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Individual accountability

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3. The role of individual accountability in promoting quality management systems³

3.1 Introduction

Quality management systems (QMS) in organizations are meant to control and improve process and product quality. By their very nature quality management systems tend to rely mainly on the formalization of procedures. They contain prescriptions for the coordination of activities in organizations in order to control, assure and improve process and product quality (ISO 9000, 2000; Evans & Lindsay, 2002) and allow employees to perform their jobs better (Ruzevivičius, Adomaitienė & Sirvidaitė, 2004). In the early days of quality management these systems were mainly focused on technical issues, such as inspection, process control, and defect measurement and control. However, since the 1980s quality management systems tend to be more focused on motivating people, as Hackman and Wageman (1995) put it: “... to work harder (i.e. with more effort), smarter (i.e. with greater knowledge and skill), and more responsively (i.e. with task performance strategies better attuned to customer requirements)”. In addition, more attention has been paid to social issues, such as the empowerment of workers (Ichniowski & Shaw, 1999; Jackson, 2004), new leadership styles, such as transformational leadership and emotional intelligence leadership (Evans & Lindsay, 2002), and finally performance management (Molleman & Timmerman, 2003).

Despite the inclusion of motivational and social elements in the QMS, employees do not always appreciate these systems and sometimes fail to comply with their rules. In the literature, many reasons are discussed that explain why this is the case (Reason, Parker & Lawton, 1998). The positive side of the formalization of procedures, an aspect of QMS that still prevails, is that it creates high levels of clarity for the workers with regard to what is expected of them. The negative side

³ This chapter is based on: Turusbekova, N., Broekhuis, M., Emans, B. & Molleman, E. (2007). The role of individual accountability in promoting quality management systems,

is that formalization may simultaneously fail to motivate these workers to live up to the company's expectations, embedded in the QMS.

Based on several studies, Lawton (1998) developed a general model that includes the main causes underlying violations of QMS procedures and rules. One of the most essential causes Lawton identifies is the attitude and motivation of employees. These may be influenced through, among other things, the employees' participation in developing and building the system by means of work design and empowerment (Jackson, 2004). Another motivational factor that has recently been mentioned quite often in organizational and psychological literature, although not yet in the context of quality management issues, is individual accountability. Frink and Klimoski (1998) defined this concept as '... the need to justify or defend a decision or action to some audience which has potential reward and sanction power' (p. 9). When applying this definition to the QMS, it refers to a situation where employees are held personally responsible for working in line with the QMS, while at the same time they are expected to justify their QMS-related decisions or behavior to their superiors, peers, clients or other powerful parties. Especially in organizations with highly empowered employees, individual accountability is an important issue, as these employees are considered to be capable of accounting for the decisions that they make (Brumback, 2003; Forrester, 2000; Hill & Huq, 2004).

The study presented in this paper focuses on evaluating a newly introduced quality management system in a gas producing firm. In particular, attention is paid to the influence of the employees' individual accountability with respect to their "belief in the system" and "use of the system". Belief and use are vital to the success of any quality management system. Belief in the system is a reflection of the inner conviction of an employee. The behavioral counterpart of belief is the "use of the system", which means referring to the system in everyday circumstances. The use of the system may be the natural consequence of believing in the system (Fishbein & Ajzen, 1975) but it can also be extrinsically motivated: employees do not necessarily have to believe in the system in order to use it. However, a combination of "belief" and "use" is deemed beneficial for the implementation of the standards and procedures of the QMS. Therefore, in this

study the success of the QMS is expressed via these two outcome variables. We expect that being individually accountable for working in line with a QMS will strengthen the belief in the system as well as its use. Below we will elaborate these expectations in more detail.

3.2 Individual accountability, belief in and use of the quality management system

Accountability, as in the definition by Frink & Klimoski (1998) cited above, includes various features (see Figure 3.1). Rather than being a unitary phenomenon, it is the interplay of factors (Emans, Turusbekova, Broekhuis & Molleman, 2004). Each of these factors is supposed to be a motivational force both in itself and in combination with the other factors.

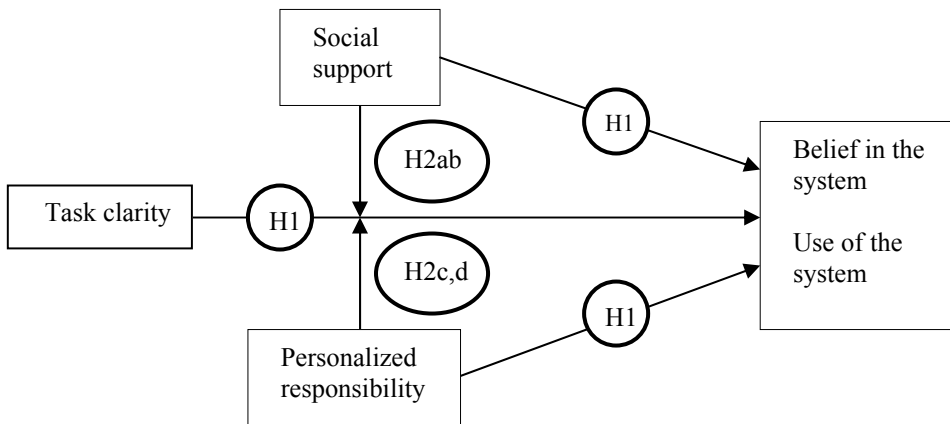


Figure 3.1: Research model (2)

When applying the accountability concept to the QMS, we distinguish three accountability elements. The first and most critical one is clarity, which is the whole of standards and expectations on the basis of which an employee's behavior is evaluated. In accordance with QMS assumptions, the accountability theory (Frink & Klimoski, 1998; Frink & Ferris, 1998; Cummings & Anton, 1990; Klimoski & Inks, 1990), in line with other motivation theories such as the goal setting theory (Locke & Latham, 1990), asserts that it is important for an employee to have clear standards that make unambiguous what is expected. In the context of

our study this assertion refers to the clarity of the QMS, or in short, system clarity.

The second element of accountability is social support, which in a QMS context may be presented as the encouragement to use the system. This social support is provided by superiors and/or peers who observe the agent. Social support reflects the social nature of the accountability phenomenon. The regular encouragement from supervisor and colleagues reminds the agent of the presence of an observing and evaluating audience and brings to the foreground the expectations of this audience with respect to the agent's behavior.

The third accountability element is the personalized responsibility that spells out the responsibility assigned to an employee in relation to the responsibilities of others. It implies that the responsibility for a task or part of a task belongs exclusively to the employee rather than being dispersed among some anonymous workforce. It thus adds to the employee's identity *vis-à-vis* his/her colleagues. According to Schlenker, Weigold & Doherty (1991), personalized responsibility is an adhesive that binds the components of individual accountability together. Individuals, who believe that they take part in a collective task with others to such a degree that they can no longer be identified as responsible persons, are more inclined to reduce their efforts than when they are personally responsible (Earley, 1989).

We hypothesize that each of the three accountability elements (system clarity, social support and personalized responsibility) is positively related to both the belief in the system and the use of the system (see Figure 3.1 for an overview of the hypotheses). To begin, *we expect system clarity to be positively associated with both: the use of the system and the belief in the system* (hypothesis 1a). This is just a rewording of one of the cornerstones of the goal setting theory, where goal clarity is expected to promote performance as well as commitment, two outcomes that correspond to the use of and the belief in the system. A clear system makes using the system unambiguous and easy, therefore promoting the use of the system. Clarity makes the system more plausible and it is more feasible to believe in a clear system than in an unclear one. Therefore we expect the positive effect of system clarity on both outcome variables.

Second, *we hypothesize direct positive effects of social support on the belief in the system and the use of the system* (hypothesis 1b). Social support is known to be a broad-range motivating factor, as is evidenced in studies on relationships

between social support and performance (O'Reily & Chatman, 1986), social support and worker's well-being and productivity (Park Kyoung-Ok, Wilson, Myung Sun Lee, 2004). Social support convinces an employee that others in his or her social environment find it important to use the system. This sort of positive pressure may induce the employee to actually use QMS. Social support is therefore expected to be positively associated with the use of the system. There is evidence of a positive relationship between social support and trust (Bakker, 2004). Our dependent variable belief in the system comes conceptually close to trust. If an employee is convinced that others in the organization support the use of the system and value the system, his or her belief in the system may be strengthened. Therefore we expect that social support and the belief in the system are positively related.

Third, *we expect positive effects of personalized responsibility* (hypotheses 1c, see Figure 3.1). The use of the system is often regarded as a requirement, and personalized responsibility for using the system makes the employee more identifiable in case the requirement is not fulfilled. One is then expected to use the system in order to avoid sanctions for not using it. Besides, when such a responsibility is assigned, it makes explicit the expectations that the organization has of the employee regarding the use of the system and thus facilitates the use of the system. Therefore we expect a personally responsible employee to make more use of the system. Likewise the relationship between personalized responsibility and belief in the system is expected to be positive. QMS acts as an important official source of reference to substantiate the actions and decisions and personalized responsibility puts the agent in the position of having to rely on the system. Reliance may help the employee to realize the benefits of the system and that this system is indeed meant as a useful tool for guidance and validation. As a result the belief in the system may be promoted.

Thus far, we considered the three accountability elements, clarity of the system, personalized responsibility and social support, as separate entities. However, since accountability is likely to be the interplay of these elements, we should account for the interactive impact of these elements. Positive interaction of its elements makes the accountability phenomenon a motivational force in its entirety, where the

elements strengthen each other resulting in a compilation⁴ of elements. We expect the accountability elements to strengthen each others' impact on the use of and the belief in the system. As already mentioned, clarity is a motivator that is inherent in the system itself. Personalized responsibility is a motivator embedded in the individual who is made responsible for using the system, and social support is an external motivator coming from an outside party. The internal and external motivators are expected to strengthen the relationship between the system's motivating property and the belief and the use of the system.

The rationale underlying the forthcoming hypotheses is that both social support and personalized responsibility prevent employees from neglecting the message that is conveyed to them by the clear system. The system's clarity promotes feelings of its reliability and trustworthiness while receiving social support from colleagues and supervisor conveys a message that the system is important to be consulted. This combination of system's clarity and social support is expected to be associated with higher belief in the system. Receiving cues that suggest that the system should be used makes it difficult to overlook the clear messages contained in the system and avoid using it. Therefore, *we expect that social support will strengthen the relationship between system clarity and belief in the system* (hypothesis 2a, Figure 3.1) *and the relationship between system clarity and the use of the system* (hypothesis 2b).

When employees are personally responsible for using a clear system they will be more likely to use it and are more likely to believe in it. The clear system has more chances to actually be used and applied in practice when employees are personally responsible for doing so. Being personally responsible for using a clear system gives a solid prescription about what has to be done and reduces ambiguity. The interplay of system clarity and personalized responsibility will assist the working process and therefore promote the belief in the system's good qualities. *We hypothesize that personalized responsibility will strengthen the relationship between system clarity and belief in the system* (hypothesis 2c) *and the relationship between system clarity and the use of the system* (hypothesis 2d, figure 3.1).

⁴ For the explanation of the term, please see chapter 1

3.3 Method

3.3.1 Organizational setting

The study was conducted at a large gas producer in the Netherlands, with an annual production of around 50 billion m³. In 2001, the organization was reorganized into six asset units, which are centrally managed from the head office. At the same time, the organization introduced a new quality management system based on risk analysis. All possible risks were identified, and control, assurance and improvement measures were developed to assure that what was produced and delivered would be henceforth in conformity with the requirements. The three targets related to the QMS were 1) to form a unique framework for behavior rules, 2) to establish a framework that could be used unambiguously throughout the whole organization, and 3) to develop a user-friendly system.

3.3.2 Participants

To participate in the study, each 3rd employee was chosen from an alphabetic list until 590 persons were selected, with a 43.5% response rate, there were 257 respondents. 10.1% of the respondents were women. The average age of the participants was 44 years, the average tenure with the company was 19 years, and the average number of years working in the current position was 6. The age and sex averages of the sample were the same as the overall company's averages.

3.3.3 Procedures

There were two instruments for data collection: semi-structured interviews and a web-based questionnaire. Prior to being administered, both instruments were piloted with persons in and outside the company. A steering committee was formed consisting of several staff members belonging to different departments of the company to assist in the fine-tuning of the questions and concepts used in the study. The questionnaire was available in English and in Dutch, since the employees were either native Dutch speakers or English speaking foreigners. The questionnaire was accessible online for one and a half months. The persons in the sample were contacted by email, inviting them to fill out the web-based questionnaire. After three weeks, a reminder email was sent and eventually 257 people responded. The interviews were used to supplement the questionnaire data

with illustrations. For the interviews 25 persons were approached at random. The questions of the interview guide were similar to those used in the questionnaire.

3.3.4 Measures

We partially used a questionnaire of Locke and Latham (1990) as the basis for the operationalization of clarity, social support and belief in the system. New scales had to be made for the variables ‘personalized responsibility’ and ‘use of the system’. To make them fit the context of the study, items were adjusted or developed for the specific QMS used at the company.

The independent variable and moderators were measured by using the following scales. The scale to measure system clarity ($\alpha = .89$) consisted of 5 items: “QMS is clear to me”, “I know what is expected of me regarding the use of QMS”, “I know when I should make use of QMS”, “I always understand the language used in QMS”, and “I always understand the terminology used in QMS”.

The social support variable ($\alpha = .90$) measured encouragement, a sort of informal pressure from both supervisor and colleagues to use the QMS. The scale consisted of two items: "My supervisor encourages me to use QMS", "My colleagues encourage me to use QMS".

Personalized responsibility was measured by means of two items “I am personally held responsible for applying QMS adequately in my job” and “I personally feel obliged to use QMS” ($\alpha = .77$).

The outcome variables were measured in the following way. The “belief in the system” was measured by means of the questionnaire items “QMS is useful for me”, and a reverse item “QMS regulations serve to limit rather than raise my performance” ($\alpha = .60$). The second outcome variable, use of the system, was measured by one item formulated as: “I refer to QMS as often as I need it”. This definition was adopted since the system had a support function and was to be consulted if required. For all variables 7-point Likert-type items were used, anchored by *strongly disagree* (score 1) and *strongly agree* (score 7).

3.4 Results

The means and standard deviations of the variables as well as the corresponding correlation matrix are presented in Table 3.1. As can be seen, all variables are

significantly positively related to the belief in the system and the use of the system.

Table3.1: Descriptive Statistics, Correlation Matrix

Variable	n items	α	M	SD	1	2	3	4	5
1. System clarity	5	.89	4.70	1.22	-				
2. Personalized responsibility	2	.77	4.53	1.46	.73**	-			
3. Social support	2	.90	3.80	1.54	.52**	.69**	-		
4. Belief in system	2	.60	4.66	1.15	.68**	.70**	.48**	-	
5. Use of the system	1	-	4.79	1.67	.75**	.74**	.55**	.66**	-

Note: N = 256; ** p < .01 level (2-tailed).

Multiple regression analyses were carried out to test for main and interactive effects. Following the procedures recommended by Aiken and West (1991), standardized variables were used in all analyses. In each analysis, the two main effects were entered in the first step, and the interaction effect was entered in the second step of the analysis. The results of multiple regression analyses are summarized in 3.2. All main effects are significant and positive, which is entirely in accordance with hypotheses 1a, 1b and 1c.

Table3.2: Moderated Regression Results for Belief in the System and Use of the System

	Belief in the system		Use of the system	
	β	p	β	p
System clarity (A)	0.64	.000	0.58	.000
Social support (B)	0.16	.003	0.24	.000
A x B	0.09	.062	-0.11	.016
System clarity (A)	0.42	.000	0.42	.000
Personalized responsibility (B)	0.44	.000	0.39	.000
A x B	0.12	.011	-0.10	.015

Note: N = 256; (2-tailed)

The significant positive relationship between system clarity, and the belief in the system and the use of the system (H 1a) can be illustrated by the following interview quote: “It [the QMS] helps, because rules are there, and you can be clear, we have contractors, and we have to have something on paper, and you can

explain the requirements” and “it’s always good to have written procedures and responsibilities, tasks and targets.”

Also social support is positively related to both belief in the system and use of the system (H 1b). In the absence of social support both belief in the system and use of the system may suffer, as the following quote shows: “Maybe we follow procedures that are part of the QMS, but I just do not know. No one said: “make sure you check the QMS.”

The impact of personalized responsibility on belief in the system and use of the system (H 1c) can be illustrated by the quote: “Getting full responsibility (for using the system) makes me feel that they believe in me, and I feel they trust me, so I should do what is required to the best of my ability” and “the clarity of the responsibilities is extremely important; what it is that you are accountable for, and you should not be held accountable for things for which you have not really been given responsibility.”

To interpret the pattern of the interaction effects, we plotted the relationship between system clarity and personalized responsibility/social support for respondents who perceived the system as rather unclear (1 SD below the mean) and for respondents who scored high on system clarity (1 SD above the mean).

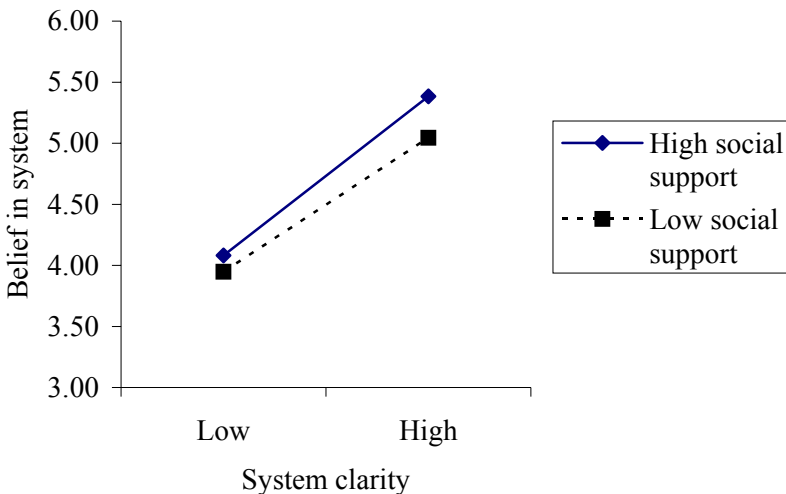


Figure 3.2: Belief in system regressed on low and high system clarity for high and low social support.

It was hypothesized (hypothesis 2a) that there is a positive effect of social support on the relationship between system clarity and the belief in the system. In accordance with the hypothesis the results indeed show a near-to-significant interaction ($p=.06$, two-sided test) between social support and system clarity (see Figure 3.2). Both lines go up, which indicates the positive main effect of system clarity. The solid line, representing high social support, is steeper and lies above the dotted line, representing low social support. This means that when social support is high, the relationship between system clarity and the belief in the system is stronger. High system clarity and high social support are associated with the highest level of belief in the system.

Hypothesis 2b states that there is a positive effect of social support on the relationship between system clarity and the use of the system. Results show a significant interaction effect, however, the type of interaction that surfaces here is not in line with the hypothesis. Rather than a strengthening, a weakening of the relationship takes place (see Figure 3.3).

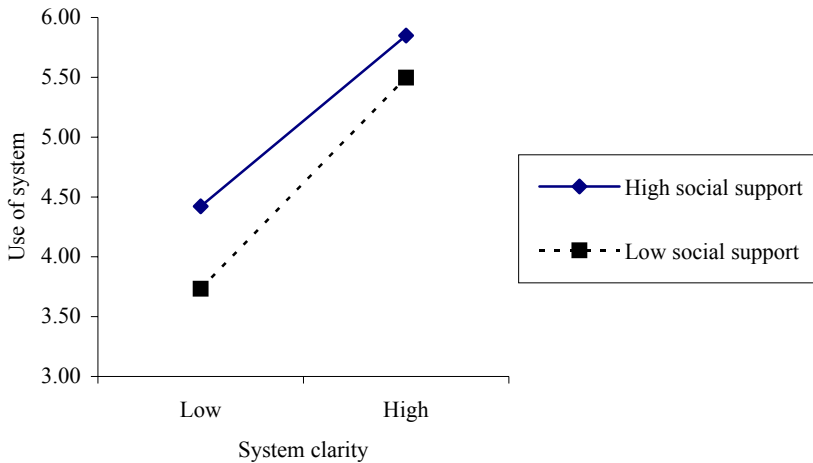


Figure 3.3: Use of system regressed on low and high system clarity for high and low social support.

According to hypothesis 2c we expected personalized responsibility to strengthen the relationship between system clarity and the belief in the system. In support of this hypothesis there is a significant positive interaction between system clarity and personalized responsibility, depicted in Figure 3.4. The line of high

personalized responsibility is the steeper one, and it lies above the line of low personalized responsibility. Both lines point upwards, indicating the positive main effect of system clarity. Personalized responsibility strengthens the relationship between system clarity and belief in the system.

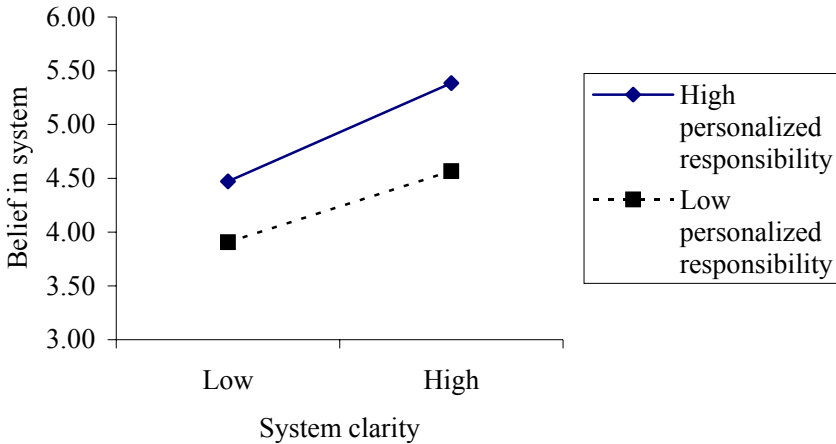


Figure 3.4: Belief in system regressed on low and high system clarity for high and low personalized responsibility.

Finally we hypothesized (H 2d) that personalized responsibility strengthens the relationship between system clarity and the use of the system. There is a significant interaction between personalized responsibility and system clarity, but the sign of the interaction is not in accordance with hypothesis 2d. It appears (Figure 3.5) that higher levels of personalized responsibility are associated with a weaker relationship between system clarity and use of the system. From Figure 3.5 we infer that when system clarity is low, high personalized responsibility is relatively more important in terms of the use of the system than when system clarity is high. High personalized responsibility for a clear system is associated the highest level of the use of the system. Of the four interaction hypotheses two (H 2a and H 2c) have been confirmed, and the other two (H 2b and H 2d) yielded unexpected results, further interpretation thereof is offered in the following section.

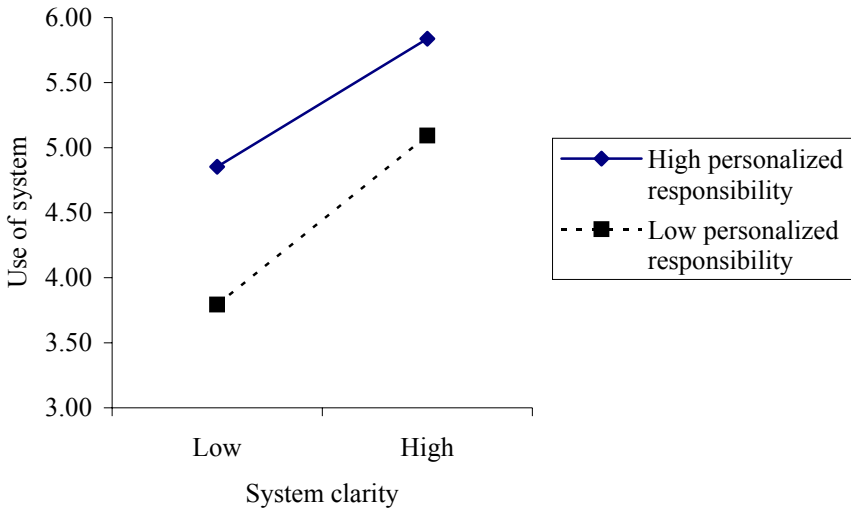


Figure 3.5: Use of system regressed on low and high system clarity for high and low personalized responsibility.

3.5 Discussion and conclusions

Correlations between the three elements of accountability and the outcomes variables together with the positive main effects of the independent variable and the moderators lead to the first conclusion. As described in the models of accountability of Frink and Klimoski (1998) and of Lerner and Tetlock (1999), these elements indeed represent motivational factors.

Social support - the informal pressure of peers and superiors to comply with the arrangements laid down in the QMS - has some similarities with the concept of performance management (Pock, Westlund & Fahrni, 2004). Stimulating adherence to QMS can be achieved by encouraging informal reflection on each others' work, and fostering an atmosphere where people feel free to discuss problems and (near) accidents.

Of particular interest is personalized responsibility which has relatively stronger main effects on both dependent variables and is also more strongly correlated with the dependent variables than social support. Compared with system clarity, personalized responsibility is more highly correlated with belief in the system, and as regression analyses have shown, it has strong main effects on both dependent

variables (see Table 3.2). This underlines the importance of personalized responsibility for the success of the QMS.

The research finding that personalized responsibility can have an impact on the success of a QMS is an important addition to other related motivational concepts, such as process ownership (see e.g. Siemieniuch & Sinclair, 2002) and creating distinct and balanced tasks, responsibilities and authorities (TRA's) (Ahaus & Van de Water, 1994). Process ownership, which also increases felt responsibility, can, however, only be used to motivate a distinct number of managing employees, as there is only a limited amount of processes in organizations. Similarly, TRAs which are often determined top down, do not always create feelings of personalized responsibility for every employee. Nevertheless, the TRAs constitute the framework for the tasks that the worker has to feel personally responsible for.

Personalized responsibility can be stimulated and strengthened by treating the workers with the required trust and respect as well as providing them with resources and authorities. Additionally, in order to stimulate feelings of personalized responsibility the employees should be given the necessary time to fulfill their tasks properly, and be shown what and how they contribute to the whole (Hellison, Cutforth, Martinek, Kallusky, Parker & Steihl, 2000; Wright, Gaebler-Spira & White, 2004).

As expected, both social support and personalized responsibility have a strengthening effect on the relationship between clarity and belief in the system. The goal setting theory has already suggested that in order for a system to be feasible it has to be clear and specific. The results of this investigation suggest that organizations could employ additional motivational factors to increase the employees' belief in the QM systems. The focus in mainstream quality management on system clarity is correct. Additionally this study shows that reflecting the social context - personalized responsibility of the individual workers and the social support of the individual employee - in quality management policies contributes to a positive attitude toward the quality system. Therefore, we may conclude that the model is useful for at least partially ensuring QMS success.

When it comes to actually *using* the QMS, the results have shown that the social context variables may have a weakening effect on the relationship between clarity and the use of the system. When the level of clarity is low, the use of the system is strengthened by a high degree of social support or personalized responsibility. A

possible explanation is that, when clarity is low, employees who feel personally responsible or receive social support are thereby stimulated to “create their own clarity” by developing their own personal benchmarks, in an effort to show behavior for which they know they are held accountable. Personalized responsibility or encouragement to use the QMS may promote the use of the system even if it is not quite clear. In the present situation personalized responsibility and social support may compensate for a lack of clarity.

When the level of clarity is high we observe a weakened effect of both social support and personalized responsibility on the use of the system. We may speak about substitution effects, since the opposite is of course also true: when social support /personalized responsibility are high, the effect of additional clarity on the use of the system is weakened. In the case of social support, this could be explained by the argument that high system clarity facilitates the use of the system, and additional encouragement to use it may be superfluous or even make the employee feel professionally undermined. The same may apply to personalized responsibility and system clarity; when the system is clear it is sufficient in order to use it and feeling obliged or personally responsible for using it is then superfluous. Generally speaking, the above described substitution interpretations may be considered as consistent with the recent developments in the accountability studies (e.g. see Frink & Klimoski, 2004), which show that agents can be proactive in shaping their duties and in fact act as catalysts rather than that they merely passively accept a premeditated set of expectations. A clear system will provide all the opportunities for a proactive way of working. Strong social context factors may then have a weakening effect on the use of the system because they represent the elements of pre-meditation and control.

Another possible interpretation of the above-mentioned weakening effect is based on the work of Frink & Ferris (1998). They suggest a possible decoupling of the clarity - performance relationship as they found a negative correlation between goals and performance under the conditions of a strong social context. Perhaps strong social support and personalized responsibility put too high a pressure on the employee and force the employee to practice impressions management rather than actually performing according to the expectations. These possible explanations of the weakening effects are still to be investigated.

Some methodological constraints of this study should be mentioned. First, the

scales that were used need further construct validation, e.g. social support was operationalized in a specific manner as encouragement. Second, cross-sectional design and self-report data were used, which could have resulted in some bias. Given these limitations, our findings should be considered as preliminary.

Nonetheless, in terms of theory our findings show that individual accountability is most probably not a unitary construct. Accountability factors on their own appear to be motivators to use of the system and belief in the system. The interactions of the accountability factors show a more detailed picture, that suggests that taken together, the factors may influence attitude (belief in the system) differently than behavior (use of the system). As far as attitude is concerned, individual accountability appears to be an interplay of strengthening factors. As far as behavior, is concerned, a weakening effect surfaced and the role of the accountability factors should still be clarified in further research. In practical terms this study has shown that various manipulations of accountability components are associated with a more or a less successful QMS. In order to build up a strong QMS, quality management practitioners should always take into account the social context factors and use the components of individual accountability and their combinations to improve the effectiveness of a QMS.