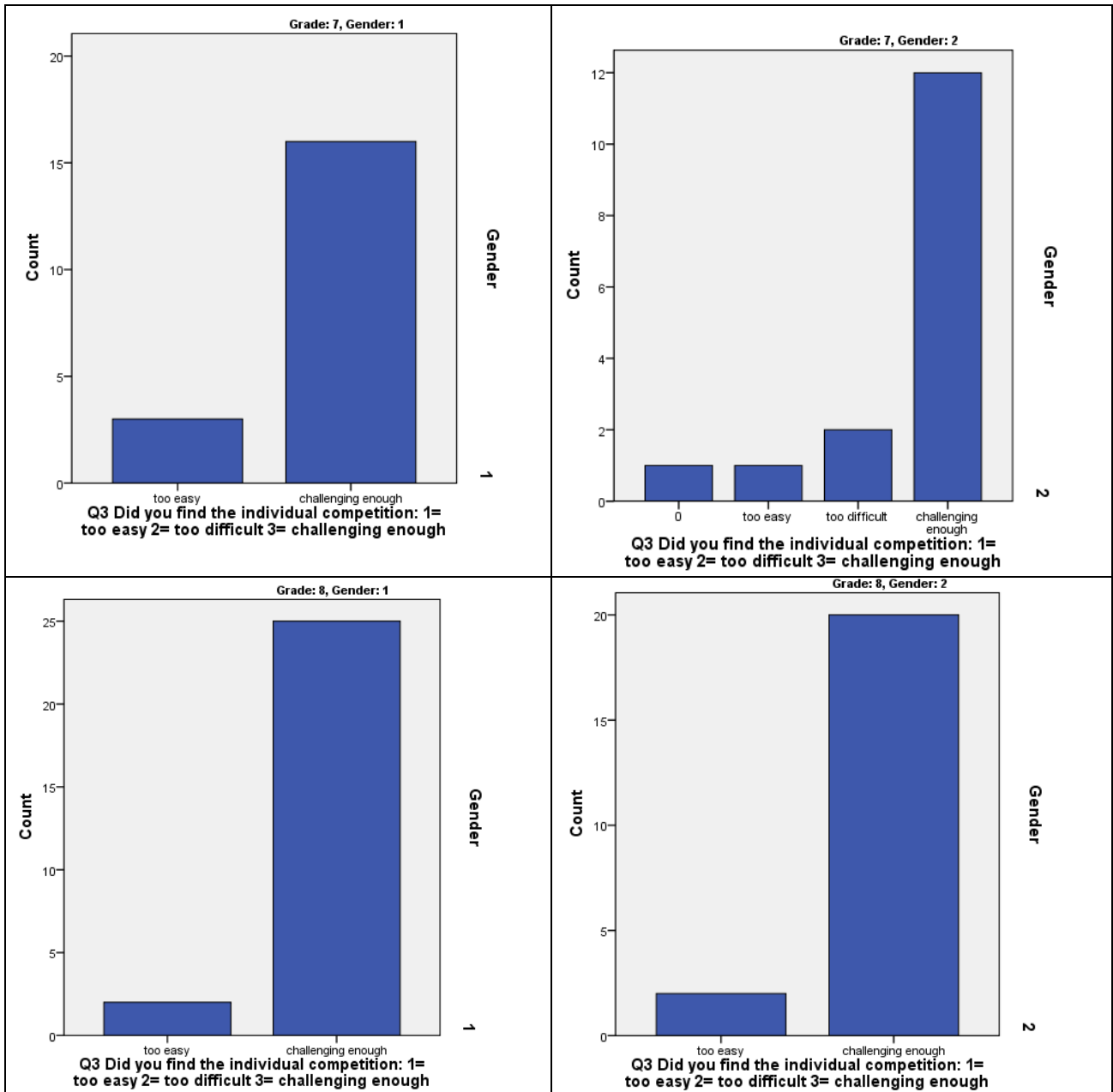


## Report on WEMO 2008

In this year WEMO, we had about equal distribution of participants by gender and by grade (7 and 8). After the completion of all activities that comprised of individual, pair and group activities, during the lunch break, we asked the participants to do the survey. There may be some small discrepancies in terms of distribution of students who took part in the survey as some of them left before lunch and circulation of the survey.

Overall, 85 students did the survey (males=46 and females =39). Majority of students found the individual competition challenging enough; with only a small number of students finding it too easy (n=5) or too difficult (n=2 females from Grade 7, see Figure 1)

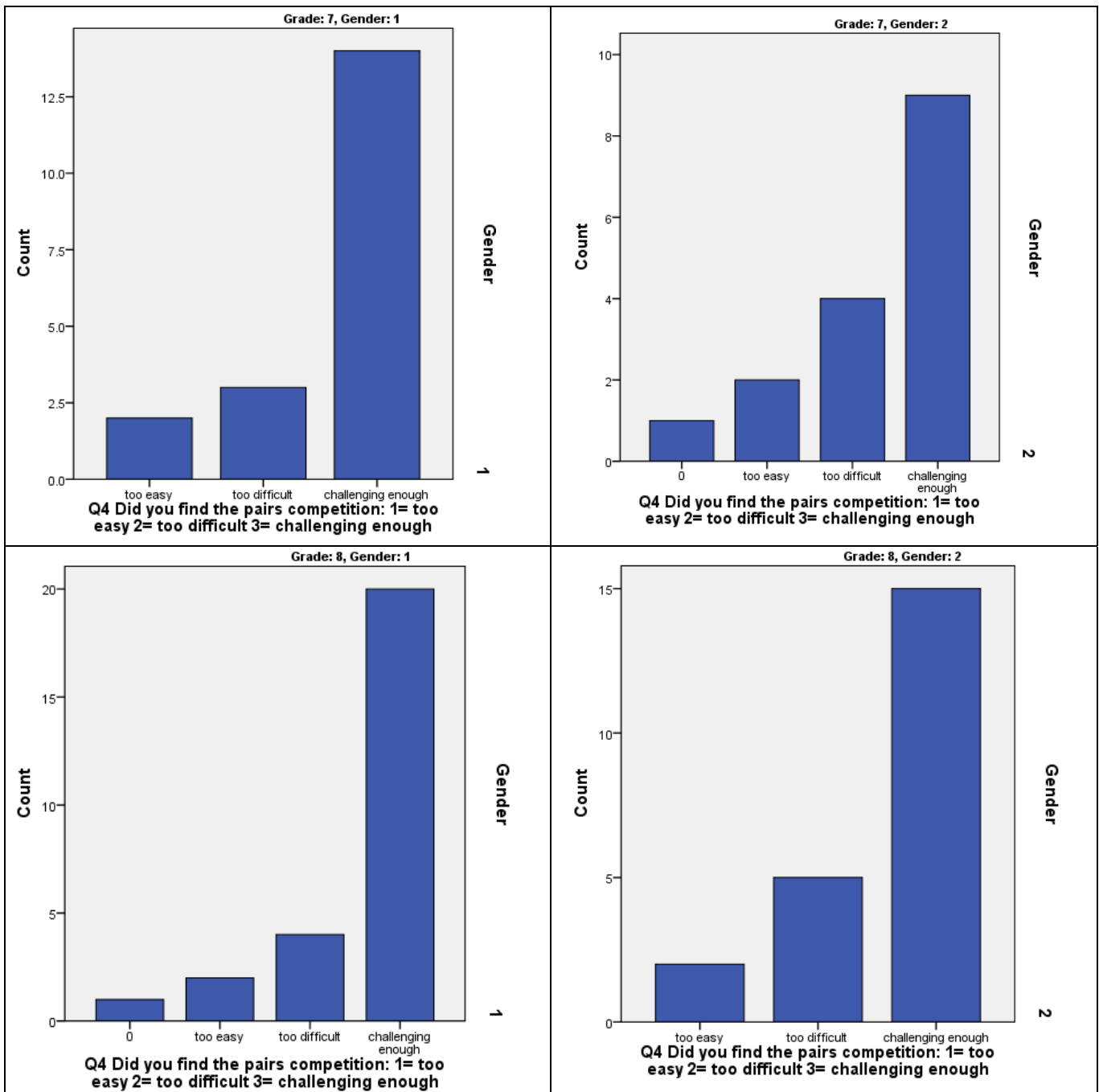
Figure 1. Distribution by Grade and Gender of Students' Opinions with Regards to Individual Competition.



Gender 1=Males; Gender 2= Females

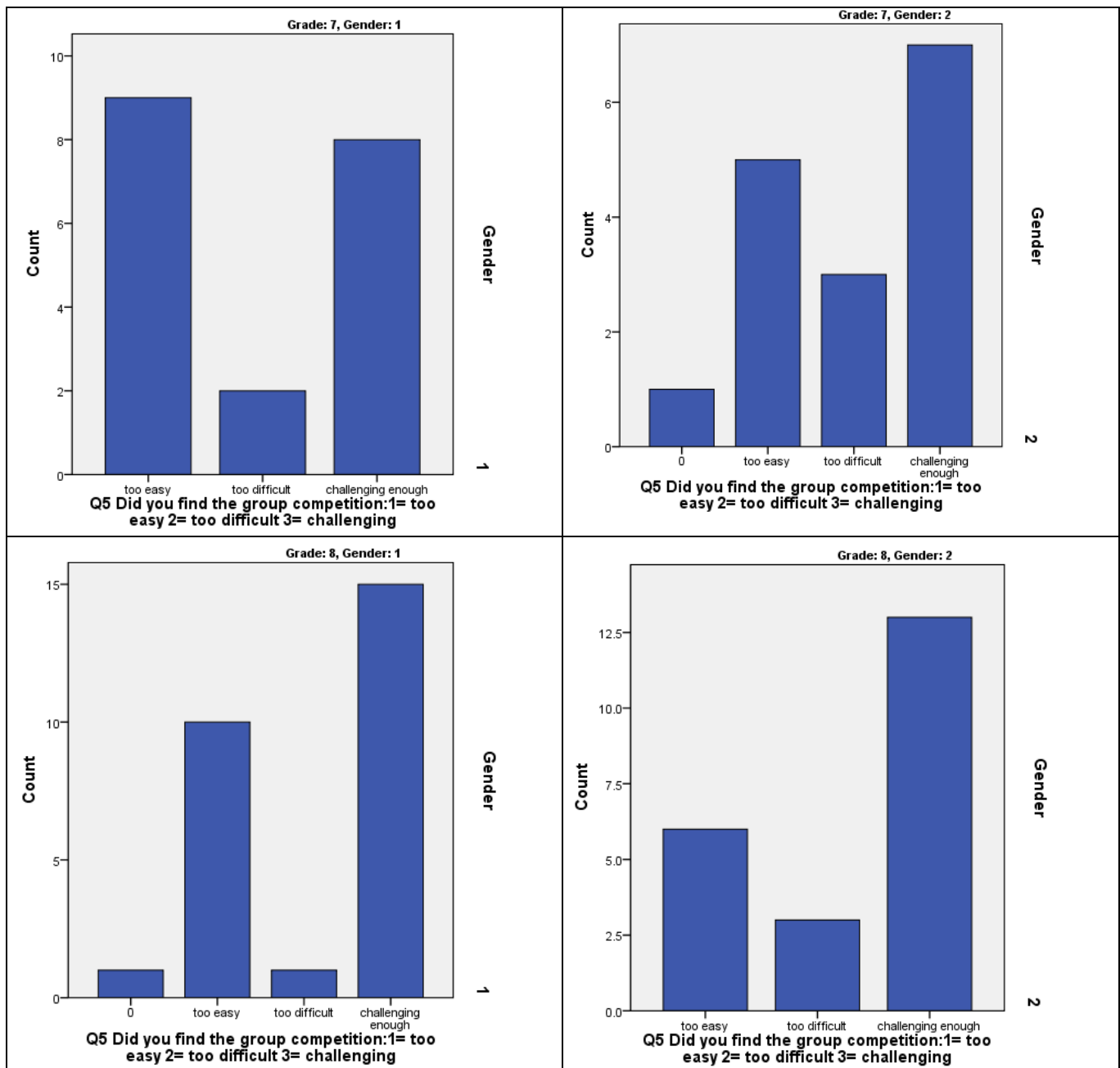
In the Pairs competition, we created pairs of both genders and grades (e.g., male from Grade 8 with female from Grade 7). Again, majority of students thought that this category was challenging enough and more students than before thought that the tasks were too difficult (n=15, see Figure 2).

Figure 2. Distribution by Grade and Gender of Students' Opinions with Regards to Pairs Competition.



In the Group competition, we had mixed genders and grades represented in groups of four students. This competition served mostly to help students bond as a group and in development of social skills. In this category we were only looking for a winner-the group that first solves the task. As it was our intention, for the students this task was mostly easy or challenging enough (see Figure 3.).

Figure 3. Distribution by Grade and Gender of Students' Opinions with Regards to Group Competition.



We are overall pleased with this feedback as it demonstrates that our intentions were matched with the effect we wanted to instill in students and that is to have a blend of fun and challenging activities that will further develop interest in students for mathematics. Out of 39 female students, 31 were not discouraged by the difficulty of the competition; and 33 reported they would consider writing another math competition. However 17 female students compared to 14, would prefer to see such challenging questions in their math class as ungraded, rather than graded.

Out of 46 male students who completed the survey, 39 were not discouraged by the difficulty of the competition; while 31 said they would consider writing another math competition (9 did not respond to this question and 6 gave negative answer). There was almost equal split between male students who claimed they would prefer to

see such challenging problems in class, graded (n=21); as those who would like to see them in class (n=20), but ungraded. Five male students would not like to see such problems in class at all.

Twenty-nine, compared to five Grade 7 students reported not being discouraged by the difficulty of questions. Fourteen, compared to 13 Grade 7 students wanted to see such challenging questions in class as graded. Forty-one, compared to seven, Grade 8 students were not discouraged by the difficulty of this competition. Thirty-seven Grade 8 students would like to participate in another math competition (compared to four who would not and eight, who did not answer this question). Again, there was almost an equal split among Grade 8 students with respect to having similar challenging questions in class as graded (n=21) or ungraded (n=23). Only five Grade 8 students would not like to see such questions in class.

As the next table demonstrates, as methods of doing mathematics, majority of the participants preferred to have freedom to explore and create own solution and to be challenged (n=40). The least number of participants preferred to be given structured methods to solve problems and to find math easy (see Table 1).

Table 1. Cross Tabulation of Learning Preferences

		Q10 I prefer the following in the classroom:		
		being given structured methods to solve problems	have freedom to explore and create my own solutions	Total
Q9 Which do you prefer?	being challenged	25	40	65
	finding math easy	4	8	12
	Total	29	48	77

While females were almost equally split between preferences for being given structured methods and for having freedom to explore (Q10), they overwhelmingly wanted to be challenged by math. On the other hand, more than twice as many males appreciated having freedom to explore than to be given structured methods to solve problems (see Table 2). Also, four out of five male students preferred to be challenged by math, than to find it easy.

Table 2. Learning Preferences of Males.

		Q10 I prefer the following in the classroom:		
		being given structured methods to solve problems	have freedom to explore and create my own solutions	Total
Q9 Which do you prefer?	being challenged	11	24	35
	finding math easy	3	5	8
	Total	14	29	43

We were happy to find that 91.8% of students reported that they enjoyed the competition. The fact that 70.6% said they learned something on their own during the competition, while 63.5% students reported that they learned something from other students, tells us that almost everybody benefitted from the activities and the social aspects of this competition. About 68% of the students (almost uniformly distributed across the genders and grades) said that the competition increased their interest in mathematics, while 80% of them said that thanks to the competition, they feel encouraged to learn more about math.

It is interesting that grade 8 students enjoyed the competition more. This competitive environment was maybe too challenging for the grade 7 students. In future competitions, we will have to work on engaging Grade 7 students more during the competition.

All female students preferred multiple choice questions for the competition, which was the first choice for majority of male students too (although 6 of them preferred full answer questions).

It was very informative for us to find that preferences towards individual or group competitions differ across genders and across grades. While about three-quarters of females in Grade 7 preferred individual competition, females in Grade 8 had slight inclination towards group competition (50% compared to 45.5%). Males in Grade 7 preferred group competition (58%), while those in Grade 8 were more inclined towards the individual competition (56%).

When we asked students to rank the competitions by type (i.e., individual, pair and group), they selected individual as the most favorite, group as second favorite and pairs as the least favorite. While we cannot provide exact explanation for such ranking, we can speculate that the pairs competition unites two students of very different skills and needs (Grade 8 female with Grade 7 male, or Grade 8 male with Grade 7 female). It is worth noting that none of the Grade 7 male students chose pairs competition as their favorite.

All groups of students (grouped by grade and gender) reported they would most like to learn about math problem solving (compared to history of math or applications of math). Also they all preferred creative problem solving compared to structured computations, although the difference in liking was not too big.

For this year competition, we created a web page with a bulletin board and various relevant resources. Unfortunately, it seems that only 14% of those students who took the survey (N=85) knew about our web site. We will have to advertise it better in future contests. However, 40% of the students reported they will visit the competition web site to look at training materials after the competition.

*Qualitative Responses.* Students' qualitative responses were valuable as a feedback to us as organizers. For example, one student wrote: "This is a good way of challenging math students, and should be done more than once a year. I think you should do this for people who don't like math too."

Other comments were also very positive and encouraging, as in: "[The competition] was very well organized. The questions ranged from very easy to very challenging."

Asked about the things they would like to see more in their math classroom, the students wrote: "I would like to see more challenging work, sort of like today." Another student wrote: "I'd like to see more creativity, and relations to real life." Other students mostly asked for more creative and challenging mathematics.

Overall, this year's competition was a very successful event. The students, parents and teachers demonstrated full support to the Windsor-Essex Mathematics Olympics as they showed up in spite of the snowfall warning on the day of the competition.

We are thankful for your help in keeping WEMO as an annual event of growing impact in our region!

WEMO 2008 Organizers