6. Assessing the Impact of PRADAN’s Microfinance and Livelihoods Interventions: The Role of the Internal Learning System

Helzi Noponen

1. Introduction

PRADAN (Professional Assistance for Development Action) is a large development NGO located in north India. Its core activity is promoting the livelihoods of around 40,000 poor women and their households in seven of India’s poorest states. PRADAN believes that microfinance is not an end in itself, but an essential component of a wider rural livelihood strategy. Rather than providing financial services directly, it also concentrates on promoting user-controlled microfinance services in the form of Self-Help Groups (SHGs). To support this work it uses a mix of approaches for assessing its impact, or social performance, to serve both internal and external requirements.

The external agenda, particularly of funders and regional network partners, is important to PRADAN as it strives to promote the SHG-bank linkage model of microfinance integrated with other livelihood interventions as an alternative to minimalist models. In this context, PRADAN’s ability to keep in line with emerging industry-wide standards and benchmarks for social performance is important. The internal agenda of tracking and understanding programme-wide patterns of socio-economic change in order to improve performance is also important. PRADAN employs a relatively non-hierarchical and semi-autonomous structure of field teams of professionals operating in 29 districts in seven states. There is a need to first understand its social performance in these diverse regional settings, and then to streamline and systematise a standard process of promoting SHGs among all field staff. There are tensions among field staff as to the relative emphasis that should be placed on promoting village SHGs versus directly promoting livelihood activities. This article shows that good impact data in a participatory system can help to resolve these tensions and strengthen internal stakeholder relationships within and across PRADAN.

PRADAN’s mix of approaches to impact assessment has included externally driven “set-pieces” such as the Consultative Group to Assist the Poorest (CGAP) Poverty Assessment Tool (PAT) to assess the extent of its poverty outreach. It has also carried out more traditional quantitative socio-economic impact surveys. These methods have been selected principally to meet the objective of ‘external proving’, but are also expected to inform
the design of routine monitoring systems, including choice of social indicators.

The core to PRADAN's strategy for institutionalising social performance assessment is the Internal Learning System (ILS), an on-going participant and programme learning and planning system largely developed internally. The selection of this method is primarily, although not exclusively, for the objective of “internal learning” in order to “improve” programme interventions, and in particular to enhance their utilisation by participants, to better achieve social performance objectives and goals. ILS should guide participants through a process of analysing their livelihood situation, so that they can make strategic decisions about the use of scarce resources, including credit. ILS should also encourage participants to reflect on their social, economic and political status, so that they struggle individually and collectively to achieve their strategic interests, as well as meet their practical needs. The aim is to create simple analysis and planning formats that encourage participants to better understand their changing situation and alter their own individual and group plans or behaviour, summon needed training inputs and demand services, negotiate with financial intermediaries, and challenge inequitable structures and practices.

In the context of Copestake’s synthesis framework for identifying and measuring social performance goals (2003), this article briefly discusses the overall strategy for social performance assessment that PRADAN has initiated. Gaps in measuring different dimensions of social performance goals are identified and potential solutions are discussed. The role of the ILS in measuring social performance goals is described in detail and difficulties in institutionalising ILS throughout PRADAN are discussed.

2. PRADAN’s approach to microfinance and livelihoods interventions

PRADAN has helped to pioneer an alternative to the model of direct provision of financial services to the poor in India. Unlike other microfinance models in which the NGO is developing itself as the alternative microfinance organisation (MFO), PRADAN is not the MFO, but rather the field worker or promoter of SHGs. PRADAN also runs non-microfinance livelihood activities, including technological assistance in subsistence cultivation, market-based agriculture, forestry, animal husbandry, watershed improvements and the development of non-farm individual and group enterprises (Noponen 2002b).

PRADAN’s approach is to intervene from two directions. Pressure and incentives are applied from the top on the existing formal banking industry to overcome its reluctance to lend to the rural poor. Over the years, PRADAN has systematically carried out a bank sensitisation programme in each of its field sites, comprised of regular training programmes, exposure visits, formal and informal meetings, forums and conferences, and linkages with village savings and credit SHGs, clusters and federations etc.

From the bottom, PRADAN promotes the formation of village SHGs and their successful linkage with local banks by building capacities for independent functioning. This entails the promotion of a strong culture, where there is mutual responsibility for loans, for repayments and for other financial and non-financial decisions. PRADAN’s aim is for the groups to become independent. The organisation therefore seeks to ultimately withdraw, as SHGs become viable and sustainable on their own as mutual support groups, successfully linked to financial service providers, and able to engage in a process of securing their strategic interests of overcoming structural constraints.

3. The Internal Learning System (ILS)

ILS is a participatory impact assessment and planning system for community development programmes, especially microfinance and livelihoods, primarily designed to meet the learning needs of programme participants, village savings and credit groups and operational field staff (Noponen 2002a). This “internal” focus does not mean that participants and staff are narrowly focused on the functioning of programme operations. The system is an empowering tool for poor, illiterate participants and village groups to track and analyse changes in their lives and to use
the understanding to alter their strategies as they participate in the economy and interact with actors and institutions in the wider community.

The medium for ILS is multi-year pictorial diaries or workbooks suited to illiteracy and poverty conditions of participants and longitudinal perspectives of the process of development change. Using pictures or scenes that represent impact indicators, the women can keep a record of change over time by making simple tick marks to note yes/no responses, quantities, and performance and satisfaction scale ratings, or by drawing connecting lines to make multiple choice selections. The diaries or workbooks are used as part of an ongoing assessment and learning system, rather than a one-off or occasional evaluation event.

Information on the impact indicators can be collected at a baseline time period and over time in different reporting formats, depending on the needs and capacity of the organisation. Most NGOs use a baseline assessment period – usually the start of using the ILS diaries – with spaces to tally results at periodic assessment intervals over a multi-year period. ILS processes of analysis, reflection and planning for impact and learning purposes should be integrated into normal programme operations of building and strengthening SHGs, or direct credit provision for minimalist programmes, in a seamless manner.

The ILS diaries at PRADAN are designed to enhance participants’ and field staff’s understanding of the livelihood base of participants by examining the total asset “availability”, such as forest, land, livestock and labour. The aim is to assist participants to make better decisions regarding the use of their microcredit opportunities in improving their livelihood base over time, as well as help field staff identify appropriate area livelihood interventions.

Copestake (2003) states that a performance management system combines three activities of goal-setting, performance assessment and performance management. In the goal-setting activity, feasible goals and policies are first defined by an organisation. In the performance assessment activity, progress in achieving the goals is measured. In the performance management activity, goals, policies and practises are revised according to the result of past progress. Copestake argues that these activities should be carried out at all levels of an organisation in a consistent manner.

3.1 Goal setting: choosing impact indicators in PRADAN

The selection of indicators being tracked in PRADAN’s ILS workbooks were developed with inputs from all levels in PRADAN, including programme managers, field staff and poor women participants from several field sites. The participants’ contributions were elicited in a special story-telling exercise in which SHG members first told the story of a “sad woman” – using the prompt of an artist drawing the face of a distressed woman – explaining all the problems she faced in her life. The picture prompt was replaced with a picture of the same women wearing a “neutral” and then a “happy” face and the story-telling process focused on improvements in the woman’s life over time and how they were achieved. In this manner women revealed common problems facing participants and the implied development goal or indicator such as low incomes/improved earnings, poor health/better health care, no land or livestock/increased productive assets. Women’s beliefs about the means or mechanism for improvement in the hypothetical woman’s life was also illuminating, ranging from chance or providence to personal efforts and group interventions. Through a discussion of whether the hypothetical woman should destroy the sad and neutral pictures of herself or not, SHG members are introduced to the value of tracking and reflecting on changes in their lives over time through ILS workbooks.

The process of selecting impact indicators for PRADAN diaries have yielded a comprehensive set of indicators that will help PRADAN to demonstrate net worth of participants as discussed by Copestake (2003) in his synthesis typology of social performance goals for establishing minimum benchmark standards for the microfinance industry. Some of these are shown in Table 2.

Some issues regarding indicators were problematic. One was the issue of indicator selection, particularly with regard to bias. The question of developing a system that was consistent with staff incentives
Table 2: PRADAN ILS indicators to measure net worth on participants

<table>
<thead>
<tr>
<th>Net worth performance goals</th>
<th>ILS indicator areas of inquiry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net direct contribution to income poverty reduction</td>
<td>Potential rupee calculation of per capita household income through quantification of ILS asset utilisation formats for forest collection, land cultivation, livestock rearing, wage labour and enterprise profits.</td>
</tr>
<tr>
<td>Net contribution to non-income measures of poverty and exclusion</td>
<td>Months of food insecurity, extent of seasonal migration, bonded labour, mortgaged land, onerous debt, household consumption assets, children's education, shelter and living conditions, productive assets in forests, land, livestock and labour etc.</td>
</tr>
<tr>
<td>Other social forms of direct impact</td>
<td>Women's empowerment in areas of gender relations, public participation, household decision-making, control of loan and enterprise, female ownership and physical mobility.</td>
</tr>
<tr>
<td>Indirect impact on poverty</td>
<td>Changes in health practices, changes in production practices in forest, land, livestock and labour activities. Group ability to improve area conditions or lobby for improved government services.</td>
</tr>
<tr>
<td>Other forms of indirect impact</td>
<td>Group ability to change individual and community social practices, such as domestic violence, drinking abuse, child marriage, sorcery accusations etc.²</td>
</tr>
</tbody>
</table>

became an issue in PRADAN as field staff members were dissatisfied with only quantifying changes in the level of productive assets. While they were being asked to demonstrate that they were creating improvement in incomes or subsistence livelihoods among their participants each year, the ILS workbook did not stress rupee quantification of the utilisation of assets. This is currently being addressed so that field officers carry out a special interview with a random sample of old and new ILS workbook users to quantify the value of production from these assets using special worksheets to obtain net rupee income flows or production values for subsistence producers over time in order to demonstrate contribution to income poverty reduction.

Participants in PRADAN as well as other NGOs using ILS have also requested changes in impact assessment indicators. In PRADAN, one group of women heavily dependent on wage work decided to calculate the rupee value of lost wages due to under-employment, using their diaries. In another NGO, women weavers wanted to add indicators for sexual harassment by sweatshop owners. In a third NGO, women desired greater specificity on shelter and living conditions so they could better track small but significant incremental improvements, such as moving from dirt floor to paved floor, building a solid foundation, adding walls and adding a work-shed etc.

This process of balancing the assessment needs of a variety of stakeholders in PRADAN was a crucial phase in the development of ILS workbooks. It underscores the caution that ILS workbooks or diaries cannot be created by merely selecting indicators from a picture bank or by borrowing a diary wholesale from other NGO users. If the diaries are created in a widespread participatory process, however, it can serve to strengthen stakeholder relationships throughout the organisation. The danger is to try to do so much that the workbook fails because it is too time-consuming or complex to update. As with any questionnaire, and more so with a pictorial one as in the case of ILS workbooks, the
instrument must be carefully designed, field-tested, revised and tested again. This requires significant staff time and resources and, depending on skills levels within an organisation, it may also require outside technical assistance. The caution here is that although ILS may be simple to use, it is not necessarily simple to design. The discussion of balancing participant learning needs and programme impact assessment tasks discussed below further illustrates the difficulties in finding and institutionalising the appropriate ILS workbook design within an organisation.

3.2 Balancing participant and programme learning needs

It is important to distinguish how data and information in ILS workbooks is used for participant, SHG and field staff learning versus programme-wide impact assessment for managers. A census of all – or all new – programme participants and SHGs can use ILS workbooks on a census basis for their own learning purposes. Women and field promoters are the primary users of impact information able to make immediate changes in their behaviour and plans as a result of their reflections and shared learning processes in using the workbooks in the field. For understanding programme-wide statistical results, however, only workbook data from a random sample of participants should be captured, processed, and analysed. Unlike a few key indicators in a management information system, ILS workbook data is too comprehensive to be captured or analysed on a census of users. The staff and time burden of computer data entry and possibility for processing errors would be too great and more likely less accurate than capturing data from a properly done random sample.

PRADAN proposes that all new participants will use the member and SHG level ILS workbooks and benefit directly from the information and data on the impact indicators being tracked over time. Field staff will also benefit from examining and reflecting on the information being collected in the member and SHG ILS workbooks as they carry out their promotional activities. They will capture this learning in a process record in their own field staff ILS workbook. In order to understand programme-wide patterns of social performance and reasons for change, however, the ILS data from a random sample of participants using ILS workbooks will be captured in a special semi-extractive interview event based on the ILS workbook content.

Field officers will sit with the sampled respondents and review and cross-check their workbook entries. They will capture the data recorded by the participant in her own workbook in a similar pictorial workbook that is more complex, containing prompts for probing and cross-checks, precise variable definitions, response codes and skip patterns. This is a hybrid solution to the purely extractive text-driven questionnaire process by outsiders on the one hand, and the group facilitation process of training participants to answer their pictorial questionnaire on their own – in the form of the ILS workbook – on the other. The respondent has already answered the impact questions in a workbook that she herself owns. She is sharing her information with the field officer who is able to apply cross-checks and quality control as it is captured in the more rigorous format. Because the same pictorial formats are used, the respondent is able to participate and understand how her information is being recorded.

A sample of older members in each field site will also be interviewed using the extractive semi-pictorial questionnaire in order to compare the results of newly joined members with those who have been in PRADAN for several years. ILS data therefore can be analysed on a cross-sectional basis at baseline, interim or end time point to see if older members experience greater social impact than newer members do. ILS data can also be analysed on a longitudinal basis by examining the extent to which the sample panel of both old and new members change over multiple time points.

These sampling issues have affected the design of data recording formats in PRADAN’s workbooks. Initially, a standard ILS design was chosen that had spaces for each pictorial indicator to record data in multiple time periods. This is essentially a one by four cell-embedded table. Field promoters found the process of facilitating women to record their response in the correct time period burdensome and time consuming. While this format allowed easier reflection of changes over multiple time periods, it was better suited to capturing data and
impact assessment purposes on a sample basis, rather than enhancing participant understanding among a census of users.

PRADAN is currently testing a much simpler format that no longer uses the recording spaces for baseline time period and yearly time periods over a three-year period. Instead, participants record baseline data in red pencil and they mark changes over time as and when they occur in regular lead pencil. Progress achieved since baseline period can be assessed at any point in time over a multi-year period. These changes underscore the need to adapt the ILS approach to the requirements and work styles of different organisations rather than following a standard format.

3.3 Performance assessment: the process of using ILS workbooks

Copestake (2003) distinguishes three types of performance assessment: that of monitoring client (including poverty) status, impact on “leavers” and impact on “stayers”. ILS uses a mix of quantitative and qualitative indicators to assess impact assessment on “stayers” on a wide range of strategic issues as well as programme participation satisfaction. The modules in the PRADAN’s ILS individual level workbooks include:

- The well-being module: living conditions, household assets, poverty status, education/child labour, general and reproductive health care and practices and practical needs plan.
- The finances module: income and expenditure tree, debt and savings.
- The livelihoods module (forest, land, livestock and labour): productive assets, asset utilisation, good production practices, livelihood production plan, credit investment plan.
- The empowerment module: gender relations, political participation, female ownership, control of loan and enterprise, household decision-making, mobility in the public sphere and strategic interests plan.
- Programme participation module: loan history and utilisation, credit discipline/stress, member role satisfaction, SHG role satisfaction, PRADAN role satisfaction, satisfaction with life and livelihoods and priority setting exercises.

The issue of assessing the impact on “leavers” is currently missing from the PRADAN social performance assessment strategy. This should be of particular concern given its aim of promoting its model of building independently functioning SHGs. How durable are the village groups that PRADAN promotes over time? Are they able to provide financial services for their members internally and through external links to banks in a sustainable manner? How many members leave and why? PRADAN works in isolated, resource-poor and severely economically depressed geographic areas with highly vulnerable populations. In this subsistence-based rural poverty context, economic crises and shocks are common, often leading to seasonal out-migration of large numbers of individuals and households for several months to secure wage work. In this context there is a need for PRADAN to understand better how some groups sustain themselves over time.

No plans have yet been developed for developing the ILS to address this issue. However, responses from field officers in other NGOs that use it suggest it does at least raise field officers’ awareness of why women exit and fall into arrears. As one field officer noted:

Before ILS, I did not understand their life much, the personal details, such as their income sources, how they spend their income. We now are able to understand their livelihood sources that sustain the family. It helps me decide on the loan amount so as to not put too many burdens on her back.

However, no organisation has yet developed a system for formally monitoring exits from ILS diaries, or even established how this might be done in a way that reflects wider trends.

3.4 Performance management: ILS five tasks

Copestake (2003) stresses that social performance assessment is not an end in itself but is a means for informing decisions about how services can be
improved. The issues of the effectiveness and timeliness of the “feedback loops” through which findings from impact assessment is used to refine programme practises is key. Too often impact reports are shelved by overworked managers, rather than used to change policies and practices. The participant who has the most to gain from impact results is usually ignored altogether in the process of understanding and reporting outcomes. In contrast, the participatory aspects of ILS provide multiple real-time feedback loops operating at each level in the programme.

ILS is truly participatory, as the diaries are used by participants at several programme levels, in contrast to methods that are steered by managers at the top or by outside investigators. ILS extends the notion of participatory assessment methods. ILS users at each organisation level, especially poor women borrowers, are the first to learn about programme impact and performance, and alter plans as a result. They are not only data gatherers, but are also the data analysts, planners, documenters, and trainers. The development community benefits when users share their impact assessments, lessons learned and revised strategies (Noponen 2001).

To ensure that participation is even throughout, the system has been designed so that all users, especially the women members, carry out the same five ILS tasks, albeit to varying degrees of sophistication. These include: (1) collecting data; (2) assessing change; (3) analysing causes of change or troubleshooting; (4) planning and training; and (5) documenting, sharing and reinforcing programme values. At each programme level, participants reflect upon their findings, summon user-driven training inputs, make plans, and document their experiences in their learning diaries.4

There is a direct and immediate link between impact results and the real-life changes of participants, and planning and training responses. Results from recent field trials in several NGOs using ILS, including PRADAN, reveal how reflecting on the data entries in the diaries and workbooks have motivated participants and SHGs to change their individual behaviour or group practice. Even before ILS impact data from a random sample of participant diaries could be captured and entered into a computer for statistical analysis, women carried out their own analyses and plans. Within the first few weeks of using the ILS diaries, women were changing their attitudes and actions.

The comments reported below are from three NGO adapters, including PRADAN. They are only a very small fraction of a large number of similar qualitative reports. Quantitative analysis, especially from subsequent time periods, will reveal the extent to which these qualitative reports are supported by programme-wide statistical results.3

- Increased political participation:

Before the diaries came, we went to the panchayat meetings but some of us were missing. Now all are going. Those who have spoken out are marking it in the diary.

- Improved use of services:

We looked at the loan utilisation [in the programme participation module] and decided to use the loan ourselves from now on. Previously we used to give it to our husbands who would put some money in the business and spend the rest lavishly. Now we ourselves are going to fully invest the loan in production.

- Improved markets:

Members were having milk animals and selling milk to the outsider, but he was not paying the money promptly to the members. As a result of using the member diary, and with the facilitation of the field officer, they discussed and motivated one member called Mrs Jothi and her husband to do the milk collection and selling business. Now Mrs Jothi and her husband are doing the same business and pay back the money promptly to our members.

- Improved health practices:

The day after seeing the health practices page in the workbook, several members told me [field officer] that they had bought mosquito nets for their entire family.
● Safe water practices:

Now we are keeping our water pots covered.

● Group action to improve area conditions:

We [SHG members] went to the Block District Officer and showed him our diary and even though a community hall was to be built in another village, the BDO sanctioned it for us. He said this book could help to improve our life step by step.

● More productive use of loans:

I [field officer] pointed out in the income tree that many women had no livestock income: ‘Yet, you have land near the river banks on which the animals can graze.’ As a result, three women have taken loans for milch animals as a result of seeing their income sources in the diaries.

Field officers and managers are also interested in programme-wide or disaggregated regional impact results and their implications. However, data on whether some field sites or sub-populations underperform and the underlying reasons for this will not emerge from examining individuals’ or group diaries in the field, but requires proper sampling, data entry and quantitative analysis work. The logistics of collecting data from the randomly selected sample of members across PRADAN, recording it in spreadsheets in the field sites and sending it for aggregation into a single data set at the head office is not a simple process. PRADAN and other NGOs have all experienced difficulty in data checking and data entry and cleaning. We are currently designing specialised menu-driven software to ease the burden of data entry on field staff and minimise errors.

4. How ILS can serve the external agenda through impact audits

Copostake (2003) proposes the alternative approach of the social impact audit, to evaluate the adequacy of an organisation’s institutionalised social performance monitoring and impact assessment system for the objective of “external proving”. This would be an alternative to the “externally driven” and “one-off” impact assessment study with its disadvantages for timely programme learning. A social impact audit of ILS would be a great idea to help dispel the misconceptions of external reviewers about ILS.

Some reviewers think that ILS is purely subjective and qualitative and of little use in external proving. ILS collects both quantitative and qualitative assessments. The accuracy of the data entries in the diaries is vetted in a peer participatory learning process. Women “own” their diaries and even though some women are holding a pencil for the first time in their lives they feel intense responsibility for keeping the diary accurately. In one NGO they call it their “sacred book”. Comments of other SHG members follow:

● This book has everything about my life. I can do this work. I can read my book. I can read her book.

● It gives us step-by-step growth. We are able to understand the standard of our life and those who cannot read are able to understand it because of the pictures.

● When I first saw it, it really showed me that I could make the impossible possible. It showed me how to approach people. It gave me ideas to think about for my life.

The most important quality control mechanism for ILS diaries is the pride that women diary keepers themselves develop of its truth. An external audit could nevertheless provide various additional checks. First, it checks on the consistency of data entries at each level. An auditor could check the extent to which members are keeping an accurate ILS diary that reflects their situation. Next, they could examine whether any data used in quantitative analysis corresponds to the actual diary entries, perhaps taking a random sub-sample of the sampled respondents and checking if entries match the original. The auditor could examine the research design by checking the member level sampling procedure and examine the data collected, how well data assumptions have been checked, the quantitative analyses and testing performed on it, and the claims made based on the results.
The social performance auditor could also check the quality of the process of synthesising qualitative data. The auditor could oversee field officers’ ILS meetings and retreats, in which the information in force-field analyses of lagging and excelling members and groups are synthesised through a combination of card storming and focus group exercises. These methods can be poorly or properly done depending on motivation and skill levels of programme facilitators. The auditor could assess the extent to which field officers critically assess and question their field observations and how well they probe and discuss possible factors associated with the underlying patterns.

5. Conclusion

ILS is not a “set-piece” study but an on-going and participatory system in which all levels of a programme do the work of impact assessment. As such, institutionalisation of ILS processes into the organisation in a seamless manner is a crucial requirement. There are key points in this institutionalisation process discussed above. These include ensuring a broad-based and participatory contribution to the design of the ILS instrument, including content and recording formats, and its extensive field-testing and refinement. The instrument must be comprehensive for survey purposes, containing the needed background, control variables etc for statistical analyses to discern programme-wide impact patterns.

If the semi-pictorial extractive questionnaire option is not used, then proper training on the definitions of pictorial indicators is essential, especially when detailed instructions in a pictorial format are not possible. Proper training for facilitating the introduction of the workbooks to participants in a sensitive manner is important for the success of the ILS process. In addition, participants must be motivated to adopt this tool for their own benefit or else they will see it as an administrative burden of participation in the programme.

No matter how useful diaries are to individuals and groups, a good deal of the value will be lost for field officers, managers and external reviewers if there is not a proper system for data entry and consolidation of a correctly chosen random sample of members. This will require proper training of staff in-house and, depending on internal capacities, it may also require technical assistance in sampling, software development and statistical analyses. Above all, the organisational culture and the mission needs to be open to the processes and aims of the ILS, if its implementation is to benefit both clients and the organisation.

Notes

1. The CGAP (Consultative Group to Assist the Poorest) Poverty Assessment Tool (PAT) is a survey-based poverty assessment methodology developed to allow for external assessment of the poverty outreach of MFOs.

2. In other ILS adaptations, participants have also tracked group-initiated efforts to change dowry practises, high festival social spending and human rights abuses against dalits (literally the “oppressed”, formerly known as “untouchables”).

3. It should be noted that unlike minimalist MFOs, PRADAN does not meet weekly with village groups to provide routine microfinance transactions. After an initial training, groups are expected to function on their own. The promoters contact time is intermittent and devoted to promoting and trouble shooting the bank linkage process and promoting livelihood solutions.

4. See Noponen (2001) for a more detailed description of how ILS works at each level.

5. There is much anecdotal evidence that ILS diaries give women the space to discuss and take action against domestic violence. One NGO backed this up by estimating that there was a reduction in domestic violence in member households from 54 per cent to 27 per cent over a two-year period (Noponen 2001).
References

