

The impact of a readiness program for implementing and sustaining continuous improvement processes

Impact of a
readiness
program

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Abstract

Purpose – The purpose of this paper is to describe a readiness programme designed to increase employees' awareness of order and cleanliness as a way of building the necessary foundation for implementing and sustaining continuous improvement processes. In this paper, the authors propose a new readiness programme based on the principles of 5S, with the aim of strengthening employees' motivation and involvement prior to 5S being implemented.

Design/methodology/approach – The research is based on case study methodology, followed by a programme of four structured activities. The validity of the programme is shown through the implementation of the activities in two different organizations.

Findings – The readiness programme was applied before 5S was successfully implemented. The degree of awareness and motivation of the programme participants improved as a result of these activities. Moreover, the activities increased people's motivation to participate in improvement activities.

Originality/value – Applying a readiness programme before implementing 5S can help organizations to achieve and sustain improvement activities, thus increasing worker commitment and motivation.

Keywords Motivation, Continuous improvement, Employee involvement, Habits, 5S, Readiness

Paper type Research paper

Introduction

Organization, order and cleanliness are elements which, when they are present in work routines, ensure quality and excellence in organizations. This idea was taken up in the 1960s as a principle underlying improvement methodologies, which originated in Japan and later extended throughout the world as a collection of principles called 5S (Dogan *et al.*, 2014; Ikuma and Nahmens, 2014; Hirano, 1996; Ho, 1998; Imai, 1989; Warwood and Knowles, 2004; Singh and Ahuja, 2014, 2015). The 5S's are composed of five easy-to-understand steps, which has made this technique accessible to many companies around the world. But in practice, there are certain human factors such as competencies of employees that interfere with the effectiveness of the 5S technique when implemented (Khanna and Gupta, 2014; Warwood and Knowles, 2004). Some research



has shown that the success of the 5S's in Eastern companies is due to the positive influence exerted by the cultural aspects of their belief systems (Suarez-Barraza and Ablanedo-Rosas, 2014; Ablanedo-Rosas *et al.*, 2010; Gapp *et al.*, 2008; Ho, 1999, Jaca *et al.*, 2014; Kobayashi *et al.*, 2008). Nevertheless, Western companies have not always been able to implement the 5S technique in a sustainable way, due to the fact that they usually focus on cleaning, sorting and organizing the workplace and set aside the aspects related to changing people's behaviour (Jasti and Kodali, 2014; Gapp *et al.*, 2008; Ho, 1998; Kobayashi *et al.*, 2008; Magaña-Campos and Aspinwall, 2003). Previous research has suggested that the fundamentals of the different methodologies and tools originating in Japan are based on the participation and commitment of employees through training and behavioural change (Jaca *et al.*, 2014; Dahlgaard-Park, 2011; Suárez-Barraza *et al.*, 2010). In Japan, the practice of 5S is recognized as the set of activities that form the moral and ethical basis of the workplace, school and home, and it is embedded in everyday Japanese life. The practice of 5S emphasizes total participation, and the approach is holistic. This engenders notions of self-motivation, completeness and synergy in achieving excellence (Kobayashi *et al.*, 2008). However, in contrast to Japanese culture, the principles based on cleanliness and order are not established in Western cultures. This suggests, then, that in order to develop group routines and individual habits in the West, companies should develop a structured and physical environment for each individual (Polites and Karahanna, 2013; Hodgson, 2007). Consequently, Western companies should first apply a specific programme to prepare people in a way that will allow them to develop an awareness of order and cleanliness. This is termed organizational readiness for continuous improvement.

The aim of this paper is to describe a readiness programme designed to increase people's awareness of order, cleanliness and attention to detail, henceforth referred to as "tidy work behaviour". The purpose of the programme is to help to guide employees' behaviour towards those values and thus prepare organizations for the process of continuous improvement. Based on the 5S principles of order and cleanliness, the programme's objective is to strengthen people's motivation and involvement. Our readiness programme was designed to promote behavioural change in people through training. The programme aims to first develop people's awareness of tidy work behaviour through various activities, and to then effect behavioural change.

We begin this paper by presenting the theoretical background and a brief review of the literature on habit development and behavioural change. Then we present the methodology, followed by the programme and its activities. Finally, the paper describes the application of the programme in two different companies, and the data obtained and the programme's utility are discussed.

Routines, habit development and behavioural change

Many studies have been done to understand the dynamic capabilities of an organization, most of them built up from the concept of routines. Routines are collective repetitive activities that are, at the same time, a set of interactions among workers and activities and a group of related actions within a process (Becker, 2004; Hodgson and Knudsen, 2004; Nelson and Winter, 1973). Including workers as active agents within the process has clarified the concept of routines as part of organizational innovation (Eisenhardt and Martin, 2000). This innovation arises from the collective capacity of an organization to improve processes in specific areas such as quality, new product development, operations, etc. (Lillrank, 2003; Feldman, 2000; Pentland *et al.*, 2012). Routines are the observable behaviour of the agents, and habits are the ease with which agents act when

they have to execute routines. Routines and habits must be developed together in order to implement sustainable continuous improvement programs and to maintain and improve established procedures (Hernandez and Mateo, 2012; Bessant *et al.*, 2001; Hirano, 1996). Routines are developed by organizations and they are usually expressed as rules or procedures, while habits are adopted by individuals. Organizations and their systems run better if rules are embedded in the prevalent habits of thought and behaviour (Polites and Karahanna, 2013; Twomey, 1998). Repeated behaviour is necessary to establish a habit, but it is not sufficient, especially in the case of adults. Instilling habits in adults involves strategies that differ from those used to instil habits in children. According to Corominas (1999), habit development in children happens during sensitive training periods, which occur once and disappear upon reaching adulthood. Thus, actions related to developing habits in adults will require greater effort and perseverance over a longer period of time; furthermore, it is usually difficult for adults to acquire new habits.

As Stephen Covey (1991) states, “habit is the intersection of knowledge, skill and desire”. Knowledge is related to ability. Skill is how something is done, and desire is the motivation for doing it. People can be tidy in one context, but behave in the opposite way in a different one, for example, when they are at home or at work. In such a case, people have the knowledge and skill, but there is a lack of motivation. The habits are present, but people may not reproduce them in their jobs because they do not associate the habit or habits with a particular task they are performing. Trying to change outward attitudes and behaviours does little good in the long run if the basic paradigms from which those attitudes and behaviours flow are not examined (Covey, 1991). Therefore, it is necessary to design special training programs in order to change people’s behaviour, starting with changing their mental models. We can find examples of these special training programs in different sectors such as industry, health and service (Ebadi *et al.*, 2015; Kanamori *et al.*, 2015; Ram *et al.*, 2015; Khanna and Gupta, 2014).

This change in behaviour or transference of habits also requires other elements. Fogg (2009) proposes three principal components that affect behaviour: motivation, ability and trigger. Motivation comes from various aspects of several issues: belief systems, emotion and consciousness (Norman, 1980). Ability is developed through repetition and training. Behaviours can then be triggered by an appropriate stimulus or context, which can vary depending on the type of desired behaviour and the initial motivation and ability (Coyle, 2009; Fogg, 2009; Hodgson, 2007; Walinga, 2008). Given this fact and the larger aim of preparing workers to implement the 5Ss, we are interested in testing the following hypothesis:

H1. We can help workers to change their behaviour in the workplace with respect to order, cleanliness and attention to detail.

According to Ajzen’s theory, human behaviour is complex and cannot be regulated in an easy way. Nevertheless, the theory states that behaviour depends on three beliefs: behavioural beliefs, normative beliefs and control beliefs (Ajzen, 1991, 2002). All three interact together although the details of these interactions are not well known. It is known that a positive attitude towards behaviour (behavioural beliefs) plus a positive perception about what others think (normative beliefs) plus an individual’s belief of the ease with which the behaviour can be performed (control beliefs) will together increase the likelihood of getting the desired behaviour. A worker’s perception, then, affects behaviour but does not define it. In addition to having a positive perception of what others think, workers need to want to do the desired behaviour, i.e. they need a high level of commitment to the organization.

The theory of planned behaviour (Fishbein and Ajzen, 2010) is widely used in psychological research and in studies related to management (Groen *et al.*, 2012; Jimmieson *et al.*, 2008) in order to address how people can be guided to behave in certain ways. To support behavioural change, we propose a new readiness programme comprised of a series of activities related to each of the three beliefs in Ajzen's model. The activities are designed to help workers increase awareness of order and cleanliness and develop a sense of self-awareness, and to boost workers' perception of behavioural control. Hence, the present paper aims to confirm this hypothesis:

H2. Employee commitment to tidy work behaviour can be promoted through behavioural activities.

Methodology

In this study we use a case study methodology (Eisenhardt, 1989). This methodology was chosen because it allows us to validate an extension of human behaviour theory in firms (Boyer and McDermott, 1999; Voss *et al.*, 2002). In addition, this method is suitable for testing complex applications such as the readiness programme for continuous improvement. The aim is to implement the readiness programme in two firms. Our case studies involve two cases with an embedded design but with two levels of analysis in each single study. The two levels are workers and managers. The two cases were the following: an automotive firm located in northern Spain with 120 workers and an agriculture firm located in Colombia with 70 workers. Both companies are medium-sized, with sales greater than ten million dollars annually. As part of the validation procedure (Creswell, 2009; Yin, 2009), the research was supported by different sources of information: four activities (A1, A2, A3 and A4) in two firms (A and B) with two different groups of employees (workers and managers); all information was directly gathered by researchers. Each activity was applied in both companies in order to induce the elements that would enable changes in behaviour regarding workers' approach to detail and tidy work. Moreover, the activities allowed us to capture information about participants' behavioural beliefs, normative beliefs and control beliefs. Subsequent to that, further analysis was undertaken and conclusions were generated.

Readiness programme for implementing and sustaining continuous improvement processes

The purpose of our readiness programme is to develop tidy work behaviour in people as a way of preparing organizations in the process of continuous improvement. The programme is structured into two modules. The first module is oriented towards workers. This module is called multisensory workshop and it aims to affect workers' behavioural beliefs, normative beliefs and control beliefs.

The second module is aimed at managers and middle managers, as they play an important role in the improvement process through communication with workers during the course of daily activities. Workers can develop habits related to order, cleanliness and attention to detail more easily if managers and middle managers take on the role of coaches. This module is called training in coaching abilities.

As Figure 1 shows, the two modules (M1 and M2) and the four activities (A1, A2, A3 and A4) have been designed to have an impact on the employees' work behaviour.

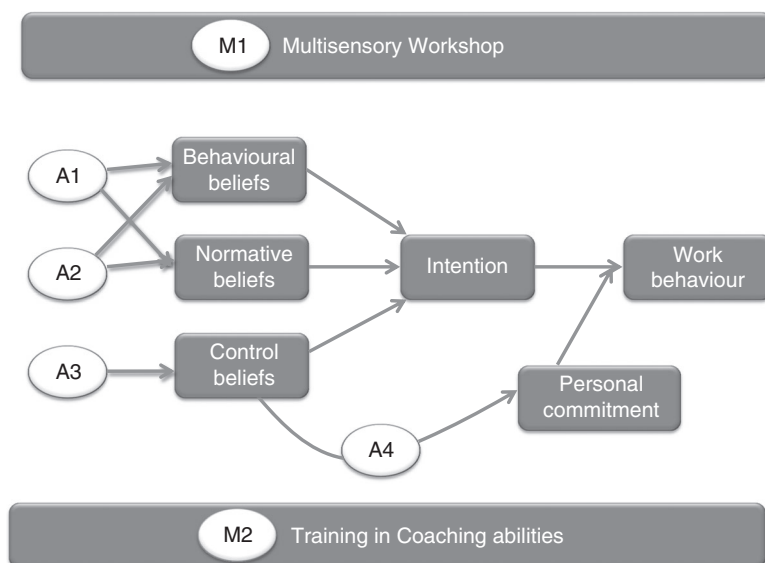


Figure 1.
Readiness
programme for
implementing and
sustaining
continuous
improvement process

Module 1 (M1): multisensory workshop

The multisensory workshop was designed for workers in order to influence the components of behavioural beliefs, normative beliefs and control beliefs. This module has two main objectives and four different activities:

- Objective 1: to help participants to be aware of their own beliefs and behaviours relating to order, cleanliness and attention to detail as a way of developing and applying them in their own workplace.
- Objective 2: to encourage meaningful and motivating primary experiences in participants in order to help them develop intention towards order, cleanliness and attention to detail.

Activity 1 (A1): awareness of order, cleanliness and attention to detail. The objective of this activity is to generate awareness of the state that produces the sense of order, cleanliness and attention to detail.

Participants perform an exercise that makes them think individually and in groups about their preferences towards two groups of items (I and II): Group I consists of a set of pencils, sheets of paper and water bottles that are clean and in perfect condition, and Group II contains a set of pencils, sheets of paper and water bottles that are damaged and messy. In this exercise, participants have to choose from materials displayed on a table. Then, participants reflect on their choices by writing about their choices and perceptions of reliability and pleasure related to those objects. They also reflect on what co-workers and clients would think if they received well-made and clean objects, and what they would think if objects were damaged and dirty. During this activity, participants indicate these opinions in a questionnaire, which is later analysed by the researchers. The variables analysed in this activity are the following:

- V1: perception is equal to the number of workers that perceive the items of each category (organized, tidy, well-done, defective, messy and dirty).

- V2: choice is equal to the number of items for each category selected by workers.
- V3: reliability is equal to workers' perception of reliability (from 0 to 10, where 0 is not reliable at all and 10 completely reliable).
- V4: pleasure is equal to workers' perception of pleasure (from 0 to 10, where 0 is not pleasant at all and 10 completely pleasant).

Activity 2 (A2): polarized experience. In this activity, the objective is to create awareness of the state that produces the sense of order, cleanliness and attention to detail in a situation of comfort, in addition to creating an awareness of efficiency and motivation in achieving a goal.

The activity consists of an experience undertaken in the context of a work team. The workers have to build a product in two different environments, first in a clean and standardized one and afterwards in a messy and dirty one. Workers are thus made aware of the results of their work in both environments, quantifying their productivity and the quality of the objects produced. They also reflect on their feelings and impressions about their work in both environments, both individually and as a group, with the aid of a questionnaire. The reflections are recorded as part of the results of this activity. In this case, all variables are related to workers' normative beliefs, from 0 to 10, where 0 was not present at all and 10 indicated a high level of presence:

- V5: comfort is equal to workers' perception of comfort.
- V6: motivation is equal to workers' perception of motivation.
- V7: effectiveness is equal to workers' perception of effectiveness.
- V8: climate is equal to workers' perception of climate.
- V9: satisfaction is equal to workers' perception of satisfaction.
- V10: helping co-workers is equal to workers' perception of help.

The group context makes individuals aware of the benefits of order and cleanliness when they are performing a group activity. Thus, this activity helps to make their beliefs about developing a behavioural intention accessible, and thus a stimulus is created as part of a desired behaviour (Bargh *et al.* 1996).

Activity 3 (A3): background platform as skill transfer. The objective of this activity is for participants to remind themselves of their own personal experiences in order to create connections that permit the transfer of skills to different tasks.

A researcher guides the group through questions that ask them to reflect on their behaviour in different scenarios. Each participant has to choose one experience or interest that they feel that they are especially good at regarding cleanliness and attention to detail. Then, each worker writes about their motivations and behaviours.

Participants are able to recreate their own successful strategies and use them as a basis for developing patterns of behaviour which can be useful for different situations. Specifically, it aims to identify the strategies that are associated with order, cleanliness and attention to detail so they can be used in different areas of their personal life and work. In this way, each individual is able to develop confidence in their ability to be orderly and pay attention to detail in their workplace, and thus to improve or change their work behaviour (Bandura, 2006).

Activity 4 (A4): future pacing. The objective of this activity is to enable participants to visualize the attainment of a future goal related to order, cleanliness or attention to detail.

This exercise allows them to mentally rehearse the success of a future situation in order to significantly increase the probability of achieving it. The activity combines the intentional attainment of an objective, which was developed in previous activities, with anticipatory self-guidance through cognitive representation. Both elements are motivators of behaviour (Bandura, 2006; Cameron-Bandler, 1978; Vaihinger, 1924).

Each participant is asked to anonymously and voluntarily make a personal commitment to reach a specific goal within a month. In doing so, participants can apply the strategy identified in activity A3. They are also asked about the satisfaction they would get if they reached that goal. After a month, participants are anonymously asked to what degree they believe they have reached their goal.

Module 2: training in coaching abilities

The second phase of the programme is designed to improve the communication skills of both managers and middle managers. Here, the training programme is dedicated to teaching practical communication techniques that promote the efficient communication of objectives related to order, cleanliness and attention to detail. This will lead to managers supporting and tutoring workers in reaching higher levels of excellence on their tasks.

This module is aimed at trying to train managers how to be in tune with workers by integrating the goals of both managers and workers. Thus, managers are trained in understanding what issues and concerns are relevant for each worker and how to make them compatible with the organization's issues and concerns. This training module is oriented towards teaching methods for identifying a conversational partner's style in order to establish a dialogue that is satisfying to both individuals.

Results

To validate the readiness programme, the four activities from Module 1, the multisensory workshop for workers, were implemented in two different organizations. The company names have been changed to A and B; the characteristics of both companies are listed in Table I.

In both companies the programme was part of a continuous improvement process. In Company A, the programme was implemented to complement training in improvement activities. Company B applied the readiness programme as the fundamental backbone of an improvement programme. In both cases, this paper only discusses the effects of applying the readiness programme and not the results of other continuous improvement components.

After implementing the readiness programme, different results were obtained in both companies in terms of:

- having participants identify their beliefs and strategies regarding order, cleanliness and attention to detail as way of developing a willing attitude to tidy work behaviour (activities A1, A2 and A3);

Company	Business	Sector	Location	Sales	Number of employees	Participants
Company A	Camshafts	Automotive	Spain	€25 million	120	9
Company B	Animal feed	Food and agriculture	Colombia	€10 million	70	33

Table I.
Company
characteristics

- using meaningful and motivating primary experiences to develop intention towards order, cleanliness and attention to detail (activities A1 and A2); and
- developing a personal commitment related to order, cleanliness and attention to detail in the workplace environment (activity A3 and A4).

Since Module 2 (M2) is a module that supports Module 1 (M1), this paper does not show the results of M2 separately. The results of the activities of Module 1 are presented separately for each company.

Case study: Company A

Company A is located in northern Spain, and it designs and produces camshafts for world trade. The company also owns a plant in the USA and another in Mexico.

The implementation of the readiness programme was carried out in three shifts on one of the production lines. When Company A decided to implement this programme, it was sceptical of the programme but wanted to try it as way to improve the work environment. The company had previously implemented the 5S strategy, though not satisfactorily.

Activity 1: awareness of order, cleanliness and attention to detail. Table II shows the results of activity A1, which relates to the choices and perceptions of participants towards tidy and untidy objects (V1). Nine people participated in this activity, which consisted of choosing from an array of objects and afterwards reflecting on their perceptions and choices.

The group was more sensitive to defective and messy items (nine of nine workers perceived the defective items and seven of nine perceived the messy items). In the case of organized and tidy items, the perception values were lower (six of nine workers perceived the organized items and five of nine perceived the tidy items). However, when they had to choose one pen, one sheet of paper and one bottle, they preferred the organized and tidy items (seven items were selected from the organized items, seven were selected from tidy ones, three from the defective ones and zero from the messy ones), as is shown by V2 variable.

When asked to reflect on possible reactions from peers and clients regarding the presence or absence of order, cleanliness and attention to detail (normative beliefs), participants showed an ability to put themselves in the place of another (Table III). Order, cleanliness and well-made products reflect education, care and prestige when associated with a client. However, in the case of a co-worker, they mean solidarity, confidence and motivation.

Items	Behavioural beliefs		Normative beliefs (average)	
	V1 Perception	V2 Choice	V3 Reliability	V4 Pleasure
1. Organized material	6	7	8.7	8.6
2. Tidy material	5	7	8.6	8.7
3. Well-made products	5	5	7.5	7.6
4. Defective, faulty products	9	3	2.5	2.4
5. Messy and untidy objects	7	0	2.8	3.5
6. Dirty products	4	0	1.8	1.5

Note: $n = 9$

Table II.
Reflections on tidy and messy objects registered by participants (activity A1) in Company A

Table III.
Perceptions about
beliefs (normative)
recorded by
participants (mean
score- activity A1)
in Company A

	What would a co-worker think?	What would a client think?
If I deliver ordered, clean and well-made products	Positive	Positive
	Good quality	Good quality
	It could be used	It could be consumed
	I care about the state of the objects	I care about the customer
	I am well-educated	There is cleaning
	I am neat and clean	I am neat and clean
	I am a careful guy	That we work with a good supplier,
	I leave the workplace as you would like it: in good shape	with a good presence, here things are right
If I deliver imperfect, messy or dirty products	Negative	Negative
	Poor quality	Poor quality
	He would complain but probably use it	Perhaps thinking they would do it better, that I am a bit of a disaster
	That I do not care	He cannot trust me
	That order and cleanliness are necessary	That there is no order or cleanliness here
	My partner does not work in a tidy and clean enough way	We do not inspire confidence
	I am a bungler	We do not apply the 5S's enough
	What a mess!	He would never buy from us again
	It turns you off	There is no seriousness here

Activity 2: polarized experience. In this activity participants first experienced working in a well organized, clean and tidy workplace, and afterward they worked in the opposite environment. Participants showed different attitudes in each workplace. Table IV shows the scores participants gave on a survey for different aspects of work after having performed an activity related to product production in both environments. On a scale of 10 (0 = not at all, 10 = completely), workers highly valued helping their co-workers (V10; 8.9), followed by perceiving comfort (V5; 8.5), motivation (V6; 7.8), satisfaction (V9; 7.8) and group climate (V8; 7.7).

Activities 3 and 4: background platform as skill transfer and future pacing. In these activities, participants identified abilities perceived to be related to tidy work behaviour, aided by a questionnaire, which was explained by the researchers. From these activities,

Variables	Messy, dirty or neglected work environment	Detail oriented and tidy work environment
V5. Comfort: you felt comfortable working in this environment	2.8	8.5
V6. Motivation: you felt motivated to work	3.2	7.8
V7. Effectiveness: you felt effective when you carried out the task	8.0	6.0
V8. Climate: you perceived a nice group climate	4.7	7.7
V9. Satisfaction: you felt satisfied during the task	4.5	7.8
V10. Helping co-workers: you felt that you were helping your co-workers (instead of hindering, bothering or stopping them)	3.4	8.9

Table IV.
Perceptions of
participants
regarding tidy and
untidy work
environments (mean
score-activity A2)
in Company A

participants anonymously committed to reaching a goal related to order and attention to detail within a month's time.

Data recorded from this activity show that workers were more attuned to maintaining order and paying attention to detail than they were to cleaning. The data are shown by percentage, in order to more easily compare the results between strategies. As a group, the strategies that activate the ability to maintain order or pay attention to detail are mostly:

- Attention to external elements (people, things, movements, images or sounds) (60 per cent) or internal (own thoughts) (40 per cent).
- Attention through visual elements (60 per cent) or kinaesthetic elements (40 per cent).
- Order and cleanliness are activated by something being out of place or disordered (40 per cent), asymmetric (20 per cent) or poorly organized (10 per cent). Most participants behave in a way that promotes order in order to feel good as well as for comfort or peace of mind.

When participants were asked about their ways of thinking, they had to choose between the strategies shown in Figure 2. This figure shows how most of the participants are motivated by efficacy (90 per cent) and by what is proposed (90 per cent). An equal number of participants prioritize behaviour that leads to results (50 per cent) and to getting along well with their peers (50 per cent).

To facilitate changes in behaviour towards order and a tidy work environment, participants were asked to make a personal commitment to a work-related goal, as shown in the following list. The commitments were voluntary and anonymous.

Examples of goals related to order, cleanliness and attention to detail, set by participants (activity A3) in Company A:

- workers' goals;
- pay more attention to detail so my co-worker can start working comfortably;
- have the work cell and work tools ordered;
- keep the workplace tidy and clean during the shift;
- check and verify that my workplace is in good condition;
- produce all the products without any defect;
- leave all the work tools in their proper place before I go;
- clean machine sludge and put tools in their proper place;

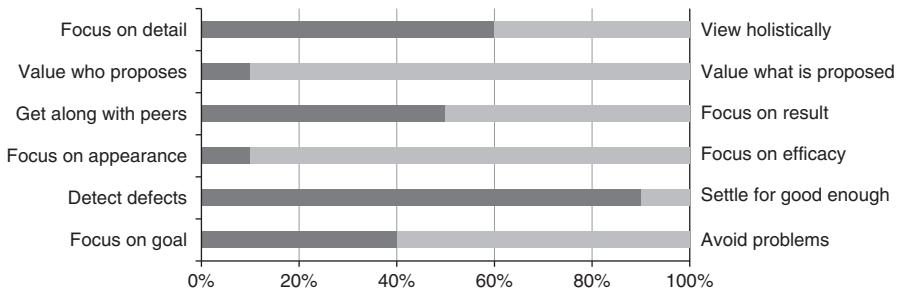


Figure 2.
Strategies for
developing intention
(activity A3) in
Company A

- prepare the machine faster and better;
- leave production worksheets in their place, to avoid going to the manager; and
- change scrap containers when they are half-filled.

In conclusion, the participants are made aware of order, cleanliness and attention to detail through the identification of behavioural beliefs, normative beliefs and control beliefs in different activities. They also made a voluntary commitment to the desired work behaviour. All the participants expressed their intention to improve order, cleanliness and attention to detail while carrying out their daily tasks. After one month, 60 per cent of the voluntary and anonymous commitments had been kept.

Case study: Company B

Company B, located in Colombia, produces animal feed supplements, specializing in the cattle industry. The readiness programme was implemented as part of a continuous improvement process, and 33 employees participated in the programme. Results for each of the activities are presented and discussed below.

Activity 1: awareness of order, cleanliness and attention to detail. This activity detects participants' perceptions towards tidy and untidy products by analysing their perceptions and choices. In this case, participants mostly paid attention to organized and tidy products, as observed in Table V (V1-perception). However, they barely noticed dirty products. When the group made a choice, they were motivated by what they liked or perceived as positive (Items 1, 2 and 3 in Table V).

In terms of their normative beliefs, Table VI shows that they perceived order, cleanliness and well-made products as denoting quality, prestige and reliability when associated with a client. In the case of co-workers, they associate order, cleanliness and well-finished products with respect, trust and companionship.

Activity 2: polarized experience. Like Company A, after completing activity 2 participants in Company B rated comfort, perceived motivation and helping co-workers (V5, V6 and V10) in the tidy work environment very highly, as observed in Table VII.

Activities 3 and 4: background platform as skill transfer and future pacing. The purpose of these activities is to identify strategies from information recorded by participants, who are guided by a researcher through questions and open dialogue. The analysis of written responses allowed researchers to identify the group strategies.

Items	Behavioural beliefs		Normative beliefs (average)	
	V1 Perception	V2 Choice	V3 Reliability	V4 Pleasure
1. Organized material	26	30	9.3	9.9
2. Tidy material	30	26	9.2	9.8
3. Well-made products	20	20	8.9	9.3
4. Defective, faulty products	24	13	2.9	2.9
5. Messy and untidy objects	23	3	3.0	3.0
6. Dirty products	11	7	1.7	1.7

Note: $n = 33$

Table V.
Reflections on tidy
and messy objects
registered by
participants (activity
A1) in Company B

Table VI.
Perceptions about beliefs (normative) registered by participants (activity A1) in Company B (examples)

	What would a co-worker think?	What would a client think?
If I deliver ordered, clean and well-finished products	I am a perfectionist, orderly and respectful person He/she would be very satisfied I feel respect towards work and I am a neat person I am an organized person Order and quality give a very good impression that I am nice person Trust, respect	Satisfaction with the conditions of the articles A well organized and tidy company Respect, trust Process and objectives are clear The work is methodologically and reliably done The company for which they work is good
If I deliver imperfect, messy or dirty products	I am a good worker, very organized I am not interested in what others think of me Sadness to deliver things in bad conditions Unreliable work Neatness, dissatisfaction I am a disorganized person that does not care about the company or clients It lacks respect	Good image for the company That I have no future as a supplier Poor image Distrust I would not buy articles from this company any more They do not work well Products are defective This company is not reliable Irresponsible company Dissatisfaction with the company Nasty business Company pays very poor attention to client Feeling that the client is not important

Table VII.
Perceptions of participants regarding tidy and untidy work environments (mean score-activity A2) in Company B

Variables	Messy, dirty or neglected work environment	Detail oriented and tidy work environment
V5. Comfort: you felt comfortable working in this environment	1.7	9.9
V6. Motivation: you felt motivated to work	1.7	9.9
V7. Effectiveness: you felt effective when you carried out the task	3.4	8.6
V8. Climate: you perceived a nice group climate	4.6	9.2
V9. Satisfaction: you felt satisfied during the task	3.6	8.1
V10. Helping co-workers: you felt that you were helping your co-workers (instead of hindering, bothering or stopping them)	2.9	9.7

The group-identified strategies mostly related to maintaining order and cleanliness rather than ones related to attention to detail:

- Attention to internal elements (own thoughts): 72 per cent; attention to external elements (people, things, movements, images or sounds) – only 28 per cent. This indicates that for most participants it is more effective to be convinced about the importance of order and cleanliness internally than to conform to an external norm or standard.
- Attention through visual elements (61 per cent) or kinaesthetic elements (31 per cent).

- Most of the participants (58 per cent) consider their main objective to be reaching a goal or being successful when they act in a tidy or detail-oriented way. For 35 per cent of the participants, calmness and serenity are objectives that they connect with order, cleanliness and attention to detail.

When participants had to choose between a pair of strategies, most of them were motivated by being goal oriented (90 per cent) and fault searching (85 per cent), as Figure 3 shows.

The following list shows some examples of the personal commitments made by participants during activity A3. As in Company A, the commitments were related to order, cleanliness and attention to detail. In this case, 80 per cent of the voluntary and anonymous commitments had been kept after a month.

Examples of goals related to order, cleanliness and attention to detail, established by participants (activity A3) in Company B:

- workers' goals;
- sort my desk to leave free space;
- keep organized files and drawers;
- organize, identify and classify folders with quality control information;
- do not let pending issues accumulate;
- remove obsolete equipment and order my workplace;
- organize production without many stops;
- detail and improve in the area of production and quality;
- eliminate, with the help of others, flour leaks in the pelletized platform area;
- sort the finished product correctly;
- inform my manager each time merchandise arrives;
- organize plates;
- organize the workplace;
- keep the workplace clean and care about the details;
- keep the workplace clean and also tidy up at the end of the day; and
- sort and check all raw materials coming in to the company.

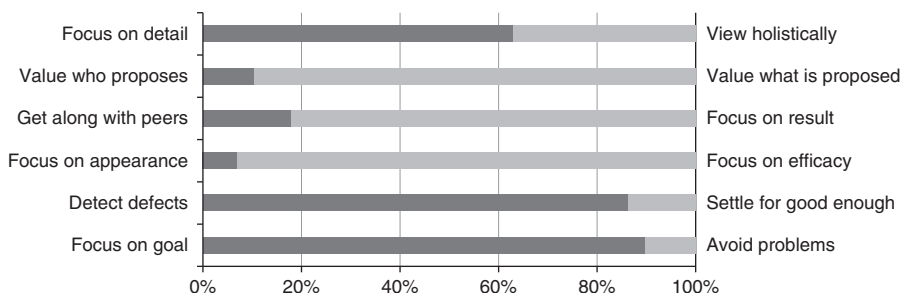


Figure 3.
Strategies for developing intention (activity A3) in Company B

In Company B, the implementation of Module 1, the multisensory workshop, met the objective of developing personal strategies and subsequent intentions for behaviour that was focused on order, cleanliness and attention to detail. The commitment of the participants was maintained over time. In this company the strategies developed related to order were manifested and developed during the continuous improvement programme that was later established.

Implications and summary

The most important contribution of this research is to highlight the value of introducing a readiness programme before any 5S activity or continuous improvement is implemented in Western companies.

Results obtained from the two companies showed that each group or person has different perceptions regarding order or disorder in a given situation. For example, employees from Company A perceive defective products more easily. However, in Company B workers pay more attention to tidy and clean products. In both cases, tidy and organized products are preferred in ordinary situations.

During Activity 2, the researchers also observed that employees worked better in the clean and tidy environment than in the messy environment, even though it did not always impact their results. This attitude was also noticed by workers when they filled in the questionnaire that accompanied this activity. Workers specified their behavioural beliefs and normative beliefs as perceptions about dirty and clean objects and personal preferences in both situations. They also reflected on the beliefs of clients and co-workers with regard to their own behaviour in both situations. The activity helped them to identify beliefs that are oriented towards personal motivation, quality or value for their co-workers and clients. Therefore, it is clear that when it comes to order, detail and a tidy environment, companies should motivate their workers with arguments related to the improvement and comfort of the working environment and facilitate such improvements and comforts for them and for their co-workers. New behaviour is likely to be instilled if the proper motivation or trigger is applied, and for that reason, messages in the following terms could be useful for motivating workers to demonstrate tidy work behaviour:

- By explaining what tidy work behaviour is for: sorting, cleaning and organizing are useful in order to not disturb our co-workers, to feel more comfortable.
- By explaining how to do things: using visual forms to make order and disorder visible. For example, outlining the places where things belong and helping workers identify their absence quickly. In other words, visual control should be emphasized.

Module 2, training in coaching abilities, was applied in both companies, but it was not validated since it is a classic training activity. However it has been included in this paper because the module is integral to achieving the objective of the readiness programme.

Having fully applied Module 1 of our readiness programme in two different companies, we were able to detect the beliefs of each group in order to modify their behaviour towards order, cleanliness and attention to detail. Specifically, in these two companies the implementation of tools such as 5S cannot be done with the primary objective of increasing productivity, which is not related to the motivation of the workers. The participants in both case studies were motivated by seeking their own

comfort (environmental comfort) and that of their co-workers. In other words, they look to feeling good when accomplishing their work.

The multisensory workshop (Module 1) helped to promote detail oriented and tidy work behaviour through sensory experiences, which were reinforced through communication strategies developed in Module 2. As a result, this readiness programme has shown itself to be helpful in developing tidy work behaviour and habits related to order and attention to detail in workers at both companies.

Preliminary results showed that workers did not lack a commitment to order, cleanliness and attention to detail. On the contrary, in both cases workers revealed a high level of involvement in the subsequent implementation of continuous improvement activities.

Although the results are inconclusive at this moment, Company B has improved aspects related to order and tidiness as result of the workshop. Participants in the workshop also expressed a change in attitude and intention towards tidy work behaviour, which positively contributes to the maintenance of the new conditions of order and cleanliness in the company.

Therefore, this paper has shown that the readiness programme applied before implementing 5S is adequate as a base for developing behaviour towards order, cleanliness and attention to detail. As the study was limited to two companies in a period of three to six months, the results cannot be generalized. Further application of the program needs to be made in order to obtain results in different companies over time and so the findings can be generalized.

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Further reading

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