



A time profile of mathematics in a ‘gap year’ in Irish secondary schools

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Abstract

The Irish education system is unique in an international context as it sets aside a full school year for a transition and youth development programme in the middle of secondary education. The Transition Year (TY) programme is an optional, full time programme offered in the majority of secondary schools. Each school designs its own programme, within set guidelines from the Department of Education and Skills. Within these guidelines, schools have considerable freedom and, in practice, the structure and content of the year varies substantially from school to school. There have been recent concerns regarding the amount of time allocated to core subjects such as mathematics in TY and also whether some schools are using the year as a lead-in to the final state examinations. This paper investigates these concerns further through the distribution of mixed methods questionnaires to deputy principals and mathematics teachers in 400 Irish secondary schools. The findings reveal that despite recommendations from a number of national reports, the time allocated to mathematics in TY remains low with wide variations between some schools. There are also an increased amount of schools now using TY to begin the upper secondary mathematics syllabus.

Keywords: mathematics, time profile, Irish secondary schools, transition year.

Background to the Study

In Ireland formal education takes place in three stages, primary, secondary and tertiary level. After completing their primary education, all students progress to the compulsory secondary system. This system comprises of two cycles, the Junior Cycle (lower secondary level) and the Senior Cycle (upper secondary level) as summarised in Table 1.

Table 1: The Organisation of Ireland’s Secondary Education System

Cycle	Year	Typical Age	State Exam
Junior Cycle	1 st	12- 13	Junior Certificate
	2 nd	13 - 14	
	3 rd	14 - 15	
Transition Year	4 th	15 - 16	
Senior Cycle	5 th	16 – 17	Leaving Certificate
	6 th	17 - 18	

Between the Junior and Senior Cycles, students have the option of enrolling in a one year Transition Year programme. Transition Year (also known as TY or 4th year) is a non – academic ‘gap’ year that is aimed at promoting students’ social and personal development (Clerkin, 2012). Alternatively, students may move directly from the three years of Junior Cycle to the two years of Senior Cycle without taking part in TY.

The TY Programme: The programme began as a pilot scheme in three schools in September 1974, with 16 schools participating by the 1977/78 academic year (Clerkin, 2012). It was first introduced to address concerns with the overly academic nature of the Senior Cycle (Smyth et al., 2004). Since its revision in 1993 (Department of Education, 1993) there has been a marked growth in the number of schools and students participating in the programme. The proportion of students has increased from 40% to 52%, between 2003 and 2009 (Clerkin, 2013). It is currently available to all secondary schools and in the 2010/2011 academic year, 574 schools were enrolled, accounting for 81% of schools (Clerkin, 2012). Participation is compulsory in approximately one quarter of the schools that offer the programme (Clerkin, 2013). However, it may be optional or mandatory for students depending on each school's policy. In the 2010/2011 academic year, 55% of the student cohort who completed the Junior Certificate in the previous school year proceeded to TY with the remainder progressing directly to Senior Cycle (Clerkin, 2012)

TY is intended to help students make the move from the rigidly structured Junior Cycle to the more independent, self-directed learning associated with Senior Cycle (Moran et al., 2013). The programme is unique in that there is no similar programme offered in education systems in other countries (Clerkin, 2012). Each school designs its own programme, within set guidelines from the Department of Education and Skills (DES), to suit the needs and interests of its students. Within these guidelines, schools have considerable freedom (Association of Secondary Teachers Ireland [ASTI], 1993) and, in practice, the structure and content of the year is often heavily dependent on individual teachers and leaders who drive the programme within their school (Jeffers, 2010).

Differing Perspectives of TY: The TY programme has historically been relatively under-researched and under-evaluated (ASTI, 1993). However, progress has been made in documenting and examining TY in recent years (Clerkin, 2012, 2013; Jeffers, 2007, 2010, 2011; Moran et al., 2013; Smyth et al., 2004). Research shows that the challenge for schools and policy makers is striking a balance between the emphasis on personal and social development in TY and the maintenance of a focus on academic development (Jeffers, 2007; Moran et al., 2013; Smyth et al., 2004). Tensions between these conflicting objectives of TY seem to be a longstanding issue and were highlighted in the first evaluation of the TY Project conducted by Egan and O'Reilly (1979). This evaluation, involving 19 schools that were participating in the programme at the time, claimed that core subjects (i.e. mathematics and languages) suffered during TY (Egan and O'Reilly, 1979). Presently there is also much concern among parents, students and teachers that a drift away from an academic focus in TY may have a knock-on effect in the Leaving Certificate examination (Jeffers, 2007).

However research carried out by Millar and Kelly (1999) found that those who had participated in the TY programme outperformed those who had not, in the Leaving Certificate examinations. Consistent with these findings, Smyth et al. (2004) reported that, on average, across all Leaving Certificate subjects, those who had participated in the TY programme outperformed non-participants. These benefits relating to students' academic performance are matched with benefits to student's personal and social well-being. According to Clerkin (2012) there is wide recognition of the benefits of the programme in improving student-teacher relations and positive attitudes towards school, broadening conceptions of the world and knowledge of future career possibilities, and increasing self-awareness and confidence among participating students.

In spite of these positive findings, the flexible nature of the TY programme means it is vulnerable to being taken over by the values and practices of the Leaving Certificate (Jeffers, 2007). The looming pressures of Senior Cycle has led to some schools, with one eye on the Leaving Certificate, providing more traditional (academically-oriented) programmes than others (Dept. of Education, 1996; Jeffers, 2007). For example, a recent report from the ERC entitled 'Mathematics in Transition Year: Insights of Teachers from PISA 2012' found that many schools expected teachers to use TY to begin covering

Leaving Certificate mathematics material (Moran, et al, 2013). This is despite the guidelines issued to schools in 1994 clearly stating that “A Transition Year Programme is not part of the Leaving Certificate Programme and should not be seen as an opportunity for spending three years rather than two studying Leaving Certificate material” (Department of Education, 1996, p.1).

Mathematics in the TY: The Transition Year Programme Guidelines for Schools (Department of Education, 1993) recommend that at least one module of English, Irish or mathematics be offered as part of the TY programme in all schools. Smyth et al. (2004) found that 98.5% of schools offer mathematics as a subject in TY. However, prior to the ERC 'Mathematics in Transition Year' report there was very little information on the content of these mathematics programmes being implemented, how they were delivered, or the amount of time spent delivering them. The ERC report offers a comprehensive review of the content and structure of TY mathematics. This review came on the back of a comparatively large drop in the mathematics achievement of students in TY in the OECD PISA study between 2003 and 2009 (Moran et al., 2013). Shiel et al. (2010) determined that while this drop may be related to the fact that there is increased participation in TY, there is also concern that a less systematic approach to mathematics instruction in TY compared to other year groups may have contributed.

Furthermore, the ERC report recommends that schools and teachers should focus on increasing student engagement with mathematics, and building confidence in students' mathematical abilities during TY. Mathematics teaching should introduce students to careers in mathematics, and inform them about the mathematics requirements and content of third-level courses (Moran, et al, 2013). Although not recommending that teachers used TY to begin Leaving Certificate mathematics, the report does suggest that it may provide an opportunity to consolidate the mathematical knowledge and skills learned during the Junior Cycle, and to develop these in a manner that would act as a useful bridge to the Leaving Certificate course (Moran et al., 2013).

However one barrier to these recommendations is the lack of time allocated to mathematics instruction in TY. The National Strategy to Improve Literacy and Numeracy Among Young People (DES, 2011) has recommended that mathematics be taught regularly during TY. The ERC report found that TY students are timetabled to receive 83 hours of mathematics instruction per year (Moran et al., 2013). This is much lower than the 111 hours per annum recommended for mathematics across all other years in post primary education (DES, 2010). Furthermore, of the 83 hours timetabled, students receive just 84.1% of those hours on average (Moran et al, 2013). This disparity between hours timetabled and taught may be due to student participation in multi-day activities that typically take place during TY (Department of Education, 1996). The ERC report recommends that in line with recent recommendations from the DES (2010; 2011), mathematics teaching hours in TY should be increased (Moran et al., 2013). 'Transition Year, where available, should increase mathematics teaching hours as an important part of the strategy to develop and promote core transferable skills' (DES, 2010, p. 21).

This study will investigate whether such recommendations have been implemented in recent years by building an up-to-date, detailed profile of the time allocated to mathematics in TY in a representative sample of Irish secondary schools.

Methodology

The study carried out by the authors adopted a mixed method approach which combined both qualitative and quantitative methods of data collection. There were two main phases (Phase 1 and Phase 2) which ran concurrently and involved the distribution of questionnaires to a stratified sample

of secondary level deputy principals and mathematics teachers in April 2015. Each of these phases will now be outlined in more detail.

Phase 1 – Questionnaire to Deputy Principals: As deputy principals generally have the responsibility of composing timetables in Irish schools they were asked to specify how much class time is allocated to teaching TY mathematics in their schools. The deputy principals in each of the schools sampled were asked to give a detailed breakdown of the TY class time and were given some possible examples (5 x 40 minutes classes per week, 4 x 60 minute classes per week or 4 x 35 minute classes and 1 x 40 minute classes per week). This provided a range of information such as total number of minutes per week, the number of mathematics classes per week and also a specific breakdown of these classes.

Phase 2 – Questionnaire to Mathematics Teachers: While the deputy principal questionnaires detailed the instruction time allocated to mathematics, it was also important to note the number of mathematics classes that do not take place throughout the year as a result of other school events. This information was best sought from a questionnaire to secondary mathematics teachers who teach the classes on a daily basis. Teachers were asked to approximate how many TY mathematics classes (taking 1 week to represent 5 classes), do not take place over the course of a year due to school events. The respondents were prompted to take into consideration classes missed for in-house exams, school shows/events, award ceremonies, school sports, school excursions, work experience, etc. In addition to the number of missed classes, the teacher questionnaire also asked respondents to approximate how many minutes they expect TY students to spend on mathematics homework per night. Finally the teachers were asked whether or not they teach the Senior Cycle mathematics syllabus to TY students in their school and an open ended questions afforded teachers the opportunity to expand upon their reasoning.

Sample: The sampling frame for Phase 1 and Phase 2 was a list of all 723 post primary schools in Ireland (Dept. of Education website, February 2015). 11.1% of these schools are community schools, 35.5% are vocational schools, 1.9% are comprehensive schools and the remaining 51.5% are secondary schools. The targeted sample size was 400 deputy principals. Using an estimate of one deputy principal in each school, a stratified random sample of 400 schools around Ireland was selected.

Each of the deputy principals of the 400 schools was sent a questionnaire to be completed and returned in a stamped addressed envelope. The deputy principals were also sent the teacher questionnaires and were given the responsibility of distributing these questionnaires to the mathematics teachers in their schools. Each deputy principal received four teacher questionnaires and four stamped addressed envelopes for the teacher questionnaires to be returned in. Information sheets were also provided for all participants along with each questionnaire. These information sheets outlined the background and aims of the study along with instructions on the completion and return of the questionnaires. Each stamped addressed envelope included was given a number corresponding to the school selected so the researchers could identify the schools that had not returned the completed questionnaires. Two weeks after sending the questionnaires, follow-up telephone calls to each of these schools were undertaken so as to increase the response rate of the deputy principal and mathematics teacher questionnaires.

The main research question that guided this paper was:

- What is the time profile for mathematics in the Transition Year Programme in Irish secondary schools?

Results

Upon receipt of the completed questionnaires the quantitative data was inputted and saved into the computer programme SPSS. In Phase 1, descriptive analysis examined the mean and modal amount

of instruction time allocated to TY in the schools which participated in the study. Differences between school type and instruction time and the number and breakdown of classes per week were also investigated. In Phase 2 the number of TY mathematics classes that do not take place and the amount of time TY students are expected to spend on their mathematics homework was examined. Finally, the quantitative and qualitative findings relating to whether the Senior Cycle syllabus was taught in TY were analysed.

Phase 1 – Questionnaire to Deputy Principals:

Deputy Principals from 182 schools (45.5% of the targeted sample) returned completed questionnaires. The percentage of each type of school in the deputy principal sample was very similar to the national percentages as evidenced in Table 2.

Table 2: Type of School who responded to Deputy Principal Questionnaire

	Secondary	Vocational	Community	Comprehensive
National Figures	52%	35%	11%	2%
Schools who responded	58%	29%	10%	3%

163 out of the 182 schools from the sample offered TY to their students. As evidenced in Figure 1, the time allocated to mathematics per week for TY ranged from 70 minutes (2 x 35 minute classes) to 240 minutes (6 x 40 minute classes) per week. The modal time was 160 minutes per week (mostly commonly 4 x 40 minute classes) which was the amount of time allocated to TY mathematics in 31.9% (52 schools) of the sample. This was followed closely by the second most common time which was 120 minutes per week (most commonly 3 x 40 minute classes) which was the amount of time allocated in 22.1% (36 schools) of the sample. The mean number of minutes allocated to mathematics in TY was 148.93 (SD: 31.18) per week.

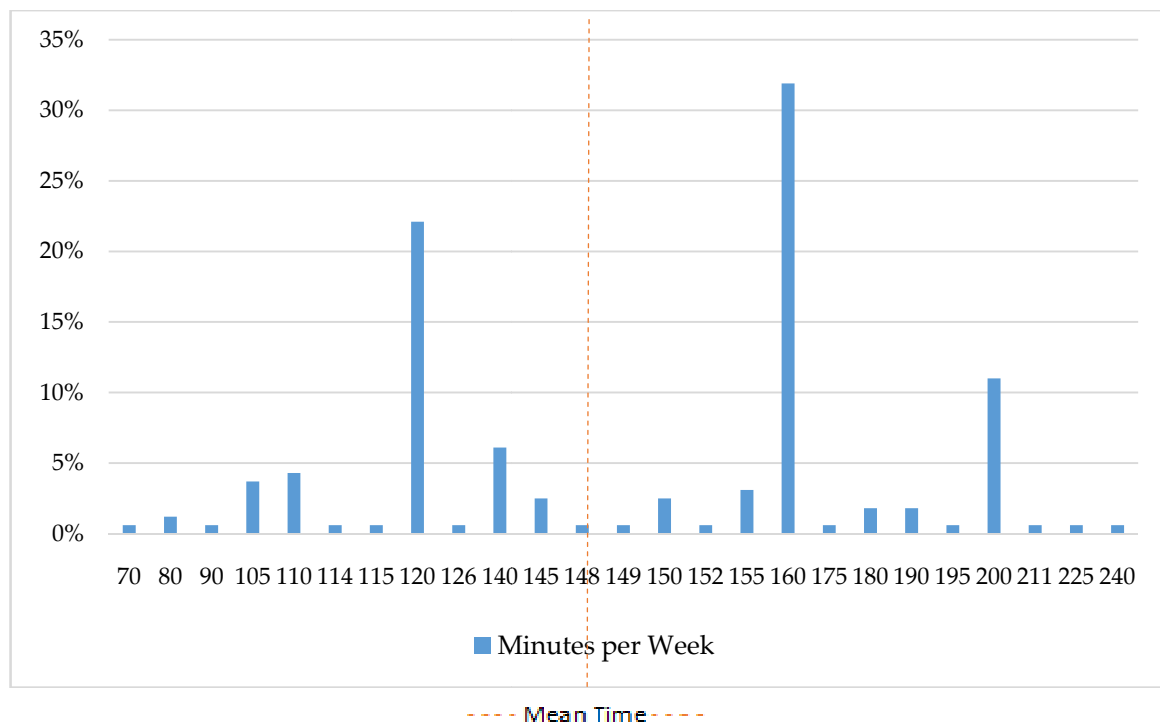


Figure 1: Percentage of TY Mathematics Minutes per Week in School Sample

Figure 2 illustrates a summary of the instruction time allocated to mathematics in TY. It shows the maximum and minimum time, along with the interquartile range and mean time.

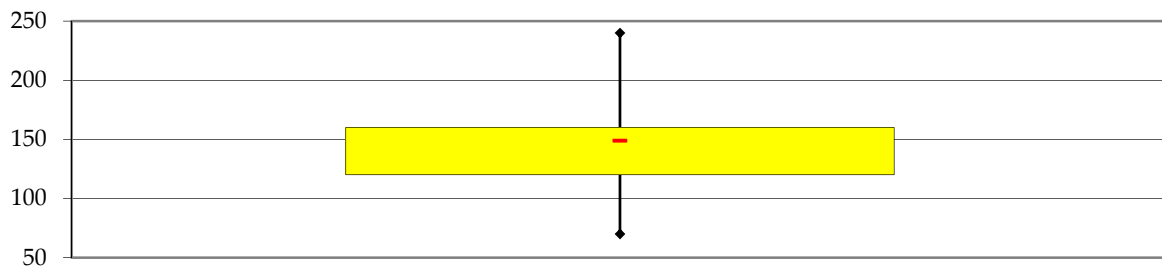


Figure 2: Summary of Time (in minutes) Allocated to Mathematics in TY

Time Profile and School Type: The findings also revealed differences between the type of school and the mean minutes per week allocated to TY mathematics. As noted previously there are four types of secondary school in Ireland. Community schools allocated the most amount of hours to TY mathematics (M: 89 SD: 24) per year, while Comprehensive schools allocated the least (M: 81; SD: 17). A one-way between groups analysis of variance was conducted and found that the differences between the type of school and the mean time allocated to TY mathematics were not statistically significant ($F(4, 162) = 1.838, p = .124$).

Number of Classes per Week: The number of TY mathematics classes timetabled per week ranged from two to six (see Figure 3) but the most common was four classes which occurred in 44.8 % or 73 of the schools in the sample.

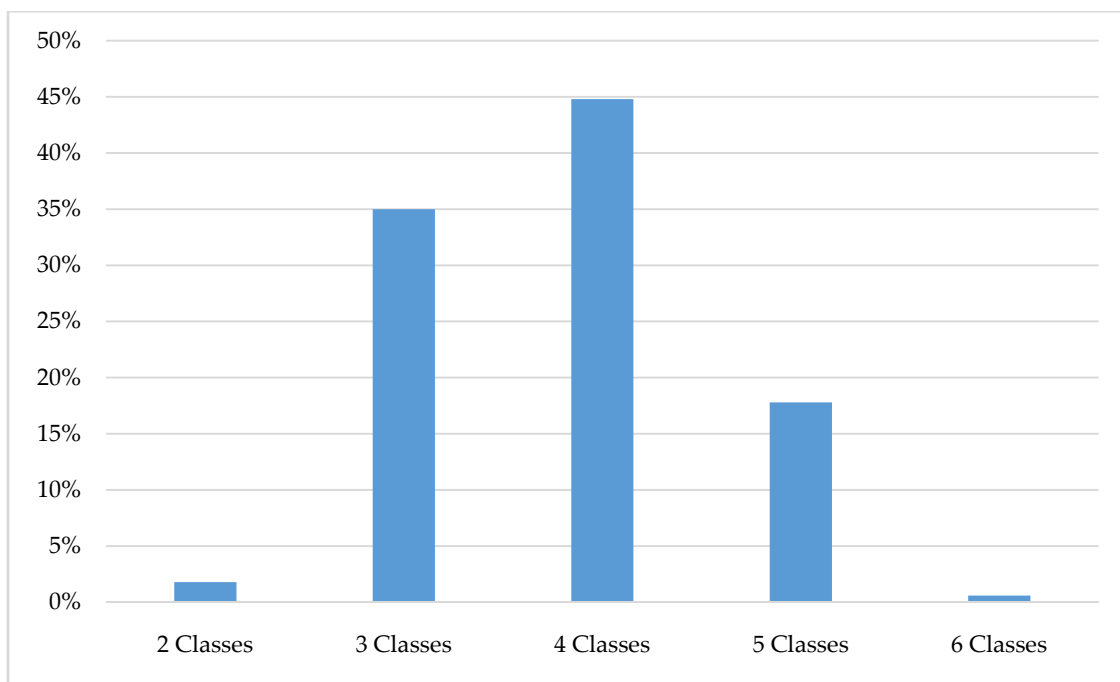


Figure 3: Percentage of TY Mathematics Classes per Week in School Sample

Breakdown of Classes: In total there were 29 different breakdown variations of the amount of time allocated to mathematics for TY in the 163 schools. These ranged from the modal value which was 4 x 40 minute classes (32.5%), to the second most common breakdown which was 3 x 40 minutes classes (20.9%), to many unique school variations, for example 4 x 37 minute classes (0.6%). Figure 4 shows the five most common breakdown of classes in TY.

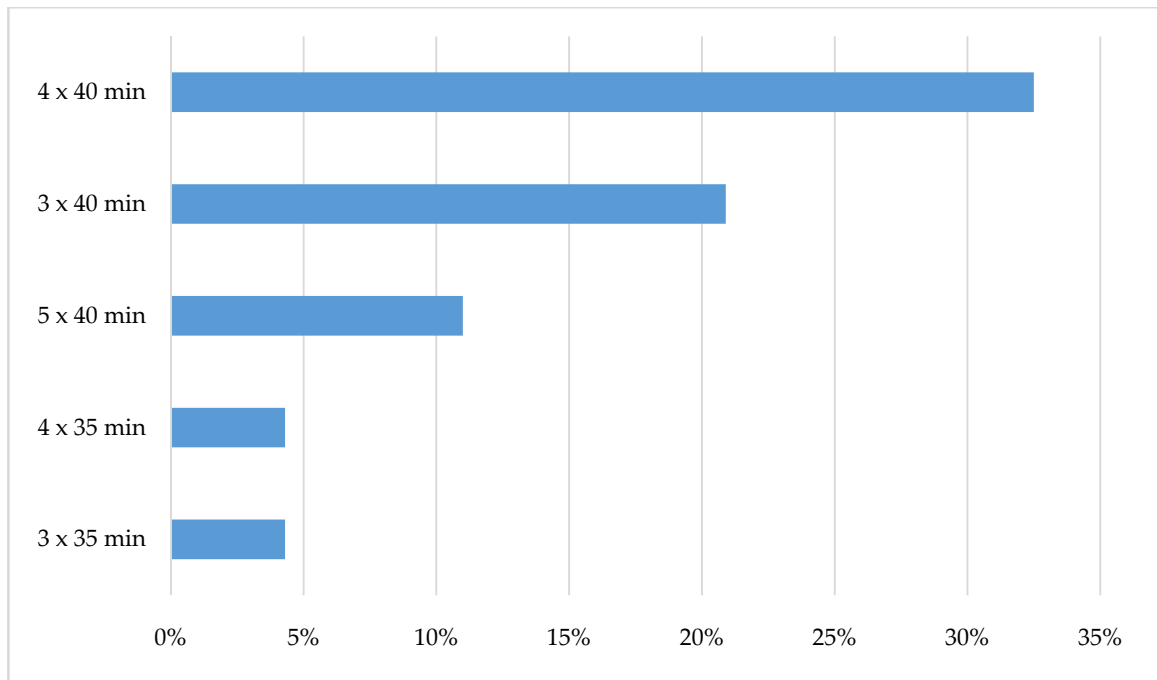


Figure 4: Most Common Breakdown of Mathematics Classes in TY

Summary of Instruction Time Profile for TY: Table 3 illustrates a full summary of the quantitative findings regarding the amount of instruction time, the number of classes and the class type for TY.

Table 3: Summary of Instruction Time, Number of Classes and Class Type for TY

Min Time*	Max Time*	Range	Mean Time *	Modal Time *	Modal Classes per Wk.	Modal Class Type
70	240	170	148.93	160 (29%)	4 (45%)	4 x 40 (32%)

*Minutes of Mathematics per Week

Phase 2 – Questionnaire to Mathematics Teachers:

540 mathematics teachers from 229 schools returned completed questionnaires (57.3% of schools surveyed). The modal number of teachers to respond from individual schools was two (31.6%). Similar to the deputy principal sample, the teacher sample was very similar to the national percentages as evidenced in Table 4.

Table 4: Type of School who responded to Mathematics Teacher Questionnaire

	Secondary	Vocational	Community	Comprehensive
National Figures	52%	35%	11%	2%
Schools who responded	57%	31%	10%	2%

Teachers were asked to approximate how many mathematics classes do not take place in TY over the course of a given year. They were asked to take into consideration mathematics classes missed for in-house exams, school shows/events, award ceremonies, school sports, school excursions, work experience, etc. They answered by approximating in weeks, where 1 week represents 5 missed mathematics classes. As evidenced in Figure 5, the modal number of TY mathematics classes that do not take place over the course of a given year was greater than 4 weeks (i.e. more than 20 classes) according to 54% of the teachers who responded.

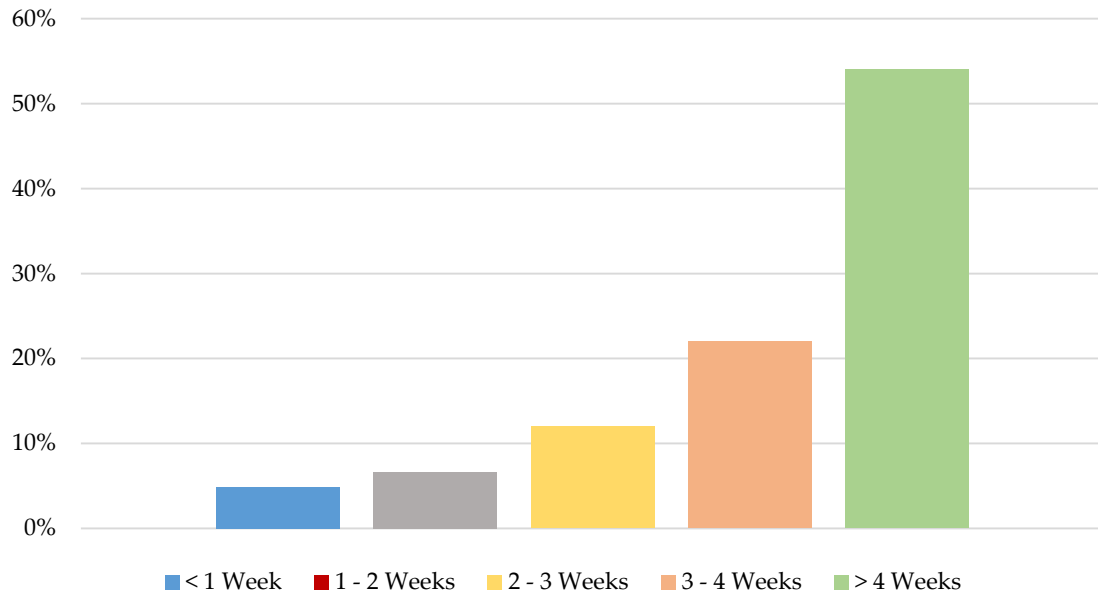


Figure 5: Approximate Weeks of TY Mathematics Classes that do not take Place

Expected Time on Homework: The number of minutes teachers expect TY students to spend on their mathematics homework per night is outlined in Figure 6. The majority of teachers (32%) expected their students to spend between 11 and 20 minutes on their mathematics homework. 17% of teachers did not expect their TY students to do any homework while 2% expected students to spend between 41 and 50 minutes.

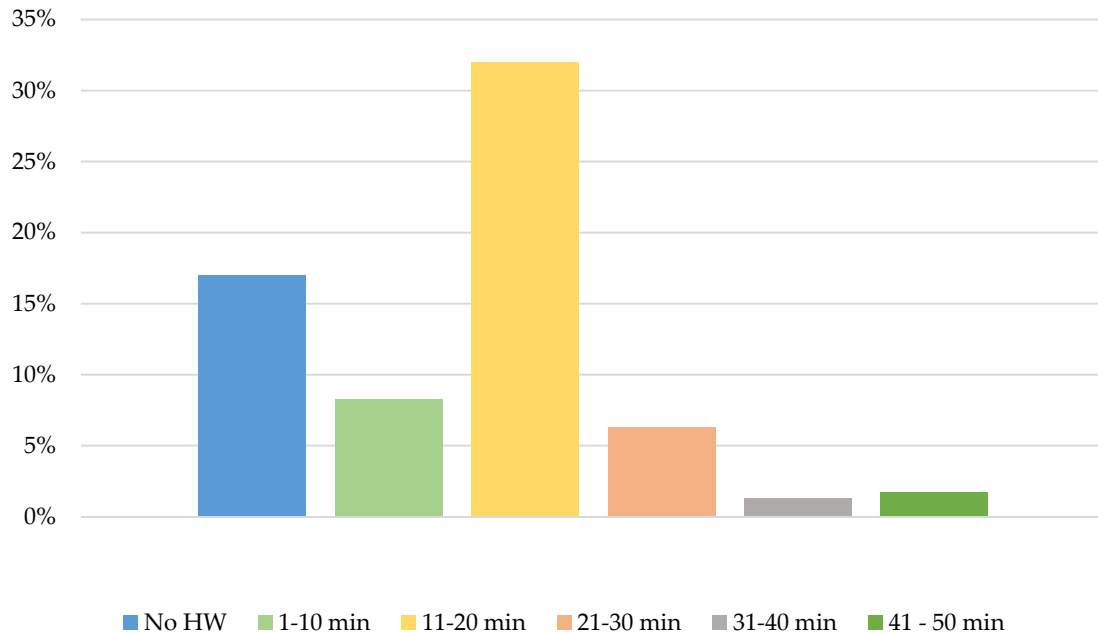


Figure 6: Expected Minutes spent on Homework by Transition Year Mathematics Classes

Teaching Senior Cycle Mathematics in Transition Year: 47% of teachers who responded stated that they did teach the Senior Cycle mathematics syllabus to TY students in their school (see Figure 7).

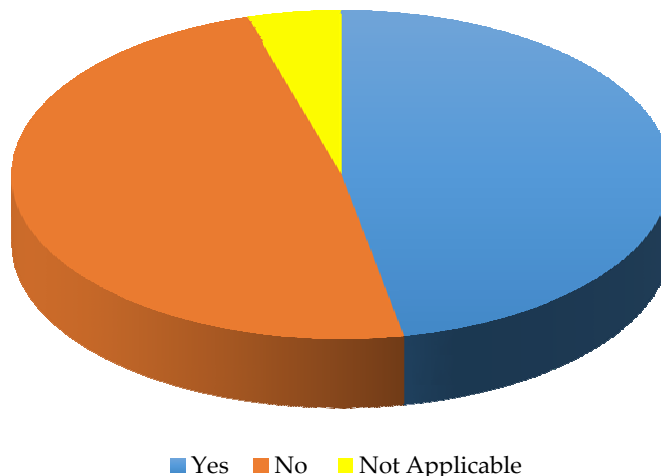


Figure 7: Do you teach the Senior Cycle Mathematics syllabus to TY students in your school?

Just over half of the teachers (52%) who answered this question expanded upon their reasoning. This qualitative data was analysed using a thematic content analysis. Although there was not a large amount of data it was decided that both authors would carry out the analysis to increase comprehensibility and to provide sound interpretation of the data. The main reason (84%) teachers gave for teaching Leaving Certificate mathematics during TY was because of a lack of time in the Senior Cycle programme due to the length of the course.

T162: *But for the fact we start the Leaving Cert syllabus at Transition Year, the course would be too long.*

T332: *We teach the course in 4th Year [TY] to give more time. Even with 4 classes per week in TY and 6 in 5th and 6th year we only finish the course just in time for the mocks [trial state examinations].*

T499: *It would be impossible to cover the Higher Level [course] in two years. There is too much work in the syllabus especially when orals, mocks and other activities cut across teaching.*

52% of teachers also felt their students were at an advantage for the Leaving Certificate by starting the course in TY.

T194: *Because we start the Leaving Cert course, we get an extra year which is a huge difference.*

T87: *It's like giving our students a head start...*

On the other hand, the data revealed three main reasons given by teachers who didn't teach the Senior Cycle programme in TY. The first reason (78%) was that the year is too fragmented and many classes are cancelled or students are not present.

T52: *In Transition Year, absenteeism can be a problem.*

T237: *It would be difficult to make genuine progress with the syllabus because of the nature of the TY programme.*

The second most popular reason (64%) was that their schools had their own TY mathematics programmes and there was more of an emphasis on highlighting the value and usefulness of mathematics.

T89: *We use the time to give students a break from the constraints of trying to cover a syllabus. It is much more valuable to show them the usefulness of maths in their everyday lives.*

T221: *It is the only year where students are not streamed in maths classes and our TY programme gives them an opportunity to enjoy and interact with maths without worrying about exams.*

The third reason given by some teachers (21%) for not engaging with the Leaving Certificate course in TY was a shortage of mathematics teachers in their schools, particularly for teaching Higher Level mathematics.

T361: *We have only two teachers in our school who are capable of teaching higher LC[Leaving Certificate] maths. Timetable constraints make it impossible for these teachers to be assigned to TY classes as well as 5th and 6th.*

Discussion

The *National Strategy to Improve Literacy and Numeracy among Young People, 2011-2020* (DES, 2011) contained a requirement that mathematics be taught regularly during TY. Of the 163 out of 182 schools in this study who offered TY to their students, all of them reported that they do provide mathematics lessons for TY students. However the frequency and length of these lessons are noteworthy. The ERC 'Mathematics in Transition Year' (2012) along with the DES (2010; 2011) all recommend that mathematics teaching hours in TY should be increased. This study found that on average TY students are still timetabled to receive 83 hours of mathematics instruction in a year, which is the same as the ERC report in 2012. 83hours of mathematics per annum is much lower than the 111 hours recommended by the DES to be taught in secondary education (DES, 2010). Although the findings did not show any significant differences between the type of school and the time allocated, there was a wide range found between mathematics instruction times in individual schools. The data showed a variation of between 39 to 134 hours per annum for some schools. These variations in mathematics instruction time are of note especially given the research which demonstrates strong, positive correlations between instruction time and student achievement in education (Benavot and Amadi 2004; Smith 2000).

The allocation of four mathematics classes per week was most common and was the situation reported in 44.8% of the schools sampled. These were generally 4 x 40 minutes classes (32.5%). However similar to the findings of Moran et al. (2013) this study confirmed that many of these scheduled classes do not take place. Teachers approximated that the modal number of TY mathematics classes that do not take place over the course of a given year was more than twenty which can be equated to 15% of scheduled classes throughout a school year. As noted by the DES (1996) this disparity between hours timetabled and taught is due to student participation in multi-day activities that typically take place during Transition Year.

In Ireland there are no national guidelines for schools about homework but individual schools are recommended to have a policy on the matter (Jackson and Harbison, 2014). The majority of teachers in this study (32%) expected their TY students to spend between 11 and 20 minutes on their mathematics homework. However 17% of teachers did not expect their TY students to do any homework. This follows the lead of Denmark which has piloted "homework-free" schools, resulting in a reported fall in dropout rates and rise in overall grades (Kryger and Ravn, 2009). At the other end of the spectrum, Chinese students who consistently score in the top band in mathematics international comparison tests do hours of extra study at home and in after-school tutorials (Ferreras & Olson, 2010). Given the uniqueness of the TY programme in an international context and its primary focus on promoting students' social and personal development, it is difficult to gauge how much time students should be expected to spend on their mathematics homework. However similar to the amount of class time, the findings of this study show a wide range of homework allocated. This is significant as a study conducted by Cooper, Robinson and Patall (2006) in the U.S. found a positive and statistically significant relationship between the amount of homework students do and their achievement outcomes.

Perhaps one of the most important findings of this study is that 47% of teachers stated that they taught the Senior Cycle mathematics syllabus to TY students in their school. This means that their students are given the opportunity to engage with the Leaving Certificate mathematics syllabus over three years, instead of two. These students are significantly advantaged compared to students in their

school who opt not to participate in TY or students in other schools where TY is not used to teach Leaving Certificate mathematics. For example, a TY student who is taught 4 x 40 minute classes per week of Senior Cycle mathematics receives an extra 89 hours of instruction compared to a student who doesn't do TY or one whose teacher doesn't use TY to teach Leaving Certificate material. This goes against the guidelines issued to schools in 1994 which state clearly that TY is not part of the Leaving Certificate Programme (Department of Education, 1996). However the flexible nature of TY means it is vulnerable to being taken over by the values and practices of the Leaving Certificate (Jeffers, 2007). Current debate over the value of the TY programme is rooted in tensions between two competing perspectives – the holistic development of the student or the academic development (Clerkin, 2012). These perspectives were evident in the responses to the qualitative data where teachers gave their reasons for teaching or not teaching Leaving Certificate mathematics during TY.

The main reason teachers gave for teaching Leaving Certificate mathematics during TY was because of a lack of time in the Senior Cycle programme. Recent reforms to the Irish secondary mathematics curriculum have resulted in many calls for more time to be allocated to the subject throughout secondary education (Irish Mathematics Teachers Association [IMTA] 2012; Cosgrove et al. 2012). However numerous reasons such as the high number of subjects and the short length of the Irish school year mean that it is difficult to see where this time can come from (Prendergast and O'Meara, In Press). Unfortunately TY is seen as an easy option. While not absolutely excluding Senior Cycle material, the authors agree with the Department of Education (1993) recommendations that TY should not be seen as an opportunity to spend three years rather than two studying for the Leaving Certificate. That is not the purpose of the programme. Its purpose is to focus on the personal and social development of students and on education for active citizenship (Department of Education, 1993, 1996). Perhaps the greatest challenge for schools and policy makers is to strike a balance between this purpose and the maintenance of a focus on academic development during this year (Moran et al., 2013).

Conclusion

This study has built an up-to-date, detailed profile of the time allocated to mathematics in TY in a representative sample of Irish secondary schools. The profile highlights that although a number of recent national reports have called on schools to provide increased mathematics teaching hours in TY (DES, 2010, 2011; Moran et al., 2013), such recommendations have not been adhered to. Similar to a 2012 ERC report, the findings of this study highlight that students in TY are timetabled to receive on average 83 hours of mathematics teaching, but receive on average just 85% of these hours.

More significantly, the findings of this study suggest substantial inequity in the time afforded to students to learn mathematics and the level of mathematics taught in TY. Depending on the school they attend, students can expect to be allocated different amounts of mathematics instruction time in TY. Furthermore, there is a near even split between schools who teach Senior Cycle mathematics in TY and those who do not.

Overall, these findings suggest that mathematics teaching hours in TY still need to be increased, in line with recent recommendations. In addition, while there are many benefits associated with the freedom schools are given to designing their own programmes, policy makers need to safeguard that this flexibility does not result in educational inequalities for students in different schools. The structure and content of core subjects such as mathematics should not vary considerably from school to school. A uniform amount of mathematics class time should be specified and a general syllabus designed so that a similar level of mathematics is taught across schools. The authors recommend that this syllabus should focus on consolidating Junior Cycle mathematics and ensuring that students have a well-developed understanding of these concepts. There should also be a focus on

mathematical problem solving, modelling projects and an emphasis on mathematics in the workplace. This may be seen as taking away from the flexibility and non-academic purpose of TY. However as it stands, the powerful influence of the high stakes state examinations at Senior Cycle is much more of a threat and some regulations must be put in place to stifle it.

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