Some recent thoughts on class size issues

[Hywel Coleman, March 2009]

I am very sorry that I cannot join you at IATEFL this week but I am very grateful for the invitation. I am still based in Indonesia, though in fact I'll be South Korea for a few days at the time that you are all (or nearly all) in Cardiff.

I must also apologise for not being an active member of this discussion group. In fact I think that this is probably my first ever posting.

In the last few years I have moved away somewhat from TESOL into broader development education issues, though the link with language education has not been severed entirely. Since 2005 I have been particularly busy with a project to develop school based management in 20 poor and remote districts in eastern Indonesia and in a separate project to develop education management in a network of 100 *pesantren* throughout Indonesia. These are traditional Islamic boarding schools, usually known as 'madrasah' in other countries, although 'madrasah' in Indonesia means something different. In recent months I have also been involved in a World Bank-funded project to rethink the in-service development of teachers in Indonesia (all 2.7 million of them!).

Inevitably, in all three of these activities, class size is an issue which has cropped up from time to time. This has reminded me that class size is not a matter of exclusive interest to teachers of English : it is something that teachers of all subjects need to deal with.

I have been particularly interested by two class size phenomena which I'd like to discuss with you here. I would also like to explore some possible explanations for these two phenomena. Neither of them has any direct bearing on English teaching, but you might find them interesting.

Issue 1 : Class size and teacher efficiency

The context that I want to talk about here is eastern Indonesia where between 2003 and 2008 the Decentralised Basic Education Project (DBEP) – funded with a loan from the Asian Development Bank - provided support to more than 4000 schools. I joined the project in 2005 and stayed with it until it came to an end in the middle of last year.

Just over half the schools in the 20 targeted districts received DBEP support. The most important criterion used in selecting schools was that of poverty.

The data which I want to discuss here comes from 3458 primary schools (both secular and Islamic, both state and private) in 19 of the 20 districts. The schools themselves recorded that about 55% of their pupils came from poor families.

Approximately[1] 1290 of these schools provided usable data about how many pupils, teachers and classes they had. The raw data can be seen in the Appendix at the end of this discussion, but the most important highlights can be seen in the following table.

Table : Class size, teacher-pupil ratio and efficiency of utilisation of teachers in primary schools in 19 districts of Indonesia, 2003-2008

Districts ranked by class size	Class size (Pupils per class)	Teacher-pupil ratio (Pupils per teacher)	Efficiency measure (Teachers per class)	Efficiency ranking (1 = most efficient)
1. Mataram, Municipality	35.5	25.7	1.38	6
2. Denpasar, Municipality	34.9	23.5	1.49	11=
3. Lombok, East	27.7	20.3	1.36	4
4. Badung	27.4	14.0	1.96	18
5. Jembrana	26.7	18.9	1.42	7
6. Bangli	26.6	18.0	1.48	10
7. Lombok, West	26.5	17.8	1.49	11=
8. Dompu	25.8	16.1	1.60	15
9. Bima, Municipality	25.4	11.5	2.20	19
10. Lombok, Central[2]	24.7	15.9	1.56	14
11. Sumbawa, West	24.0	16.8	1.43	8
12. Buleleng	23.1	19.0	1.21	2
13. Bima	23.1	11.9	1.94	17
14. Sumbawa	22.6	14.1	1.61	16
15. Klungkung	20.7	13.6	1.52	13
16. Rote Ndao	20.6	14.0	1.47	9
17. Karangasem	19.7	16.6	1.19	1
18. Gianyar	19.4	15.7	1.24	3
19. Tabanan	16.8	12.3	1.37	5
Overall	**24.0**	**16.3**	**1.50**	**-**

Highlighted districts are the most inefficient in using their teachers.

From the table, we can see that the average teacher-pupil ratio across the 19 districts is a very generous 1 to 16.3. In some districts the ratio is even more favourable; examples include the Municipality of Bima, on the island of Sumbawa, where there is one teacher to every 11.5 pupils in primary schools, Bima (rural district) with one teacher to every 11.9 pupils, and Tabanan on the island of Bali with one teacher to every 12.3 pupils.

It is interesting to note that these figures from eastern Indonesia compare very favourably with the average teacher pupil ratio of 1:18 in primary schools in the UK (UNESCO 2008).

But, strangely, these generous teacher-pupil ratios are not reflected in the classroom for, as the table shows, there are on average 24 pupils in each primary class. Moreover there is very wide variation from one district to another. For example,

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[1] I say 'approximately' because each school was asked to provide annual data over three years; in fact some returned data for all three years, some for two years and some for just one year. All of this data has been aggregated. It is therefore difficult to provide a single figure for the number of schools providing data. It would be more precise, perhaps, to talk of the total number of 'annual school data returns'.

[2] There are some anomalies in the data from Central Lombok for the school years 2005-6 and 2006-7 and so figures for these two years have not been included.

Tabanan has the smallest classes (16.8 pupils on average) whilst the Municipality of Mataram has the largest with 35.5 pupils per class. It is striking that schools in the two largest urban areas (Denpasar and Mataram) have much larger average class sizes than those in the rural areas; this is a phenomenon which occurs in many parts of the developing world.

Apart from class size, this table also reveals how many teachers are employed in comparison with the number of classes. Overall, across the 19 districts, there are 1.5 primary teachers for every primary class; in other words, on average, three teachers are being employed for every two classes.

It might be argued that this high number of teachers relative to the number of classes means that teachers are able to team teach or that some teachers are giving extra support to pupils with special needs while their colleagues are teaching the majority of pupils in normal classes. But in fact this is not the case. The 'superfluous' teachers are not obviously being utilised in any way.

The most inefficient district of all is the Municipality of Bima, which employs 2.2 teachers for every class. Compare this with Karangasem, which employs only 1.19 teachers for every class.

If all districts adopted the same policy as Karangasem, there could be considerable reductions in class size, even without employing any new teachers. If the Municipality of Bima, for example, could implement the same policy as Karangasem, it would be possible to almost halve the average size of primary classes from 25.4 pupils to just 13.7 pupils.

Apart from the Municipality of Bima, other districts with very inefficient schemes for utilising their primary teachers are Badung, Bima, Sumbawa and Dompu. These are highlighted in the table.

In other words, there is evidence here of extremely inefficient use of teachers : although there are more than enough teachers in the system, class sizes are much higher than they need to be.


Issue 2 : Class size in very small schools

A separate but related phenomenon is that of very small schools – especially primary schools - which are commonly found in remote mountain and island communities in Indonesia. These schools serve sparsely populated catchment areas with unavoidably small numbers of pupils. But even in such situations schools may have 6 or more teachers, bringing the teacher pupil ratio right down to perhaps 1:5 in some cases. Even where schools do not have such large numbers of teachers they will almost certainly have an ambition to achieve such a situation as soon as possible.

It is also common in such small school situations to find that in school buildings which were designed to have three classrooms the classrooms have been subdivided by placing a row of cupboards down the middle of the room. One half of the room is used by one class, with a blackboard at one end of the room, whilst the other half of

the room is used by another class, with a blackboard placed at the other end of the room. (See the figure below.) At one end of the row of cupboards there is a narrow space allowing the pupils using the outer half of the room to enter and leave. In this way, the three classrooms can be used by six different classes at the same time. Needless to say, when both halves of one room are in use and when both teachers are producing most of the classroom talk, the situation becomes very noisy and distracting, even with the cupboards providing a sort of partition between the two halves.

Figure : Plan of a sub-divided classroom used by two classes
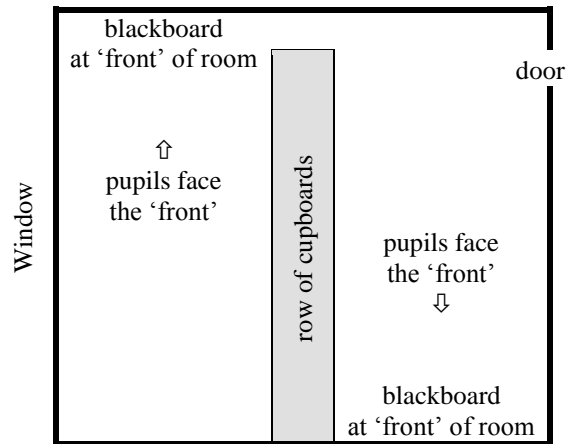
The aetiology of class size

The aetiology of class size (i.e. why classes are the size they are) is a question which has interested me for some time and in fact there is a chapter which discusses this question in my long planned, 60% written but as yet unfinished book *Class Size and the Context of English Language Teaching*.

My reasons for discussing these two cases are to highlight three points :
• We need to treat teacher-pupil ratios with great caution because the reality in classrooms may be quite different
• The number of pupils in a class may differ markedly from one district to another, even within the same region. Class size data therefore needs to be disaggregated as far as possible so that the precise contexts in which larger classes occur can be identified.
• We need to try to understand why class size phenomena (whether very large or very small) occur.
• Class size is not an issue that concerns only English teachers. Furthermore, to understand why classes are as large or as small as they are we will almost certainly need to look beyond the boundaries of TESOL.

In the two cases which have been described above, we have already seen that the rural-urban distinction appears to have a relationship with class size. But probably one of the most powerful factors influencing policy in district education offices and practice in schools is the persistence of four rock solid and widely shared perceptions:
• That every year group must have its own class

- That every class must have its own teacher (and thus every primary school must have at least six teachers, one each for Years 1 to 6)
- That, in addition, every primary school must have one teacher for Physical Education and one teacher for Religious Studies
- And that the headteacher should be allowed to focus on matters of administration as far as possible.

Consequently, the ideal primary school should have at least eight teachers plus a headteacher, regardless of the number of pupils.

As we have seen, this rigid perception leads to considerable inefficiency in schools and, ironically, to the occurrence of classes some of which are larger than they need to be and some of which are smaller than they need to be, given the number of teachers available in the system.

In recent years the World Bank in Indonesia has repeatedly drawn attention to the inefficient deployment of teachers, but its emphasis has been on the financial burden which this creates for district education authorities (see for example World Bank 2004:39-41) rather than on the pedagogical consequences. One of the Bank's recommendations has been 'to reduce the size of the teaching force at the district level', clearly not an idea which has attracted much support from teachers themselves.

I feel that more effective reform could be achieved if policy makers and teachers themselves could be introduced to more flexible alternatives, so that – for example – the feasibility of mixed age (multi grade) classes could be explored as an alternative for very small schools and collaborative teaching could be examined as an alternative for the largest classes. In connection with the former, in November 2008 I was able to take a group of senior policy makers and teacher trainers from Indonesia to visit very small schools in the islands of Orkney, a remote archipelago off the north coast of Scotland. Though the climate differs dramatically, we found many similarities in the situations experienced by island schools in Orkney and island and mountain schools in Indonesia. But the Orkney schools were notable for the very high degree of flexibility and fluidity with which teaching is organised (for instance, up to three age groups in one class, peripatetic teachers for specialist subjects like music, sharing of teachers between schools, and joint activities involving schools on neighbouring islands).

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Well, I think that's all I've got to say at the moment. Any comments will be very welcome.

By the way, has anyone seen my most recent published article on class size (Coleman 2008)? This article proposes a rigorous analysis of teacher behaviour in large classes (and other sorts of class), but it hopes to be a bit controversial as well. So far I've had zero response. Too eccentric, probably.

By the way (again), will any of you be at the 8th Language and Development Conference in Dhaka, Bangladesh, 23-25 June this year? These conferences take place approximately once every two years and they move around Asia and Africa (Thailand, Indonesia, Malaysia, Vietnam, Cambodia, Uzbekistan and Ethiopia so far).

So far I have managed to participate in 4 of the previous 7 and I'm hoping to be in Dhaka as well; I also edited the proceedings of the 6th and 7th conferences. Fauzia and Nigussie were both at the Ethiopia Conference. I think that this series of conferences − though not very well known, perhaps − is extremely valuable and thought provoking. You can find information about the 8th conference at : http://www.langdevconference-bd.org/ .

Good luck with your discussions in Cardiff. I look forward to hearing the outcomes.

Hywel
Jakarta, 28 March 2009

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Appendix : Numbers of pupils, teachers and classes in primary schools in 19 districts of Indonesia, 2003-2008

District	Year	Schools providing data	Pupils	Teachers	Pupils per teacher	Classes	Pupils per class	Teachers per class
Rote Ndao	2005-6	46	6139	401	15.3	289	21.2	1.4
	2006-7	74	9249	692	13.4	465	19.9	1.5
	2007-8	74	9766	698	14.0	467	20.9	1.5
	Mean	*65*	*8385*	*597*	*14.0*	*407*	*20.6*	*1.47*
Sumbawa	2003-4	25	2882	186	15.5	148	19.5	1.3
	2004-5	98	15134	864	17.5	632	23.9	1.4
	2005-6	181	28308	1933	14.6	1241	22.8	1.6
	2006-7	208	32754	2386	13.7	1419	23.1	1.7
	2007-8	132	19412	1630	11.9	911	21.3	1.8
	Mean	*129*	*19698*	*1400*	*14.1*	*870*	*22.6*	*1.61*
Lombok Timur	2003-4	121	23605	1041	22.7	957	24.7	1.1
	2004-5	220	43498	1956	22.2	1643	26.5	1.2
	2005-6	335	66537	3167	21.0	2440	27.3	1.3
	2006-7	348	70814	3670	19.3	2416	29.3	1.5
	2007-8	239	47925	2596	18.5	1661	28.9	1.6
	Mean	*253*	*50476*	*2486*	*20.3*	*1823*	*27.7*	*1.36*
Badung	2004-5	19	2318	181	12.8	116	20.0	1.6
	2005-6	34	6190	444	13.9	225	27.5	2.0
	2006-7	34	6377	446	14.3	230	27.7	1.9
	2007-8	14	3743	262	14.3	110	34.0	2.4
	Mean	*25*	*4657*	*333*	*14.0*	*170*	*27.4*	*1.96*
Bangli	2003-4	12	2245	100	22.5	77	29.2	1.3
	2004-5	27	4348	250	17.4	169	25.7	1.5
	2005-6	30	5080	285	17.8	187	27.2	1.5
	2006-7	18	2753	173	15.9	112	24.6	1.5
	2007-8	3	583	26	22.4	19	30.7	1.4
	Mean	*18*	*3002*	*167*	*18.0*	*113*	*26.6*	*1.48*
Buleleng	2003-4	56	8384	414	20.3	346	24.2	1.2
	2004-5	122	18572	930	20.0	787	23.6	1.2
	2005-6	132	20358	1,023	19.9	852	23.9	1.2
	2006-7	177	25413	1,414	18.0	1,144	22.2	1.2
	2007-8	104	14839	821	18.1	667	22.2	1.2
	Mean	*118*	*17513*	*920*	*19.0*	*759*	*23.1*	*1.21*
Denpasar	2004-5	22	5156	224	23.0	153	33.7	1.5
	2005-6	39	10300	449	22.9	304	33.9	1.5
	2006-7	39	10929	457	23.9	308	35.5	1.5
	2007-8	14	4394	182	24.1	118	37.2	1.5
	Mean	*29*	*7695*	*328*	*23.5*	*221*	*34.9*	*1.49*
Gianyar	2003-4	23	2851	180	15.8	172	16.6	1.0
	2004-5	55	7288	486	15.0	398	18.3	1.2
	2005-6	74	10721	696	15.4	554	19.4	1.3
	2006-7	52	8566	535	16.0	404	21.2	1.3
	2007-8	19	3428	202	17.0	163	21.0	1.2
	Mean	*45*	*6571*	*420*	*15.7*	*338*	*19.4*	*1.24*
Jembrana	2003-4	31	5950	299	19.9	207	28.7	1.4
	2004-5	45	8373	442	18.9	310	27.0	1.4
	2005-6	54	10065	527	19.1	365	27.6	1.4
	2006-7	39	6262	349	17.9	256	24.5	1.4
	2007-8	21	3224	178	18.1	129	25.0	1.4
	Mean	*38*	*6775*	*359*	*18.9*	*253*	*26.7*	*1.42*

District	Year	Schools providing data	Pupils	Teachers	Pupils per teacher	Classes	Pupils per class	Teachers per class
Karang-asem	2003-4	40	6192	286	21.7	327	18.9	0.9
	2004-5	72	11132	615	18.1	555	20.1	1.1
	2005-6	74	11603	669	17.3	564	20.6	1.2
	2006-7	67	9278	680	13.6	496	18.7	1.4
	2007-8	30	4132	304	13.6	209	19.8	1.5
	Mean	*57*	*8467*	*511*	*16.6*	*430*	*19.7*	*1.19*
Klungkung	2003-4	12	1514	108	14.0	71	21.3	1.5
	2004-5	12	1525	111	13.7	71	21.5	1.6
	2005-6	15	1901	140	13.6	89	21.4	1.6
	2006-7	3	289	24	12.0	18	16.1	1.3
	2007-8	3	300	24	12.5	18	16.7	1.3
	Mean	*9*	*1106*	*81*	*13.6*	*53*	*20.7*	*1.52*
Tabanan	2004-5	19	2057	169	12.2	114	18.0	1.5
	2005-6	37	3912	312	12.5	233	16.8	1.3
	2006-7	37	4007	326	12.3	232	17.3	1.4
	2007-8	16	1579	134	11.8	107	14.8	1.3
	Mean	*22*	*2889*	*235*	*12.3*	*172*	*16.8*	*1.37*
Bima	2003-4	20	3932	240	16.4	137	28.7	1.8
	2004-5	81	13532	961	14.1	580	23.3	1.7
	2005-6	92	14331	1217	11.8	608	23.6	2.0
	2006-7	110	17338	1653	10.5	787	22.0	2.1
	2007-8	48	8079	740	10.9	363	22.3	2.0
	Mean	*70*	*11442*	*962*	*11.9*	*495*	*23.1*	*1.94*
Dompu	2003-4	46	6802	326	20.9	272	25.0	1.2
	2004-5	64	9448	481	19.6	383	24.7	1.3
	2005-6	65	10387	618	16.8	398	26.1	1.6
	2006-7	45	7604	613	12.4	290	26.2	2.1
	2007-8	28	5248	414	12.7	190	27.6	2.2
	Mean	*50*	*7898*	*490*	*16.1*	*307*	*25.8*	*1.60*
Kota Bima	2006-7	50	8767	751	11.7	355	24.7	2.1
	2007-8	40	7385	651	11.3	282	26.2	2.3
	Mean	*45*	*8076*	*701*	*11.5*	*319*	*25.4*	*2.20*
Mataram	2003-4	43	15308	484	31.6	399	38.4	1.2
	2004-5	72	23008	885	26.0	654	35.2	1.4
	2005-6	71	23111	889	26.0	655	35.3	1.4
	2006-7	49	13185	592	22.3	391	33.7	1.5
	2007-8	20	4784	241	19.9	136	35.2	1.8
	Mean	*51*	*15879*	*618*	*25.7*	*447*	*35.5*	*1.38*
Sumbawa Barat	2006-7	57	8755	528	16.6	369	23.7	1.4
	2007-8	55	8769	515	17.0	361	24.3	1.4
	Mean	*56*	*8762*	*522*	*16.8*	*365*	*24.0*	*1.43*
Lombok Barat	2003-4	21	4110	162	25.4	177	23.2	0.9
	2004-5	53	9483	492	19.3	419	22.6	1.2
	2005-6	182	34548	1913	18.1	1359	25.4	1.4
	2006-7	260	51213	2970	17.2	1891	27.1	1.6
	2007-8	216	44726	2555	17.5	1581	28.3	1.6
	Mean	*146*	*28816*	*1618*	*17.8*	*1085*	*26.5*	*1.49*
Lombok Tengah	2003-4	2	552	22	25.1	18	30.7	1.2
	2004-5	9	1960	79	24.8	51	38.4	1.5
	2007-8	126	18369	1214	15.1	775	23.7	1.6
	Mean	*46*	*6960*	*438*	*15.9*	*281*	*24.7*	*1.56*