Teachers' organisational practices and their perceptions of the benefits of support by withdrawal for mathematics in Irish primary schools

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(Received 2 September 2010; final version received 22 April 2011)

This study was designed to ascertain the organisational practices of learning support teachers and their perceptions of the benefits, if any, of support by withdrawal for mathematics in Irish primary schools. The study reports on the views of a sample of 137 teachers who have postgraduate qualifications in learning support/special education from six designated centres for professional development in this area. As an organisational model for learning support in mathematics, small group/individual withdrawal was the most popular way in which additional support was organised, with 94% of the survey respondents in this study operating this system to some degree. Furthermore, key findings also highlighted that teachers perceived the following as advantages to out-of-class support: learning benefits; enhanced learning space; benefits for certain types of pupils; time benefits; positive contrast with mainstream class; assessment benefits; and greater use of concrete materials. In contrast, only 41% of teachers reported that they provide an in-class service for pupils and class teachers. Barriers to collaboration for in-class support are identified and teachers' responses to these outlined. The study found large differences between teachers in the amount of support they provided to class teachers, the amount of non-contact time they had for planning and collaboration, and in the range of practices used to carve out time for collaboration. The implications of these findings are then discussed.

Keywords: learning support; models of provision; withdrawal; pull-out; mathematics

Models of support provision

A key issue in the support work of learning support /resource teachers is the recent policy shift towards more in-class models of support (DES 2005; Day 2005). Irish support teachers have predominantly adopted a pull out or withdrawal model of support largely by default in contrast to in-class support (Costello 1999; Shiel and Morgan 1998; IATSE 2000; McCarthy 2001). There is no obligation on a learning support teacher to provide any in-class support, on a class teacher to look for it or on both to engage in joint planning. There is no formal time in the day for such planning and any collaboration is voluntary, ad hoc and sporadic (Keady 2003). Models of support are generally inflexible and not supportive of collaborative practice.

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While policy has sought to redirect support to more in-class models and there is a strong rationale for this, there is also evidence that many pupils prefer out of class provision. In a study which examined the views of 101 boys and girls aged 10–11 and 13–14 with statements of special educational needs for moderate learning difficulties, Norwich and Kelly (2004) found that a significant proportion in the mainstream preferred learning support in withdrawal settings. They concluded that:

> The findings also show that a high proportion of mainstream pupils prefer learning support in withdrawal settings, either as the main form of support or mixed with some in-class support. This underlies the distinction between inclusive schools and inclusive classrooms. If inclusive schooling and teaching is taken to mean full-time mainstream class placement, then this will be inconsistent with the child's voice on these matters in many cases. (Norwich and Kelly 2004, 62)

It could be argued that these views could be the result of pupils experiencing poor quality in-class measures. If there are difficulties with withdrawal as a model of support, and many legitimate concerns have been raised, there are also difficulties with in-class support measures. Clark et al. (1999) have outlined the concerns about the efficiency and effectiveness of in-class support. These concerns centre on the lack of clarity about the support teacher's role, personality clashes, boundary disputes and the inadequacy of it in meeting the needs of some students with behaviour difficulties.

Hornby, Atkinson, and Howard (1997) cite two studies by Marston (1996) and Lingard (1994), which showed higher progress for students with mild disabilities through being withdrawn for intensive small group work, compared with in-class methods. In interviews with 95 primary school students with general learning difficulties from seven cities in central Greece, students were asked their preference for different educational settings (regular classroom without additional support, resource room, in-class support). In terms of responses 53.7% of the students preferred the resource room, 38.9% preferred their regular classroom and 5.3% had no preference. The students' preferences were not statistically affected by gender, grade and hours of instruction in the resource room but were 'significantly influenced by their view of which setting provided most academic benefits' (Vlachou, Didaskalou, and Argyrakouli 2006, 207).

In contrast to Jenkins and Heinen's (1989) finding that students preferred getting help from their class teacher, the great majority of the students preferred receiving help from the special education teacher:

> . . . a not insignificant number of students in justifying their preference of the pull-out delivery mode, referred to a number of barriers to learning that they were experiencing in the regular education classroom. In particular, the fast pace of teaching, the difficulty of some of the subjects being taught, the assignment of harder work and the lack of modifications, and the amount of noise in conjunction with the teacher's inability to provide individualized support to students as a consequence of the larger number of students, were the most frequently identified barriers experienced by the students who preferred the receive additional help in the resource room. (Vlachou, Didaskalou, and Argyrakouli 2006, 214)

There has been much criticism, particularly in the 1980s, of all aspects of resource room provision (e.g., Pugach and Lilly 1984; Gallagher 1984). Recent research suggests that regardless of the setting the key factor in enhancing student

learning is the quality of teaching received and this has been linked to access to a specialist teacher regardless of the setting (Ofsted 2006). Interestingly in the Greek study the students' preferences for receiving help from the resource teacher was even stronger than their preference for going to the resource room.

Previous research has highlighted the beneficial aspects of withdrawal as providing individually appropriate help with learning and the negative aspects as students experiencing stigma and devaluation (Vlachou, Didaskalou, and Argyrakouli 2006). Nolan (2005) summarises additional arguments in favour of withdrawal such as that in typical classrooms some students find it hard to concentrate and she quotes Sugrue (1997) who suggests that despite the best intentions and efforts of teachers that the more extrovert, articulate, able and motivated learners get the greater share of the teacher's attention. In terms of arguments against withdrawal Nolan (2005) mentions that withdrawal is unnecessary as there is no evidence for benefits, the regular class teacher knows best and that students do not like being withdrawn. In addition, by its very nature, all students who are withdrawn for support miss some aspect of their regular class work.

Norwich and Lewis argue that in terms of pedagogy that what makes special education distinctive is not specialist approaches but rather an intensification of existing methodologies. Does this intensification occur in withdrawal settings?

However, very little research has focussed on what teachers perceive to be the benefits, if any, and how they perceive that their practice differs, if at all, in a withdrawal setting.

The present study analyses teachers' organisational practices for learning support in mathematics and their views of the perceived benefits, if any, of out-of-class models and the extent of and barriers to collaborative practice with class teachers.

Methodology

The research questions were asked as part of a wider three-stage study of the practices of learning support/resource teacher in the area of mathematics (Travers 2010a, 2010b). The first stage incorporated countrywide focus groups involving 118 teachers. In five separate locations teachers were asked in small groups to outline the key issues impinging on their practice as learning support teachers and each was given a pro forma template to aid discussion and to record responses. These responses were analysed and helped in the construction of a subsequent questionnaire. The questionnaire survey was of one full cohort of learning support teachers and resource teachers who were pursuing postgraduate studies in learning support/special education in all six designated centres around the country and four previous cohorts from one of the centres amounting to 230 teachers. Participants were asked to outline the extent to which they withdrew pupils in their support work and/or provided in-class support; the perceived advantages if any they ascribed to withdrawal and their perceptions of the extent to which they perceive that their practice in small group withdrawal situations is different to their practice as former mainstream class teachers and their attitudes to various models of support. The third stage consisted of six individual teacher interviews with learning support teachers in different contexts in which the issues highlighted in the survey were explored in greater depth.

Of 230 questionnaires posted out 137 were returned representing a return rate of 60%. All of the respondents, due to the nature of the survey sample, had either a

postgraduate diploma in learning support or special education. One hundred and thirty teachers gave pupil numbers for their schools giving a total of 42,081 pupils. School sizes ranged from 41 to 878 pupils. Teachers in designated disadvantaged schools accounted for 33% of respondents, leaving 67% in non-designated schools. The findings presented below relate to the questionnaire responses, both open and closed and to the teacher interviews. For some survey questions not all teachers responded so different totals are given for different questions.

Findings

Findings are presented in relation to the practice of in-class support, out-of-class or withdrawal model of provision, perceived advantages if any of withdrawal, perceived differences in teaching style if any between mainstream and support teaching by withdrawal and the extent of and barriers to collaborative practice with class teachers.

In-class support

In terms of organisation of support in mathematics 41% of the teachers provided some in-class support in mathematics (n = 125). When requested to do so, 46 of the teachers gave descriptions of how they operated in-class support. These are outlined below in Table 1.

The development of in-class support is crucial in terms of the success of the policy of inclusion in meeting the needs of all pupils (Salend 2001). The range of strategies in Table 1 shows an impressive variety of flexible models in an area that

Table 1. Range of in-class measures in mathematics operated by forty-six learning support /resource teachers.

Type of in-class support	Number of teachers
Working with a small group of weakest pupils with differentiated work on same topic	14
Supportive capacity to class teacher who gives main lesson	9
Targeting pupils within a group	3
Maths for fun with HSCL teacher and parents (6 week programme)	3
Working one-to-one in class	3
Class teacher and LS teacher alternate between groups	2
Resource teacher works with more able group while the class teacher takes the majority weaker group	2
Team teaching – grouped according to ability	2
Grouped for mathematics games – helping the class teacher	1
Two teachers (LS and class teacher take half the class each)	1
Games and worksheets on tables for one term	1
Combination of assisting, being main teacher and teaching a small group across five classes	1
Combines delivering lesson and working quietly with targeted pupils	1
Class teacher gives lesson and LS teacher moves between groups to support activities	1
For some topics we do parallel teaching – two classes and three teachers	1
LS teacher takes main lesson modelling for beginning teacher	1

is relatively new for Irish primary teachers. Working with a small group in a differentiated capacity on the same topic was the most popular practice. Occasionally the support teacher took the more able pupils:

> Resource teacher assigned to fifth and sixth class works with more able group while the class teacher works with the weaker children since they are the majority (29/36 at or below the 10th percentile in maths).

One teacher operated a more fluid grouping arrangement:

> Two classes both second: collaborative teaching (class teacher and myself each take half the class – occasionally one or other of us takes small group for individual attention – children 'opt' in to group if they feel they need more help or practice on a given topic.

Others referred to the usefulness of a specific programme, games or equipment that provide a focus for the lesson and which are conducive to a second adult working in the room. In this regard the 'Maths for fun' initiative, (small-group maths games played with parents) the 'Number worlds' programme (an early intervention programme) and 'Numicon' (concrete materials consisting of different shaped number templates) were highlighted as useful resources.

Another organisational arrangement is the division of a class into ability groups with the support teacher working with one of these groups. Of 120 respondents, 31% reported this system operated in their school. It tended to be most frequently used in the middle and higher grades with only one teacher reporting its use under first class. The support teacher usually took the weakest group (83%, n = 37) with five teachers reporting that it was a shared task. The groups ranged in size from one to 10, with a mode of four. However, the literature points to many negative features associated with ability grouping for pupils in the weakest group (Lyons et al. 2003; Zevenbergen 2001).

Mentoring was also considered as a benefit of an experienced learning support teacher working with a newly qualified teacher:

> Senior infants [second year in school aged 5–6]: working with class teacher (first year teaching) modelling good practice in developing concepts, use of equipment, development of maths language.

A reminder that there is no official obligation to provide in-class support was evident in some comments:

> Pilot project in school to assess suitability: I visited one sixth class for 30 mins and supplemented the teacher's work among a group of four. Lately, the teacher has discontinued this. She now asks me to withdraw the pupils.

One teacher in interview recounted how his additional qualifications in special education worked against him gaining access to classrooms as teachers said they were nervous that he would be scrutinising their practice:

> . . . they view the fact that I've been doing continual development as somewhat of a threat and that I will go in and spot all their errors. So my continual professional development has worked against me in one sense.

This teacher also argued for a distinction between the usefulness of in-class support based on the level of need of the pupils:

> And I have a few ideas now in terms of, em, one particular class there with a large number of needy children to go up there and not take the children down here in terms of maths, but take them within the classroom. Now it will work for that group because they're a fairly homogenous group. They're probably the top group of the crowd I'm seeing. But with the others groups my big worry is that if I have children who are really needy and I go into the class and support a group of weak children is it just kind of ticking the ideological box?
>
> Interviewer: And do the class teachers group for maths?
>
> They don't, no. In this school here there's very little, em, collaboration in that sense, that it really is, em, a group of independent republics.

However, there is still much uncertainty among learning support teachers around the merits of in-class support. Despite policy initiatives in the area of in-class support 40% of the teachers reported that they were undecided as to its effectiveness with a further 10% either disagreeing or strongly disagreeing that in-class support is very effective. In a related question, nearly 40% either agreed or strongly agreed that in-class support is an under utilisation of support teacher expertise. In contrast, the levels of support for the effectiveness of small group and individual withdrawal at 90% and 81% respectively illustrate the challenges in persuading teachers to adopt more in-class provision in their support repertoire.

Small group and individual withdrawal

Withdrawing pupils in small groups or as individuals is still very popular with 95% (n = 112) of respondents operating this system. In relation to which classes pupils were withdrawn from, all classes from junior infants (first year in school) to sixth class (final year of primary school) were mentioned with more pupils withdrawn from junior classes, particularly first class (third year in school). This is a significant change as Shiel et al. (2006) report very low provision for first class with more provision in the middle grades. The majority of teachers who have caseloads covering literacy and mathematics withdrew a small number of groups for mathematics four times per week. As regards individual withdrawal, 57% (n = 106) of the teachers who do withdraw pupils provide this service. It forms a small part of their work with the majority withdrawing just one pupil for individual tuition from two to five times per week.

In relation to when support teaching in mathematics occurred, 25% (n = 116) of the teachers reported that it never occurred during the pupils' mathematics time in class, which may indicate that this support is supplementary. Just over 62% said it occurred sometimes during the pupils' mathematics time in class and 13% said it occurred always during the pupils' mathematics time in class. The latter could be interpreted as a replacement or alternative mathematics programme as opposed to supplementary support.

Given the huge popularity and allegiance to withdrawal as a support system teachers were asked to outline the advantages, if any, to withdrawing pupils for supplementary teaching. Ninety teachers responded to this open-ended question, with all reporting advantages. The following themes emerged as perceived advantages:

ability to work at pupil level; learning benefits; enhanced learning space; benefits for certain types of pupils; time benefits; positive contrast with mainstream class; assessment benefits and greater use of concrete or manipulative materials in teaching mathematics. These are considered in turn.

Ability to work at pupil level

Teachers felt the pupils had a better chance to explain their thinking and for children to work at their own level and have an opportunity to succeed:

> Content level being covered in class may not be at the level the child requires, e.g., fifth class child needs second. [The child is achieving three grade levels behind their peers.] Teaching can continue until the concept is mastered.

> They learn at their own level and at their own pace. It reinforces a sense of achievement rather than failure.

Many felt pupils gained in confidence when engaging at their own level:

> Increase in learning and confidence in pupils who cannot function at class level; children usually gain confidence in small group.

Learning benefits

Many reasons focused on the benefits of small group withdrawal for teaching and learning. These included that it can support the learning needs of pupils in a variety of ways:

> Revising topics they have missed, opportunities for talk, discussion, organising resources more efficiently.

> Focus can be specific to child's needs; it is easier to figure out what is blocking the pupil learning and to give more scaffolding time.

> . . . particularly good for language use and practice; easier to spend longer at a particular topic or to revise it with small needy group; you can be sure that no one is escaping your attention by being quiet as could happen in class.

Intensity and explicitness were also referred to as benefits in the teaching and learning situation:

> Explicit/direct teaching is possible in the small withdrawal group and it gives the opportunity to develop the basic skills and strategies, e.g., counting, estimation.

> Intensive small group teaching, individual attention, easier to recognise individuals' difficulties. Opportunity for directing teaching and modelling new learning in a quiet distraction free environment.

There was a large emphasis on how the format allowed teaching to be tailored to pupils' needs. There was a focus on individualising or personalising instruction, targeting areas of need and giving feedback:

> Children can get individual help in specific areas they are having difficulty with, without feeling pressure of 'not getting it' or understanding concepts as quickly as their classmates.

> The pupils receive a more concentrated one-to-one, targeted at their area/s of need with immediate feedback which is vital for all children, but particularly for children with learning difficulties.

Enhanced learning space

Many teachers who mentioned the notion of a distraction free environment also focused on other benefits of the learning space:

> . . . more scope for direct teaching; more room for hands-on work using manipulatives; better for self-esteem building; less negative comparisons with able pupils.

> Dignified environment. Work can be geared to their requirements without distraction. Space and time for manipulating and working with equipment.

Benefits for certain types of pupils

Certain types of pupil characteristics were singled out as particularly benefiting including pupils described as disruptive, distractible and restless:

> Small group suits some children particularly restless, disruptive children.

> Students with attention difficulty can focus more easily. These children are often highly distractible – small group situation works well for them.

Some reported how the pupils themselves like small group withdrawal:

> Change of attitude – more success less fear will try harder.

> Children do enjoy the one-to-one and small group attention and laugh and participate more. This has to be good and they are positive about their maths.

Time benefits

More control over time was mentioned by lots of the respondents. This came up in a number of different ways, such as the time the teacher can spend with a child:

> Time to question and answer child; time to use equipment; time to focus on child and individual needs.

> Sufficient time can be given to wait for child's response without pressure from others.

Some perceived that:

> Greater progress [is] made in a short period of time enabling them to catch up with their peers where possible.

Others reported working at a slower pace and giving children more one-to-one time. Some saw benefits in terms of it being time-out for both pupil and class teacher.

Contrast with main class

Many contrasted the small group withdrawal with their perceptions of what was happening in the mainstream class. They reported that it was easier to spend longer

on a particular topic, that there was less distraction and easier to keep the pupils on task. Teachers also reported that pupils could get help more easily while there is a danger in the mainstream class of pupils getting lost and losing confidence. Senior pupils were also more likely to use concrete materials in the withdrawn setting. Illustrative comments include:

> . . . quiet environment; less distraction; intensive tuition; less embarrassment for child in terms of rest of class not being privy to his needs.

> Pupils from senior end do not wish to use concrete materials in classroom. (They are given the choice). Not seen using materials/doing different work to peers – self-conscious.

Linked to this were comments that it also benefited the class teacher and other pupils in that the mainstream class was now less distracting and differentiation was difficult with large classes:

> The work in the classroom is generally not pitched at the level of the low attainer (in maths). Differentiation is difficult for teachers with large classes.

> Lessens the class teachers' workload.

Assessment benefits

Benefits in terms of being able to assess the children better were also referred to. This entailed being able to conduct informal diagnostic interviews (Westwood 2007):

> . . . can diagnostically test pupils and target the gaps.

> . . . the children are able to talk about the areas they are finding difficult and we can work them out together.

Greater use of concrete or manipulative materials in teaching mathematics

Many referred to the fact that they used concrete materials much more in a small group withdrawal system:

> Facility for full use of concrete materials without pupils' concern for what other kids think.

> Pupils from senior end do not wish to use concrete materials in classroom. (They are given the choice.)

Differences in teaching style

When asked to comment on any differences between their teaching style as a class teacher and as a learning support/resource teacher 110 teachers outlined qualitative differences which were all more favourable to their support roles. The two largest areas of difference were the individualising of instruction to cater for the specific needs of pupils and the increased use of concrete materials, areas highlighted in the literature (Dowker 2004). Forty-six teachers commented on how they used such materials much more than they did as class teachers:

> The small group I teach gives me a greater opportunity for exploiting concepts using concrete material. Also feedback is immediate. Furthermore discussion with the pupils to tap into their thinking is possible in a small group.

In terms of addressing individual needs there was an emphasis on being less curriculum led and instead assessing where pupils were at and responding to their needs. Teachers reported using much more varied methodologies including scaffolding, task analysis, direct teaching, differentiation, discovery learning, role-play, games, discussion, listening to pupil talk, reinforcement, over learning and increased intensity and focus in teaching. This increase in variety of approaches and intensity lends support to the argument of Lewis and Norwich (2005, 218) that 'the intensification of common pedagogic strategies', provides a framework for explaining the necessary adaptations required to meet pupil needs:

> Greater differentiation. Closer monitoring of individual needs. More explicit teaching – lots of oral work, encouraging the children to use the mathematical language. Greater use of concrete materials by each individual child.

> Individual teaching – diagnosing difficulty, breaking it down and working with children through difficulty to reach clarity. Huge use of concrete materials. Scaffolding very different due to class size.

Also in terms of teaching and learning, teachers reported emphasising the language of mathematics, and spending more time on teaching specific concepts, skills and strategies:

> I give children in learning support more strategies for solving problems and basic facts.

> More hands-on; more discussion, exploration; grounding problems in real life; attention to language.

As with the responses in relation to the advantages of small group withdrawal work, the increased control over the use of time featured strongly. Many wrote and some spoke about being able to work at a slower pace to suit the pupil. Teachers reported having more time for using concrete materials, for listening to pupils, asking questions, individualised work, exploring concepts, helping pupils with problems, explaining the language of mathematics, basic concepts, allowing pupils to complete tasks, revision, differentiation, planning and feedback:

> As a learning support teacher I can prioritise certain parts of the programme. I can make sure each child gets enough time to develop a concept before moving on. I can make better use of limited supply of materials. I can sit with children and help them verbalise their actions.

Some teachers made direct contrasts between their practice as a class teacher and support teacher. They were honest about the difficulties of meeting all needs in the mainstream class:

> As a resource teacher I usually work on a one-to-one so the pace is dictated by the needs of the pupil and his comprehension of task – as a class teacher I felt stretched by varying needs of big group.

> As a class teacher I spent insufficient time working with concrete materials before moving to computation and application of concepts. Now I would use a much slower pace and more checking that concepts have been grasped thoroughly before moving on to another.

Extent of collaboration with class teachers

In this section findings are reported under the following themes: the extent of collaboration with class teachers; the amount of non-contact time and barriers to collaborative practice.

Given the amount of time pupils with SEN are in mainstream classes and the professional and legal obligation to meet the needs of all pupils, collaboration between support teachers and mainstream class teachers has become a sine qua non (Thousand et al. 1996). While 68% of the respondents to the questionnaire support class teachers in modifying the curriculum for pupils with difficulties in mathematics it leaves a worryingly high number who say they don't (n = 120).

Of the teachers who do support the class teacher the majority (33% – see Table 2) do so only on a termly basis. This is a very low level of support for the class teacher who carries the main responsibility for meeting the needs of pupils with low achievement/learning difficulties in mathematics.

An example of the low level of collaboration is evident in relation to mathematics homework. Responsibility for mathematics homework was shared between the class teacher and support teacher in 21% of cases, while it was the preserve of the class teacher in 57% of schools and administered by the support teacher in 22% of cases (n = 121). The divesting of total responsibility for homework from the class teacher raises concerns about the balance of responsibility for individual pupils in inclusive settings. The lack of collaboration and practice with homework was described thus by the second teacher interviewee:

> The class teacher will set their homework and so quite often I could be covering a different topic to the class teacher. So, em, I've found as more help, I send all the children home with notebooks now so that they can keep a diary for me of what they're doing so I can keep abreast of what's going on in homework in the class. But there isn't a huge amount of, em, communication between the two.

Non-contact time in school

Teachers were asked how much non-contact time for planning and other activities, if any, they had each week. One hundred and seventeen responded to this question. There was wide diversity in the amount of non-contact time given to the teachers, ranging from none to two and a half hours per week. Of the 117 respondents 24% said they had no non-contact time each week. However, 21% had one hour per week, 13% had a hour and a half, 9% had two hours and a further 10% were given two and a half hours per week for duties of a non teaching nature. Overall, the

Table 2. How often learning support /resource teachers support class teachers in modifying the curriculum for pupils with difficulties in mathematics (percentage of respondents) (n = 80).

Daily	21.3
Weekly	23.8
Monthly	22.5
Termly	32.5

mean non-contact time was just over one hour per week. Given the roughly similar jobs of all these support teachers such diversity is puzzling but not surprising given the lack of official guidance on the issue.

Many have cited the lack of designated non-teaching time in the teachers' day as a major barrier to collaborative practice (Harty 2001). There is far less known about how schools actually respond to the pressure to collaborate within the context of such a systemic barrier. A significant finding in this study is the range of practices used by schools to eke out time to collaborate.

As can be seen from Table 3 a wide variety of actions are taken by schools to release teachers to collaborate.

Barriers to collaborative practice

Table 6 outlines the teachers' views as to the main barriers to collaboration. These can be seen to relate to the twin areas of lack of time and training in the role, the latter potentially addressing other concerns raised about skills, confidence and knowledge. Both of these areas need to be tackled at a system wide level.

Overall levels of satisfaction for collaborating with class teachers can be gleaned from Figure 1. Only 16% are satisfied or very satisfied with their current arrangements for collaboration.

In relation to teacher attitudes to key issues around their role nearly 34% of the teachers disagreed with having more of their role engaged in supporting class teachers as against teaching individual pupils and groups by withdrawal with a further 40% undecided on the issue (Table 5). Nearly 50% of the teachers agreed that it is unrealistic to expect class teachers to have main responsibility for pupils with SEN in their class. Also relevant here is the finding that 62% of the teachers agree that there are specialist teaching methods in support teaching in mathematics (Table 5).

While teachers are moving to more collaborative working modes, the barriers to this are substantial as evidenced in the range of unofficial arrangements used to create time for collaboration. This has a knock-on effect on the opportunities to overcome the barriers to meeting the needs of pupils with low achievement/difficulties in mathematics in the mainstream class.

Table 3. Actions taken by schools to make time for teacher collaboration (n = 132).

Action taken	Percentage YES
Use learning support/resource teachers to release class teachers	44.7
Meet outside of school hours	41.4
Use colleagues to cover classes next door	38.6
Use junior/senior infant teachers to release teachers in the afternoon (n = 107; doesn't apply to senior schools)	34.6
Buy substitute cover to release teachers	9.1
Meet during lunch breaks	9.0
Principal takes classes to release teachers	8.3
Use some of the school planning day or staff meeting time	4.5
Meet in mainstream class with no cover required	3.0
Special needs assistants used to provide cover	1.5
Home school liaison teacher does supervision hours in class instead of yard duty to allow joint planning	1.5
Classes divided among same class group	1.5

Table 4. Barriers to collaborative practice in schools (n = 129).

Barrier	Percentage YES
Lack of time for meeting teachers	91.5
Insufficient training in the role	35.7
Lack of confidence	20.9
Lack of knowledge and skills	19.4
Other (teacher resistance, overloaded curriculum, class size, not seen as a priority)	7.7

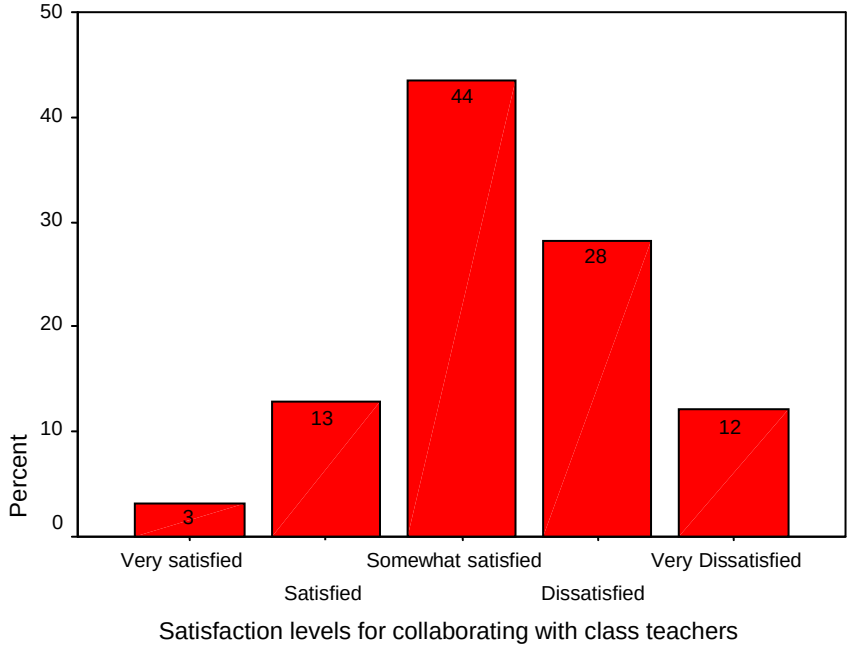

Figure 1. Percentages of learning support/resource teachers' level of satisfaction with arrangements for collaboration with class teachers (n = 124).

Table 5. Percentage of teachers' level of agreement or disagreement with the following statements.

	n	SA	A	U	D	SD
Learning support/resource in mathematics should be more about supporting teachers to differentiate and less about teaching individual pupils and groups by withdrawal	118	3.4	22.9	39.8	29.7	4.2
There are specialist teaching methods in LS/RT maths	113	25.7	36.3	16.8	20.4	0.9
It is unrealistic to expect classroom teachers to have main responsibility for pupils with SEN in their class	119	11.8	37.8	16.0	29.4	5.0

Notes: SA: strongly agree, A: agree, U: undecided, D: disagree, SD: strongly disagree.

Discussion

Withdrawing pupils from mainstream classes for support is a contentious issue. By its very nature the pupil loses out on something in the mainstream class. If they are being given supplementary mathematics teaching as opposed to an alternative programme the withdrawal should not occur during the mathematics time in class. Therefore, there is an obligation to ensure that the benefits of the withdrawal outweigh the losses. There is evidence that carefully planned small group instruction using empirically validated practices can be beneficial (Dowker 2004). While this has a strong tradition in the Irish context it is also important to realise that up until quite recently group sizes were often too large to make an impact and very few pupils were withdrawn for mathematics support before 1999 (Shiel and Morgan, 1998). Also, Norwich and Kelly (2004) suggest that many pupils prefer out-of-class support.

In the context of inclusion it could be argued that there is a professional obligation and responsibility in relation to the use of separate provision to justify it. There is a need to empirically demonstrate the benefits of programmes used, to show how longer term participation in the mainstream can be enhanced by short-term separation or how mainstream placement harms the education of others (Norwich 2000). Special education has been remiss in not addressing these issues and instead relying on arguments around lower pupil teacher ratios and additional resources as justification for separate provision. Heward (2003, 197) suggests 'other than limiting class size, there is often little that goes on in many special education classrooms that can rightfully be called special'. In contrast some children with disabilities 'benefit from a special education that is individualized, specialized, intensive, structured, precise, goal directed, and continually monitored for procedural fidelity and outcomes' (Heward 2003, 201).

A key finding in this study is the reported differences in teachers' practice in small group withdrawal situations as compared to class teaching and our understanding of teachers' perceptions of the benefits of such instruction. In relation to pedagogy with and for children with learning support needs in mathematics, teachers in this study claimed to use more varied methodologies, a lot more concrete materials and to individualise instruction more in withdrawal settings, than they did as class teachers with ordinary classes. Given the extent of student preferences for support by withdrawal, and teacher perceptions of advantages, it is important to maximise the benefits of the model while reducing any negative aspects as part of a continuum of options.

The traditional autonomy of the class teacher has been referred to in the literature with Fullan and Hargreaves (1992) arguing that teachers have too much autonomy in relation to each other. It could be argued that given the dominance of withdrawal models of support (Shiel and Morgan 1998; IATSE 2000; McCarthy 2001) it is encouraging that over 40% of the teachers in the sample provide some level of in-class support in mathematics. However, given the thrust of recent policy in favour of this model, the fact that all teachers surveyed had professional development in learning support/special education and that the targeted pupils spend most of their time in mainstream classes, the level of in-class support provided is far from adequate.

While in-class support mechanisms are increasing in the system, with 41% of the sample in this study providing such support, greater attention needs to be paid

in teacher education to the challenges of co-teaching. In terms of the professional code of practice for teachers it is vital that the obligation to collaborate and be open to in-class support and co-teaching is not interpreted as an optional extra or of personal discretion but rather of professional necessity. The recently published draft codes of professional conduct for teachers from the Irish Teaching Council states as a core value that 'teachers work in collegiality with colleagues in the interests of sharing, promoting, developing and supporting best professional practice' (Teaching Council 2007 12). This may need to be more explicit in relation to in-class support and co-teaching.

Whole-school collaborative approaches vary widely across schools. Some learning support teachers provide daily support to class teachers in modifying the curriculum for pupils with difficulties in mathematics while many provide none. Only 16% of teachers were satisfied or very satisfied with arrangements for collaborating with class teachers. A significant finding in this study is the range of approaches Irish teachers use to carve out time to collaborate from systems and structures designed for an earlier era. These systems and structures represent substantial blocking mechanisms to collaborative practice. Also significant are the differences in non-contact time provided to teachers ranging from none (24%) to two and half hours per week (10%) with a mean non-contact time of just over one hour per week for planning and collaboration.

The variety of practices used to release teacher to collaborate (Table 5) can interpreted as squeezing as much flexibility as possible out of a rigid structure combined with utilising as much goodwill as possible to create time for collaboration. There are no official guidelines in the Irish system on non-contact time for support teachers and class teachers. The buying of teacher substitute cover illustrates the degree to which some schools will go to facilitate collaborative planning while also being a salutary reminder of how new inequalities can emerge, as many schools would not be in a position financially to contemplate such action. The use of learning support/resource teachers to release other teachers to meet raises questions about the best use of their time, while covering for colleagues raises questions about the possible erosion of teaching time. The lack of formal mechanisms for collaboration is problematic. The potential benefits to schools of State investment in the professional development of support teachers are eroded, as when they return to schools few mechanisms exist for collaborative planning and practice.

The pressure, from policy initiatives and the exigencies of the role, to collaborate is so great that schools have exhausted all methods to release teachers. It is unrealistic to urge a shift in emphasis in the role of the learning support/resource teacher to one of more collaborative support for mainstream teachers while not addressing the barriers to this becoming a reality. While calls have been made for an increase in non-teaching time for teachers (McGee 2004), it is important that the purposes for this time are clear and that some of it is safeguarded for collaborative planning between class and support teachers. Without dedicated non-contact time built into the school year, the large differences between schools in the amount of collaborative whole school work that is done will continue, leading to further inequities in the level and quality of support pupils will receive based on which school they attend.

The attitude of a significant minority of teachers to giving more time to supporting class teachers, their views on responsibility for pupils with special educational needs and to specialist approaches pose a challenge. Part of the rationale behind

collaboration is shifting the role of the learning support teacher to one of supporting teachers to differentiate practice, as against total reliance on small group and individual withdrawal teaching (Thousand et al. 1996). Given the proportion of time pupils with special educational needs spend in mainstream classes and in order to meet the legal obligation of each child benefiting from an appropriate education, a reconceptualisation of support roles is vital. The evidence to date suggests that there aren't many specialist approaches and that methods used are part of a continuum and that 'differentiation or specialization can be seen as a process of intensification' (Lewis and Norwich 2005, 220). This interpretation has the benefit of affirming class teachers in their knowledge and skills for dealing with the challenges of differentiation and not feeling deskilled by the process.

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