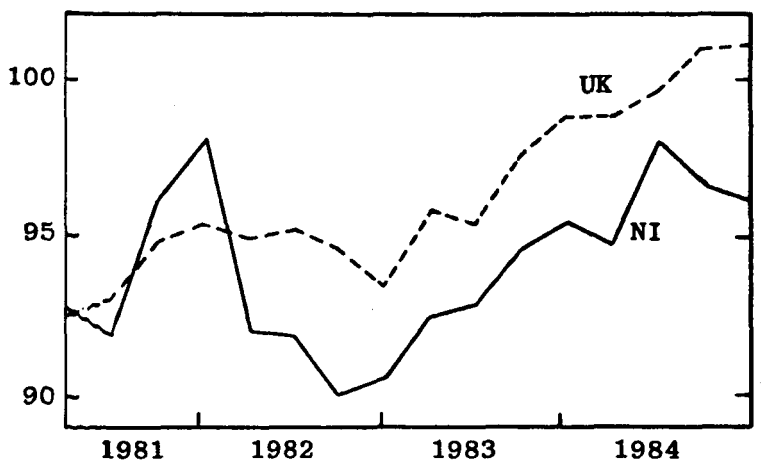
A STUDY OF QUALITY CIRCLES IN NORTHERN IRELAND MANUFACTURING INDUSTRY

Frances M. Hill*

Introduction

To say that Northern Ireland is a small country with enormous problems, particularly of the social and economic variety, is something of an understatement. For example, as at December 1985, 21.3% of the working population, excluding school-leavers, were unemployed (Employment Gazette, December 1985, seasonally adjusted figures). However, despite the adverse economic climate those employed in the Province's business and industry have it in their power to help themselves and the economy, at least to some extent. There is, for example, plenty of scope for improving industrial output, as the graph in Figure 1, reproduced from the report of the N. Ireland Economic Council *"Economic Assessment: April 1985" demonstrates. To quote from this report: "These figures are in line with other economic indicators in showing that local manufacturing performed more poorly than United Kingdom manufacturing between 1979 and 1983".*

Figure 1: Manufacturing output in Northern Ireland and the United Kingdom, 1981-84 (1980=100)



Sources: Department of Economic Development, Central Statistical Office.

*The author is Lecturer in the Department of Business Studies, The Queen's University of Belfast.

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The task of economic recovery will not be easy, but it would surely be greatly facilitated if both sides of industry could abandon their traditional adversarial relationships and work together towards this end. However, if this kind of constructive approach is ever to become a reality, the initiative must come from management, who will have to apply themselves to devising some appropriate method for involving employees in the affairs of their organisations and to accept some responsibility for the performance of these, in a much more meaningful way than heretofore. While there is no one best way of achieving this, since each company has its own particular priorities and constraints, research evidence suggests that quality circles (QCs) can make a positive contribution in this regard, not only in Japan but also in the UK (Dale and Ball, 1983).

As is well known, the QC technique was developed by the Japanese as a vehicle for combining some of the human relations theory, developed by American behavioural scientists in the 1950s and 1960s, with a statistical approach to quality control. The ultimate aim was, of course, to improve the quality of Japanese manufactures, which in the early post-War period had acquired a 'cheap and nasty' image. Essentially, a quality circle is a small group of people, around 8 to 10 in number, employed on similar work, who meet together regularly under the leadership of their supervisor or immediate superior, to identify, analyse and solve work-related problems. In this way QC participants have some influence over the problems and decisions that affect them directly at work. The attractions of the technique are that it is not only taps into the wealth of job knowledge and talents possessed by ordinary workers, which are so often wasted assets, but it does not, or rather should not, encroach upon existing corporate structures or trade union bargaining machinery. Furthermore, QCs do not require much in the way of capital investment to set up, and they do not have to be confined to the shop floor; in Japan and elsewhere they are to be found working successfully in white-collar environments, such as banking, insurance and hotels (Ishikawa, 1982).

When a company is operating in very difficult circumstances, as are many industrial and commercial enterprises in Northern Ireland, to embrace a technique so innovative (when viewed from a local perspective) and therefore potentially risky, as quality circles, requires great courage. Consequently, it comes as no surprise to learn that very few of the Province's companies have effected this 'quantum leap' into the unknown. Indeed, as the following information gathered by the Labour Relations Agency (1985) from a telephone survey of the top 100 firms in Northern Ireland tends to suggest, not only QCs but the whole issue of employee involvement, topical elsewhere in the UK, has left large sections of Northern Ireland commerce and industry unmoved. It must, of course,

be pointed out that as at January 1986 the provisions of the 1982 Employment Act of Great Britain, including those relating to employee involvement statements, do not apply to this Province.

Table 1: *Employee Participation/Involvement Schemes Reported by Top Companies in Northern Ireland (n=91), Labour Relations Agency (LRA) 1984.*

Scheme	*Number*	*%*
News Sheets	40	44
Profit Sharing Schemes	19	21
Joint Consultative Councils	18	20
Works Councils/Committees	14	15
Team Briefing/Briefing Groups	13	14
Quality Circles	9	10
Group Working	2	2
Worker Directors	1	1
Co-operatives	1	1
None	24	26

Despite the foregoing, a small number of companies have established a QC programme, or at least have tried to do so. However, it is true to say that although QCs were first introduced to this country around 1980, the QC concept has not exactly flourished in the interim. Indeed, by interviewing all of the management consultants known to have been involved with QCs in the Province, together with other informed parties such as local training advisers, LRA officials and the National Society for Quality Circles (NSQC) based in London, the researcher could only uncover a total of 19 Northern Ireland organisations (including 3 in the public sector) that have had any involvement at all with QCs. However, of these 19 a mere 6 QC programmes remained active as at May 1985. Despite this unfortunate fact the majority of those who have participated in QC initiatives in this country feel that they have yielded benefits for the enterprises concerned, and that the QC technique has something positive to offer Northern Ireland industry.

Methodology

Before commencing the study it was first of all necessary to obtain some idea of the extent to which Northern Ireland companies had become involved with the QC technique. Accordingly, the researcher interviewed 5 local management consultants, two training advisers and one academic,

all of whom were believed to have had some dealings with QCs in the Province. On the basis of the background information obtained from these interviews, 16 manufacturing organisations which were known to have embarked upon a QC initiative were surveyed. The main aims of the survey were (i) to obtain information concerning the experience to date of Northern Ireland manufacturing companies which have introduced QCs, (ii) to establish what objectives these organisations had in embarking upon a QC initiative, and whether or not these were achieved, (iii) to find out what benefits, if any, have emanated from the QC technique, (iv) to determine what problems, or difficulties QCs have engendered for the organisations concerned, (v) to discover why some QC programmes have survived the test of time, while others have not, and (vi) to attempt to ascertain what contribution, if any, QCs can/could make to Northern Ireland industry. The results of this survey are now reported in this paper.

The respondent companies were divided into two categories, A and B, the former comprising those undertakings which still had active QC programmes, and the latter comprising those in which QCs had ceased to operate. 11 completed questionnaires were returned, 5 of which were category A (out of a potential total of 6) and 6 from category B (from a potential total of 10). In view of the small size of the sample the study should be regarded as an exploratory one.

Companies in the Sample

As stated, the 11 companies included in the survey are all involved in manufacturing and it is probably no coincidence that 10 of these are local subsidiaries of larger organisations under British or foreign ownership. One would expect this type of company to be more likely to be exposed to innovative management techniques, than locally-owned enterprises. Indeed, one of the consultants interviewed pointed out that in two cases the parent company outside Northern Ireland strongly persuaded the local subsidiary to introduce QCs. While appreciating the reasons for this type of approach, one can also anticipate the dangers. Should something so novel as the QC technique be imposed upon a local workforce by 'divine decree' from elsewhere, no doubt bewildering management and their subordinates alike, the QCs will be regarded almost certainly either with extreme scepticism or with outright hostility. So, from the outset the probability of such a firm setting up and implementing a QC programme successfully is likely to be low.

The 11 companies are located in five industries, clothing, textiles, motor vehicle components, industrial vehicles, rubber and electronics. As to size,

five employed more than 500 persons, four employed between 300 to 500, and the remainder employed less than 300.

Table 2: *Objectives in Introducing QC Programmes*

Objectives	Number of responses
Improve quality of output/service	7
Increase employees' motivation	6
Improve employees' morale	4
Improve industrial relations	3
Reduce costs	3
Increase productivity	1
	24
Other	10
	34

Table 2 contains a summary statement on the objectives of the QC programmes. All of the 24 objectives specified were perceived to have been achieved, at least to some extent, even by category B respondents. This seems to suggest that even in firms where QCs had not survived, the programmes were far from being dismal failures. However, it could also be that some respondents, expecially those from category B, were inclined to portray their companies' experiences in the best possible light. It is also clear that many of the companies in the sample established their QC programmes with several objectives in mind. Table 2, shows three of the specified objectives to be of an intangible or behavioural nature. Five of the additional objectives classified as 'other' in the table could also be described as intangible. One is therefore prompted to ask — how do companies establish conclusively that QCs have in fact had any effect on behavioural variables such as morale and motivation? Indeed, how do firms separate the effects of their QCs programmes out from the effects of other variables? In this and earlier research (Hill, 1981) there is evidence to suggest that improvements in this type of variable may often be based upon intuition rather than on empirical evidence. This assertion is made because respondents were asked subsequently if QCs had caused any change in the following: grievances raised by employees; absenteeism; labour turnover; industrial relations problems; and accidents at work. It was found, for example, that one respondent who claimed QCs had to some extent improved employees' morale, increased their motivation and improved industrial relations, stated in answer to

the subsequent question that QCs have had no effect on any, save one,of these indicators of morale and motivation. It therefore appears that the claimed improvement in employees' morale and motivation is based purely on a decrease in the number of grievances raised by employees. But one must seriously question whether a perceived reduction in employee grievances really represents an improvement in morale and motivation. In could, for instance, be an indication that workers, during a period of high unemployment, are afraid of being branded trouble-makers lest they be included in the next round of redundancies. Even assuming that the drop in grievances is an indicator of an improvement in morale and motivation, how can the company in question be sure that it is due to the operation of QCs as opposed to some other factor, such as the standard of food in the canteen?

The above issues are raised not to question the integrity of respondents but rather to highlight the lack of empirical data in relation to many of the claims so often made for the QC technique by its devotees. It should also be pointed out that much of the data yielded by this type of survey is based on individual perception, which may or may not accord with actual outcomes.

Attitudes of Senior Management

Virtually all of the respondents in the sample perceived the attitude of senior management towards QCs as being either generally or strongly supportive, with only one respondent (from category B) describing the attitude of top management as indifferent. Despite the foregoing it should also be pointed out that the majority of management consultants and other experts interviewed, identified lack of *genuine* commitment from top management as a primary reason for QC failure in Northern Ireland. This view was not shared by category B respondents when asked to state the main reasons for the termination of their QC programmes.

Commitment from senior management can be crucial to the success of QC programmes and the reasons for this are fairly obvious. For example, an initiative like QCs can all too easily fall prey to other priorities — meetings may be cancelled due to production pressures, specialist staff may not have time to provide QCs with the information they require to complete projects, valid QC proposals may be placed on the 'back burner' or treated in a cavalier fashion because top management become caught up in short-term expediencies. Not surprisingly if occurrences such as these happen at all frequently, they can serve to disillusion QC members, with the result that resentment or apathy set in and QCs fizzle out. A committed top management can persuade those lower down the hierarchy

that QCs should not be regarded as a peripheral activity, but as an integral part of an organisation's operations.

Attitude of Trade Union Representatives to QC Programmes

All except one of the firms in the sample are unionised. Only 2 of the respondents perceived trade union attitudes towards the QC programmes as being other than either strongly or generally supportive. One category B respondent considered that the trade union representatives had been indifferent to QCs, while another from category B claimed that trade union representatives had been negative in their attitudes to QCs. Although this respondent later claimed that trade union opposition had been the sole cause of the demise of his company's QC programme, he added that management had tried to impose QCs upon the workforce unilaterally.

Most of the consultants interviewed considered the predominant trade union attitude to QCs to be one of indifference. One consultant claimed that this indifference was actually a credit to the trade unions, who were viewed as keeping an open mind on QCs and being prepared to give the innovation a chance. One of the training advisers, who has had a fairly extensive involvement with QCs in the Province, claimed that in his experience trade union representatives have been very supportive, and added that where shop stewards have actively taken part in QC activities, they have demonstrated a high degree of enthusiasm.

Scale of QC Programmes

The scale of QC programmes was measured in terms of the percentage of total employees involved in QC activities. The raw data revealed that in 5 instances (3 in category A and 2 in category B) the number of QC participants comprised over 10% of the total numbers employed. With regard to 2 category B undertakings, QC members as a percentage of the total numbers employed amounted to 17.6% and 28.9%. One wonders why such apparently well-developed programmes eventually petered out. The 2 firms in question are fairly small, and although quite a high proportion of their employees were involved in QCs, the total number of circles in each case amounted to only 8 and 9 respectively. It is also interesting to examine why the QC programmes terminated in these organisations. In one case the company has not totally abandoned the QC concept, but rather has embraced a modification of it called 'small improvement groups'. The respondent in question claimed that the formalised QC structure deterred employees from participating. The 'small improvement groups' consequently have a less formal structure, but although they involve workers in solving work-related problems, these

activities are carefully guided by the supervisors, and participants do not select for themselves the projects to be tackled. In the other firm the QC programme came to an end because of a takeover by another company, which resulted in a major redundancy. This had the effect of decimating existing circles and evaporating interest in QCs.

In the other organisations the QC programmes are or were quite small, comprising less than 5% of the workforce in all cases. The main problem here is that when a QC programme is very small, it is likely to slip down a company's list of priorities, and may well fall prey to everyday operating pressures. Furthermore, it is very vulnerable should circles be affected by staff transfers or departures. In addition, the achievements of just one or two circles will probably be fairly limited and their overall effect on company operations may be perceived by participants and management alike, as so insignificant as not to be worthwhile. Indeed, one of the consultants claimed that expansion of QC programmes is necessary to demonstrate success and commitment, although any expansion should of course take account of the propensity of employees to participate.

Duration of QC Programmes

The scale of QC programmes is of course related to the length of time QCs are in operation. The data revealed that 4 of the category A programmes were in operation for between 7 and 24 months. Research findings (for example Bartlett (1983) and Dale and Hayward (1984)) suggest that the critical period for QC programmes is between 12 and 18 months after introduction, by which time much of the novelty will have worn off, the 'honeymoon period' will be over, and a degree of apathy may set in. The future of these 4 category A programmes may therefore not have been assured. Regarding the defunct category B programmes, with an average life-span of 25 months some of these survived rather longer than other research evidence would have suggested.

Number of Suggestions Received from QCs and Percentage Implemented

Table 3 provides some indication of the rate at which QCs in Northern Ireland generate suggestions. It was not possible to calculate an output rate as such, that is, the length of time taken by one circle to produce one proposal in each case. This is because the calculations would have had to include individual circles which, because of premature termination, probably were not included by either category of respondent in the total number of circles operating — either at the point in time when the survey was carried out (category A) or at the peak of QC programme operation (category B).

Table 3: *Suggestions Received from QCs*

	Number of Suggestions Received	Number of Circles	Length of time QCs in Operation — Months
Category A (n=4)[1]	0	2	5
	2	2	10
	3	3	15
	10	9	21
Category B (n=4)[2]	0	3	13
	6	4	36
	30	8	37
	40	9	19

NOTES

1. One category A respondent claimed that 'numerous' suggestions have been received from 18 circles in 48 months.
2. Two category B respondents claimed that 'several' suggestions were received from 2 and 3 circles in 27 and 18 months respectively

It is a little surprising to note from table 3 that, if anything, the output rate of circles in category B firms was higher at the peak of programme operation, than that of category A circles. It is difficult to state what a reasonable output rate would be, as this would depend on many factors, such as the degree of difficulty of projects undertaken, the availability of resources and information, the occurrence of unexpected crises and so on. Dale and Ball (1983) reported that the average number of projects completed by the QCs in their sample organisations was 6 per circle per year. However, one would imgine that most firms would consider the completion of two or three substantial projects per circle per year as being a fairly satisfactory output.

Concerning the uptake of QC proposals by management, in 3 cases the implementation rate was less than 60%. However, 4 respondents claimed an implementation rate of 100%, although in 3 of these cases the total number of suggestions received was 6 or less. The implementation of QC proposals is an important issue as far as the survival of QC programmes is concerned. This is because QC members normally receive few, if any, direct rewards for their achievements. Effectively the major motivational element of QC activities is the management presentation, whereby QC members formally present their ideas and proposals directly to management. It follows that the way in which these ideas are received is extremely important regarding the motivation of QC members and consequently the survival of QCs themselves.

Effect of QCs on the Relationship between Management and Non-Management Employees

Six respondents, 2 from category A and 4 from category B, claimed that QCs did have an effect on the relationships between management and non-management employees. However, one (from category A) of the 6 went on to say that although there had been a change for the better, it was difficult to assess the extent of the contribution made by QCs in this regard. Concerning those who believe that QCs did affect relationships positively, all the effects listed relate to greater mutial understanding. Even if QCs were to achieve nothing else, in many undertakings an undermining of the old adversarial 'them and us' attitudes would be quite a breakthrough in itself.

The benefits generally claimed for QCs were mainly of an intangible nature. The most frequently cited benefit was that QCs seem to engender a greater interest in production and quality amongst the workforce. Of course, this in itself may be no small contribution to a firm which relies on precision workmanship and/or is trading on a reputation for high quality output. Concerning tangible benefits, cost-savings were mentioned by 2 respondents (one from category A and one from category B), while another asserted that the introduction of QCs had resulted in a reduction in the number of quality inspectors required. As is well known, one of the aims which the Japanese had in developing QCs was to persuade the individual employee to accept responsibility for the quality of his own work, and to ensure that it was 'right first time'. The rationale for this approach is that quality must be 'manufactured' into a product in the first instance; it should not be 'inspected' in at a later point in the production process, as scrap and rectification work are both wasteful and costly. Accordingly, Cole (1979) found that the ratio of inspectors to ordinary workers in the manufacturing plants of the Toyota Auto Company in Japan was around 1 : 25, and in the assembly plants it was only 1 : 30, whereas in the American company General Motors at that time the equivalent ratios were about 1 : 10 and 1 : 7. Cole also claimed that these ratios were fairly typical of the car industries in both countries. The success of Japanese car manufacturers in relation to their Western counterparts, surely testifies to the wisdom of this approach to quality control.

Problems and Difficulties Encountered

Despite the foregoing, quality circles can also lead to problems and difficulties for companies which introduce them. Predictably category B respondents reported a greater number of difficulties than those in category A. The majority of the itemised problems were of a behavioural,

rather than a logistical nature, and included — opposition from trade union, personality clashes, maintaining interest, and use of QCs as a grievance forum. It is clear that none of the problems identified could be classified as insurmountable. One is inclined to the view that many could be readily resolved if senior management were truly committed to making QCs work. Perhaps it is significant that, as stated earlier, the consultants and specialists interviewed considered lack of *genuine* commitment from top management as a primary reason for QC failure.

Of the six QC programmes which terminated (category B) one respondent claimed that the 'formal' QC set-up did not produce results, mainly because employees did not want to participate. The company then changed to 'small improvement groups' with a less formal structure, involving people in solving particular problems under supervisory guidance rather than allowing them to pick their own projects. It was found that this generated greater interest.

Another respondent, claimed that opposition from the trade union was the main reason for the termination of the programme, and stated that this was partly occasioned by the behaviour of senior management, who had tried to force the implementation of QCs upon the workforce unilaterally. A fall-off in interest by QC members was identified by one respondent as the cause of the programme's demise. The literature would tend to suggest that, though not unheard of, this reason is uncommon. Moreover, it is rather interesting that in this case the QC programme had been operating for around 3 years before it finally ceased. As stated above, where this does arise, it may well do so as early as 12-18 months after the commencement of the programme, when the novelty and initial euphoria have worn off. At this point, therefore, special attention may be required. Robson (1982) suggests that a new wave of overt commitment from senior management can help at this stage, while Collard and Dale (1985) feel that skillful facilitation is critical in maintaining the motivation of maturing QC programmes. Alternatively, where circles have perhaps run out of suitable projects to tackle, it may prove necessary to temporarily disband an individual circle, or even to suspend the whole programme for a period. By seizing the initiative in this way before total apathy and disillusionment have set in, management may retain the option of reintroducing circles at a later, more propitious date. Where QCs are allowed to peter out, the possibility of rekindling enthusiasm for a second attempt is fairly remote.

Turning to those cases where redundancy and transfers had the effect of splitting circles up, clearly redundancy can also have another, perhaps even more damaging outcome, namely that of undermining employees' morale. It is generally accepted that where redundancy or short-time

working appear a possibility, QCs should not be introduced in the first instance, until the situation has stabilised. It is obviously unrealistic to expect employees to embrace an initiative such as QCs with any degree of enthusiasm or conviction where they are seriously concerned for the security of their employment. In the event of redundancy overtaking an established programme, again it may be prudent to suspend it temporarily until the overall situation improves. Staff transfers and departures should only prove a major problem where QC programmes are very small. This also serves to highlight the point that the smaller the programme, the more vulnerable it is likely to be to this type of occurrence.

Conclusions

It was stated in the introduction that there are very few active QC programmes in Northern Ireland, and it is true that progress has been slow, not only in the Province, but in the UK generally. The National Society of Quality Circles, for example, estimates that there are only about 200 programmes operating in the whole of the UK. This may have something to do with the fact that the technique is so closely associated with the Japanese, who are still regarded as rather eccentric by many in the West. However, prejudice should not be allowed to cloud the judgement. It is true that QCs were developed in Japan; however, the quality circle is only a vehicle for harnessing or packaging organisational behaviour and quality control theory which the Japanese originally imported from the US, and which can be applied in both East and West. QCs were developed as one way of capitalising upon the job knowledge and ideas of the individual employee, and in Japan these circles, which are thought to involve some 8 million working people, (Ishikawa, 1982) are credited with making a major contribution to that country's industrial and economic achievements.

The results of the survey have shown that it is possible for quality circles to survive and achieve in Ireland. However, the quality circle technique is not a panacea; nor is it appropriate for all industrial organisations. For example, it is unlikely to operate successfully in a firm where industrial relations are poor or where the future, in terms of jobs, is uncertain. Where the environment does appear suitable, it would also be inadvisable to expect too much too quickly. As was stated earlier, an output of two or three major project completions per circle per year would appear to be a reasonable expectation. So what could a company prepared to experiment with QCs reasonably expect from them? The survey results suggest the following:

— some improvement in the relationship between management and employees, which could lead to better industrial relations generally;
— a greater awareness of the importance of quality amongst the work-

force, possibly some actual improvement in the quality of output/service and a reduction in costs;
— greater involvement of employees in the affairs of the organisation and some sharing of responsibility for its performance;
— alleviation of some of the symptoms of poor morale and motivation (for example, grievances, absenteeism etc.) and maybe a genuine improvement in both morale and motivation, although the evidence for this claim is not entirely convincing.

It is clear that like any other form of change QCs can also give rise to problems and difficulties, although based on the experiences of the local companies in the survey, these will probably not be insurmountable. It is unlikely, for example, that the introduction of QCs *per se* will lead to trade union hostility — except where industrial relations are poor already, or where management attempts to impose QCs upon the workforce unilaterally. Furthermore, the inevitable problems and difficulties are more likely to be successfully overcome where there is genuine commitment to the QC technique on the part of senior management. The problem is, many company executives may not fully appreciate that the introduction of quality circles may well necessitate a change in management style — at the extreme, a change from an autocratic approach to management to a more open or democratic style. Where top management is not prepared, or feels unable to effect such a change in the whole management team (or most of it), it would probably be prudent to avoid quality circles altogether.

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