a credible example that better nutrition outcomes could be achieved, and a safe setting where the actors could dare to question the old ways in order to discover new possibilities.

## **5.2 “Positive deviants” as knowledge spanners**

Often individuals whose behaviour deviates from group norms receive social disapproval. Such is particularly the case with “negative” deviance, i.e., when an individual engages in behaviours that are socially disapproved, undesirable, and detrimental (e.g. stealing, hazing, or incivility). However, the situation we observe in the case of Vietnam is one of “positive” deviance, where individuals were identified that engaged in behaviours whose outcomes were desirable and beneficial (e.g. well-nourished and healthy children). These individuals, like Nasiruddin’s donkeys, were hidden from plain view. Further, their actions, on account of it being uncommon and of the outlier kind, served as the source of valuable tacit knowledge which when amplified held the potential to produce widespread good for the whole community.

While new knowledge is usually suspect (Hawkins and Rezazade 2012), the positive deviant households in Vietnam (whose children were well-nourished against all odds) served two key roles: First, they were the source of the valuable tacit knowledge that held salience and relevance for the whole community. Secondly, their perceived similarity with others in the community granted them trust and legitimacy. When mothers of malnourished children discovered what mothers like them (of low socio-economic status, for instance) did in order to have well-nourished children, they were able to more easily unlock their “mental prisons”. However, the mere identification of the carriers of valuable knowledge alone couldn’t grant the change in thinking and action. It was important to create conditions for triggering a more rippling social change.

## **5.3 Creating enabling conditions for people-driven change**

Introducing a big-scale change program in a community of networked individuals is not an easy task. Unlike organizational development programs, where leaders can use legitimate power to channel employee behaviours in a given direction, implementation of change in the social groups and communities requires invitation, a free-will consent, and participation. Proponents of the transitional approach to the management of change remark that one can’t make people change their long-established ways of addressing, processing and solving their problems (Amado and Ambrose 2011). People can change their customs and habits only when they experience a deep need to do so.

The human mind undergoes a highly complex mix of cognitive and emotional pulls in responding to change—whether complying with or resisting it. This process involves human perception and feelings as well as knowledge of social norms. To assist humans to recognize the need for and possibility of change, one can create particular conditions that may help to increase chances that people “will make changes themselves” (ibid., p. xviii). These conditions should invite people to explore the terrains of the unknown: to see things in a new perspective, to question their old customary ways of doing things, to understand the consequences of the habitual behaviours, and to investigate other existing opportunities which transform the deep-seated beliefs, attitudes and praxis.

In the Vietnamese PD case such conditions were necessary to unshackle mental prisons and for community members to find and adopt new solutions for endemic malnutrition. PD by its very nature is an endogenous change approach—it believes that the knowledge and wisdom to solve the problem resides with the community, not with an external expert change agent. At best the change agent is a facilitator that creates the conditions to bring people together around solving a vexing problem, constantly reminding them that some people among them have already solved the problem, and the collective challenge is to determine who they are, and to discover what they are doing. Therefore, fundamentally PD facilitation begins with a broad invitation to, and inclusion of, a diverse set of community members in the process of solution elaboration and problem solving. In Vietnam, community members were involved in weighing the children to discover the scope of the problem, mapping and identifying households that were poor but had well-nourished children (i.e. determining the PDs), and discovering what is it their peers were doing that resulted in well-nourished children (i.e. the discovery of PD behaviours). Further, to translate the discovered knowledge into action mothers of the undernourished children participated in a wide range of activities e.g. picking up tiny shrimps and crabs, washing them, bringing

them to a cooking session, making food together with the PD mothers, actively feeding their children, breaking the meals into smaller portions and increasing the frequency of feeding, and so on. Further, they monitored the weight of their children observing their improving nutritional status. Early inclusion and broad participation in the problem-solving helped community members to increase their understanding about the essence of the problem and to give each participant the feeling of “ownership” in the collaborative search and elaboration of its solution.

#### **5.4 Knowledge amplification through self-discovery and social proof**

The Vietnam case revealed that the key mechanism for knowledge amplification was involvement of community members and their own self-discovery of the solutions that resided among them. Once the solutions were discovered, they were “owned” by the community members—that is, they did not have to “buy-into” an external change agency’s prescriptions. Further, the solutions represented “social proof” (e.g. Cialdini (1993) that someone like them, with similar socio-economic and cultural attributes had solved the problem, and so could they.

Common top-down, expert-driven, outside-in knowledge-sharing practices didn’t seem to be effective in Vietnam. Simple telling people what and how they should do wouldn’t bring the desired results either. In other words, in order to trust the new knowledge and change the customary practice it was important that community members discovered the new knowledge empirically self. Why?

Thomas Kuhn (1996) argued that social dissatisfaction with the existing system of knowledge (or the reigning paradigm) was the major reason why people engaged themselves in the search of alternatives. The change of the paradigm could only occur at the peak of the dissatisfaction with the existing system of knowledge, and the battle between the new and the old systems (paradigms) was to be decided by history. Kuhn meant that the discovery process is based on the subjective and individual grounds, and involves some “mystical experience” that feeds the decision of the person engaged in discovery.

Referring to Polanyi (1962), we can understand discovery in terms of an “act of personal knowing”. Polanyi argues that the humans engage in the efforts of knowing due to a “sense of obligation towards the truth: by an effort to submit to reality” (p. 63).

Whereas Kuhn referred to the discovery as to the “mystical experience”, Polanyi provided rather a detailed description of the discovery process (for the summary see e.g. Milavec (2006). Polanyi’s description of the discovery process refers mainly to the scientific discovery triggered by the “intellectual passions” of the investigator. However, this description could be equally applied to understand how community members experienced their discovery of the new knowledge/ practice. Like scientific investigators, the community members dedicated their time and intellectual efforts in search of the new solution. Further, they participated in the investigating procedures and designed the experiments: by visiting and studying the PD families with well-nourished children, by observing and interviewing others. These elements of discovery, together with the feeling of ownership and participation provided emotional and intellectual satisfaction to the participants, and that is why empirical self-discovery was an important mechanism of learning and amplification of knowledge within PD approach.

### **6. Conclusion**

In the present paper, we argued that often the answer to solve social problems exists within the community as tacit knowledge, but it is hidden from plain view. By identifying this tacit knowledge, and then making it explicit for a wider group of potential users, the solution space for problem solving can be greatly enhanced. Through an analysis of a problem-solving effort in Vietnam (dealing with childhood malnutrition) we demonstrated how tacit knowledge can be identified and amplified through the Positive Deviance (PD) approach. The value of the PD approach to solve complex social problems lies in its ability to unearth tacit knowledge, break the shackles of normative ways of thinking and acting, and amplification of discovered knowledge and praxis. Further, amplification of this tacit knowledge may transform the way wider social groups think and behave. In this sense, the PD approach represents a source of creativity and inspiration for knowledge managers in that social problems can be seen and dealt with efficacious endogenous solutions.

## References

- Amado, G. and Ambrose, A. (2011) *The Transitional Approach to Change*, HARO, London: Karnac Books.
- Bisits Bullen, P. A. (2011) The positive deviance/hearth approach to reducing child malnutrition: systematic review. *Tropical Medicine and International Health*, 16(11), pp. 1354-1366.
- Cialdini, R. B. (1993) *Influence : the psychology of persuasion*, [Rev. ed.]. ed., New York: Quill.
- Cortez, E.-M., Britz, J. and Mullins, P. (2011) Applying knowledge management strategies to economic development in sub-Saharan Africa. *Inkanyiso: Journal of Humanities and Social Sciences*, 3(2), pp. 140-147.
- Dura, L. and Singhal, A. (2009) Will Ramon finish sixth grade? Positive deviance for student retention in rural Argentina. *Positive deviance wisdom series*, 2, pp. 1-6.
- Griffith, J., Fear, K., Lammers, E., Banaszak-Holl, J., Lemak, C., Zheng, K. and Mazer, S. (2013) A Positive Deviance Perspective on Hospital Knowledge Management: Analysis of Baldrige Award Recipients 2002-2008. *Journal of Healthcare Management*, 58(3), pp. 187-203; discussion 203-4.
- Hawkins, M. A. and Rezazade, M. H. (2012) Knowledge boundary spanning process: synthesizing four spanning mechanisms. *Management Decision*, 50(10), pp. 1800-1815.
- Kanani, S. and Papat, K. (2012) Growing Normally in an Urban Environment: Positive Deviance among Slum Children of Vadodara, India. *The Indian Journal of Pediatrics*, 79(5), pp. 606-611.
- Krogh, G. v., Ichijo, K. and Nonaka, I. (2000) *Enabling knowledge creation : how to unlock the mystery of tacit knowledge and release the power of innovation*, Oxford: Oxford University Press.
- Kuhn, T. S. (1996) *The structure of scientific revolutions*, 3rd ed. ed., Chicago: University of Chicago Press.
- Lindberg, C. and Schneider, M. (2013) Combating infections at Maine Medical Center: Insights into complexity-informed leadership from positive deviance. *Leadership*, 9(2), pp. 229-253.
- Mackintosh, U. A. T., Marsh, D. R. and Schroeder, D. G. (2002) Sustained positive deviant child care practices and their effects on child growth in Viet Nam. *Food and nutrition bulletin*, 23(4 suppl2), pp. 16-25.
- Milavec, A. (2006) How Acts of Discovery Transform Our Tacit Knowing Powers in Both Scientific and Religious Inquiry. *Zygon*, 41(2), pp. 465-486.
- Mohammed Imran, M. S., Subrahmanyam G., Jayashree Seeri, Pradeep C., Mini Jayan (2014) Positive Deviance Approach and Supplementary Nutrition under ICDS Scheme on Improvement of Nutritional Status of 2–6 year Children in Rural Bangalore. *National Journal of Community Medicine*, 5(1), pp. 109-113.
- Morgan, G. (1998) *Images of organization*, Executive ed. ed., London: Sage Publications.
- Nonaka, I. (1994) A Dynamic Theory of Organizational Knowledge Creation. *Organization Science*, 5(1), pp. 14-37.
- Nonaka, I., Umemoto, K. and Senoo, D. (1996) From information processing to knowledge creation: A paradigm shift in business management. *Technology in Society*, 18(2), pp. 203-218.
- Nonaka, I. and Von Krogh, G. (2009) Tacit Knowledge and Knowledge Conversion: Controversy and Advancement in Organizational Knowledge Creation Theory. *Organization Science*, 20(3), pp. 635-652.
- Ochieng, C. M. O. (2007) Development through Positive Deviance and its Implications for Economic Policy Making and Public Administration in Africa: The Case of Kenyan Agricultural Development, 1930–2005. *World Development*, 35(3), pp. 454-479.
- Pascale, R. T., Sternin, J. and Sternin, M. (2010) *The power of positive deviance: How unlikely innovators solve the world's toughest problems*, Harvard Business Press.
- Polanyi, M. (1962) *Personal knowledge : towards a post-critical philosophy*, Corr. ed. ed., Chicago: The University of Chicago Routledge & Kegan Paul.
- Polanyi, M. (1967) *The tacit dimension*, Anchor Books, Garden City, N. Y: Doubleday.
- Singhal, A. (2010) Communicating what works! Applying the positive deviance approach in health communication. *Health communication*, 25(6-7), pp. 605-606.
- Singhal, A., Buscell, P. and Lindberg, C. (2014) *Inspiring change and saving lives : the positive deviance way*, Bordentown, NJ: Plexus Press.
- Singhal, A. and Dura, L. (2009) *Protecting Children from Exploitation and Trafficking: Using Positive Deviance Approach in Uganda and Indonesia*, Save the Children in collaboration with Social Justice Initiative.
- Singhal, A., Sternin, J. and Dura, L. (2009) Combating malnutrition: Positive deviance grows roots in Vietnam in the land of a thousand rice fields. *Positive deviance wisdom series*, 1, pp. 1-8.
- Walls, J. L. and Hoffman, A. J. (2013) Exceptional boards: Environmental experience and positive deviance from institutional norms. *Journal of Organizational Behavior*, 34(2), pp. 253-271.
- Zeitlan, M., Ghassemi, H. and Mansour, M. (1990) Positive deviance in child nutrition. *Tokyo: The United Nations University*.