The impact of multitasking on academic performance

Azamatov Bekzat 11G

Nazarbayev Intellectual School

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**Introduction**

" To do two things at once is to do neither."

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I began to notice that every time I complete tasks, I’m distracted by a smartphone or a computer, which takes me a certain amount of time. So I want to do a study on whether other students are facing the same problem and how it affects academic performance. I believe that it would be right to establish how much multitasking is useful and not useful for students.

Today, in the era of globalization, the tendency to use technology is increasing in all countries of the world. With the advent of technology, people began to spend time on social networks and the Internet. For frequent school students also use them. However, this may not always be useful. Pupils must be scanned, and such a thing as multitasking reduces concentration. A student trying to do several things at the same time is spending an excessive amount of time on one specific task.

For students of our school, the idea of ​​my project can increase their productive time. Since, based on the results of my research, they can make the right choice, that is, stop doing several tasks at the same time or continue. For me, it is difficult to work simultaneously in several directions, so I try to rebuild my schedule. I think many students also faced this kind of problem. This means that I want to help them build a productive study schedule.

Since I am a student, I take this situation seriously, because as a student I try to do every job in a certain amount of time and as high quality as possible. After completing my research, I will try to convey to the students of our school whether it is bad to be multi-tasking or vice versa. So I want to increase the productivity of our students and make their school life a little easier.

**Context**

**How multitasking impact students' productivity work?**

It is a well-known fact that the human brain cannot work 100 percent. However, concentrating on one task is quite realistic. People are used to a phenomenon called multitasking. Multitasking is the phenomenon when a person tries to perform several tasks at the same time, instead of concentrating on one. Often this phenomenon interferes with productive work and takes a lot of time. It's hard to get rid of the multitasking these days, especially for young people. The modern student has to deal with a lot of information. With the development of technology, students take information even outside of school hours. There is a fear that the development of multi-tasking to the detriment of other learning abilities.

It is widely believed that thanks to multitasking, more work can be done in a short period of time. Research by British scientist Glenn Wilson may refute this opinion. in the 2005, the scientist conducted a study called "Infomania" ( [www.newscientist.com](http://www.newscientist.com), 2005). As a result of the experiment, it turned out that people who performed tasks in multitasking mode, the IQ level decreased by 10 points. According to the psychologist, the effect of multitasking on the work process can be worse than the use of marijuana (Glenn Wilson, 2005).

Along with this, multitasking causes harm to the human body. Scientists from the University of Sussex compared people who use multiple devices at one time and who use only one device. The results of MRI scans showed that people with multitasking damaged the density of gray matter which is responsible for emotional control. However, more research is needed to prove that multitasking has physical damage to humans. But the assumption already exists ([www.forbes.com](http://www.forbes.com), 2014).

"I feel that it is important to create an awareness that the way we are interacting with the devices might be changing the way we think and these changes might be occurring at the level of brain structure.” (Neuroscientist Kep Kee Loh, the study’s lead author, 2014)

Within the mid-1990s, Robert Rogers, Ph. D., and Stephen Monsell, Ph. D. found that indeed when individuals had to switch totally typically between two assignments each two or four trials, they were still slower in exchanging errands than in rehashed trials. In expansion, expanding the time accessible between trials to plan has decreased, but not dispensed with, exchanging costs. In this way, the take a toll of exchanging appears to comprise of two parts: one is related to the time taken to alter the mental control parameters, and the other is related to the competition due to the exchange of the control parameters from the past test. This examination proves that students can spend a large amount of time when switching from one task to another or doing them at one time. This can affect their performance negatively, because the indicator of time management is always a sign of quality work ( <https://www.apa.org>, 2014).

In tests distributed in 2001, Joshua Rubinstein, PhD, Jeffrey Evans, PhD, and David Meyer, PhD, conducted four tests in which youthful grown-ups exchanged between distinctive assignments, such as fathoming math issues or classifying geometric objects. For all errands, the members misplaced time when they had to switch from one errand to another. As assignments got more complex, members misplaced more time. As a result, individuals took altogether longer to switch between more complex assignments. Time costs were too more prominent when the members exchanged to assignments that were moderately new. They got up to speed quicker when they exchanged to errands they knew way better. This practice demonstrates that the transition from one task to another is bad for productivity, it is a consequence of multitasking (American Psychological Association, March 20, 2006).

However, despite these facts there are exceptions. The study, which was conducted in Portland (USA 2014), illustrates the ability of young people 10-19 years old for a long time to show more noticeable efficiency in multitasking. "This suggests that the advanced local younger generation have created the ability to expand working memory. They are much better at tasks in distracting situations than not being busy focusing on one task, " says one analyst. The researchers also suggest that several individuals - "supertankers" - have a natural ability to handle multiple assignments at the same time, but they make up no more than 10% of the population (theoryandpractice.ru, Ilona Suvorova, 2014).

On a local scale, we can see that in Kazakhstan this problem has not been studied, while in other countries research with the participation of highly qualified specialists is actively carried out. But it is safe to say that our students are also exposed to such a phenomenon as multitasking. This forces us to do a study on students to find out how multitasking affects student performance. My research is about social perspectives. first of all, the project directly concerns that layer of society as students. Also, my research may concern science, since the research of English scientists can see that multitasking can have a bad effect on health

All things considered, multitasking can be effective for some people. However, the number of these people is very low. In most cases, the study of foreign scientists shows that multitasking negatively affects productive work. Moreover, the studies that were conducted in Portland studied American students, multitasking can have a bad effect on our Kazakh students.

**Aims**

The main goal of this study is to find out how multitasking affects the performance of students. However, multitasking can be divided into two parts: when students do tasks at home and when they do it right at school. Therefore, to achieve my main goal, it is necessary to explore the impact of multitasking Both at home and at school. Thus, the following questions will be considered:

• How well can students perform tasks in a multitasking environment?

• How many students love multitasking while doing homework?

• How does multitasking affect academic performance?

Via answering all of these questions it will be possible to achieve my main aim, as the information needed about using the Internet by students both at home and at school will be obtained. My hypothesis is that multitasking has bad effect on academic performance and I want to make sure. I think that it will be beneficial for students. Students can see the results of my research and they can make conclusion. Does multitasking have good impact on their studying or not? Depending on their conclusion, this research may help increase their learning potential. It means that my research can be beneficial to them.

**Methods**

To achieve the main goal of this study, the following methods were used: questionnaires, expert interviews, and focus group interviews. The design of this study is descriptive. This descriptive research design integrated quantitative and qualitative data collection to use triangulation. These research methods allowed us to achieve the main goal of the study by obtaining data on the impact of multitasking on students of the Nazarbayev Intellectual school.

The main reason why this method was chosen is that it helps to collect mostly reliable quantitative data and attract a large number of respondents, since it was anonymous and conducted online. The target audience of the survey was students from different classes, so that you can compare the impact of multitasking on different age groups. The sample group consisted of students of the Nazarbayev Intellectual school from grades 7 to 11. the sample size was 100 people. Although this sample size could not determine the overall trend of multitasking in Kazakhstan, it is possible to determine the degree of effectiveness of multitasking in a narrow circle, 10 multiple-choice questions were asked with a rating scale, which were aimed at finding out how multitasking is manifested in our school. However, the online survey questions may be interpreted differently by respondents, since conducting the survey online means that there is no one to explain the questions, so each Respondent has the same understanding.

The second research tool was a semi-structured interview of experts. This method was chosen to describe the impact of multitasking from a psychological point of view. The purpose of the interview was to find out how comfortable students feel in a multitasking environment. The selection group included 3 psychologists of the Nazarbayev intellectual school to answer these questions, giving precise explanations:

• How many students like to multitask while doing homework?

• How does multitasking affect academic performance?

But it is difficult to come to a practical conclusion with widely differing views on a small sample size.

The third method in this study is a focus group discussion. The sample includes students of the 11th grade of the Nazarbayev Intellectual school. In a discussion with this sample group, we collected better data on how students rate their experience of multitasking, getting detailed information about the respondents ' personal opinions, ideas, and perceptions. The sample group is important for studying the impact of multitasking on specific students and will compare the results with survey results and interviews with experts. One weakness is that some participants were overwhelmed by the dominant respondents who could have directed the group's responses.

**Results**

The survey was conducted among 189 students of NIS; the interviews were taken from three experts (psychologists); the focus group discussion as conducted among one selected group (5 students of the 11th grade of NIS).

There are key findings from the survey and interviews:

1. 67.7% of respondents think that multitasking is effective only in some cases, whereas 16.9% think that it is absolutely not effective, 12.2% fully believe it is effective and 3.2% found it difficult to answer. It can be seen that the Central trend for this sample size is "this is only effective in some cases" attitude. However, most participants in the focus group discussion believe that multitasking is completely ineffective. While expert opinions differ, the first expert believes that multitasking is ineffective, the second expert believes that it is effective because there is a type of active people that multitasking influences positively and the third expert believes that it depends on the physical and psychological characteristics of the person.

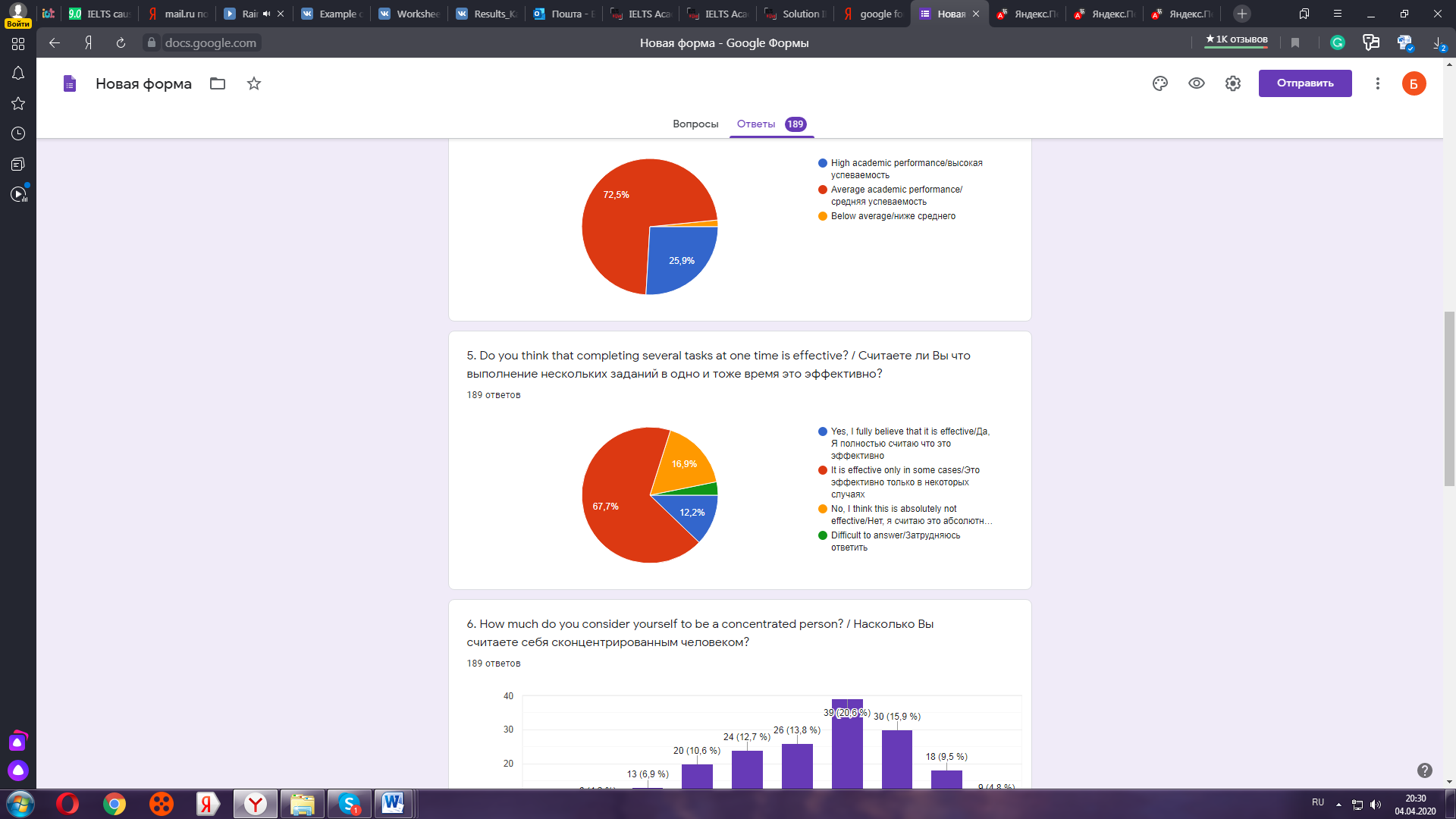


Рисунок 1 efficiency of multitasking

1. According to the results of the survey, the majority of participants consider themselves able to be focused. There are certain differences between the
2. Answers of survey respondents and the opinions of experts, most of students think that they are concentrated while experts think that they are not . But in the focus group all believe that they are not able to be focused in a multitasking environment.

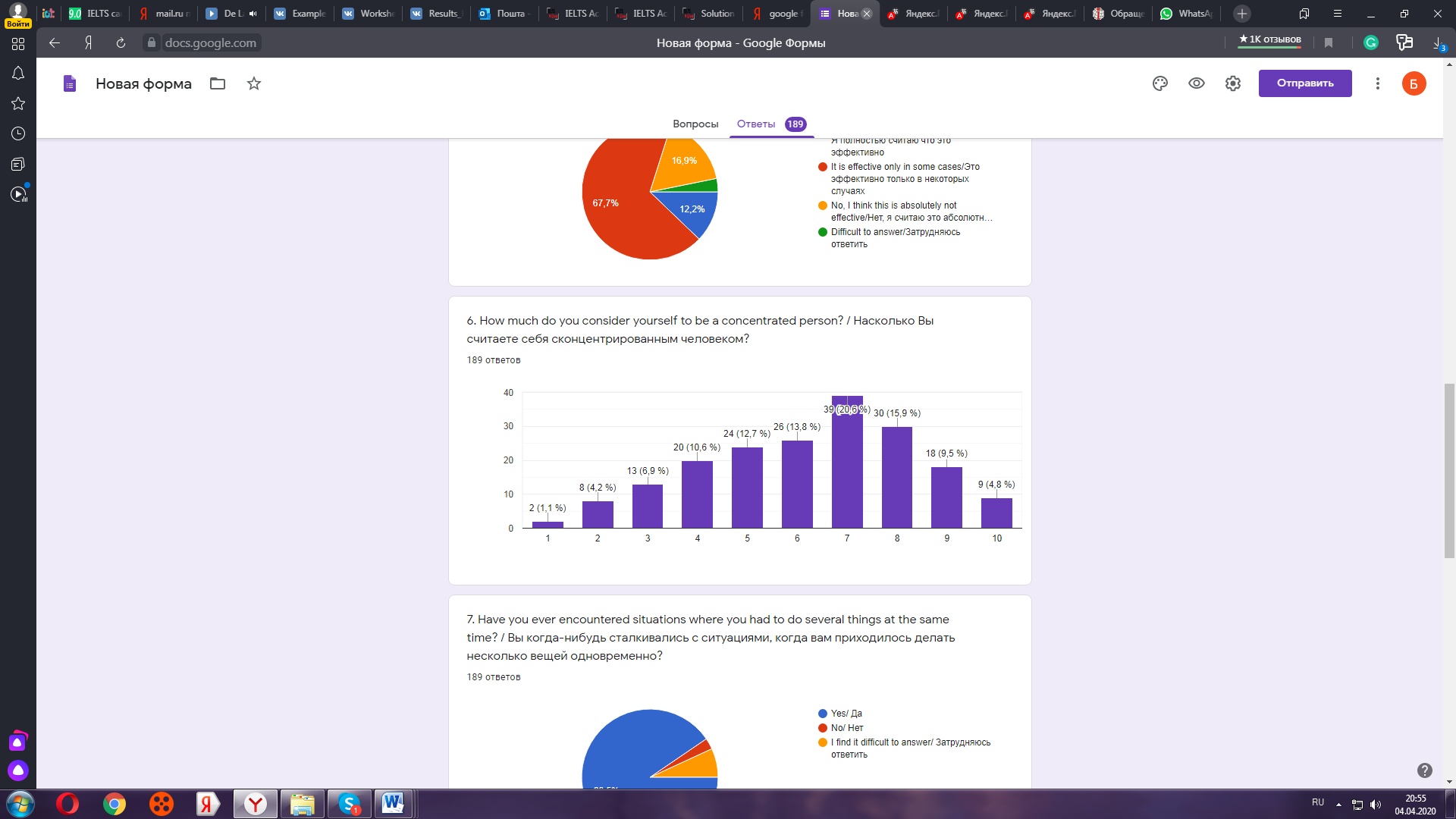


Рисунок 2 student concentration

1. The mode for this answer is 1, mean=0.97. 49.5% of respondents believe that under conditions of multitasking they cope with work quickly and effectively, 28.8% cope fast but slowly, and 21.7% cope slowly. While the opinion of experts and focus groups agree that multitasking in most cases is bad for the speed and quality of work (despite the fact that some individuals are excellent at multitasking)

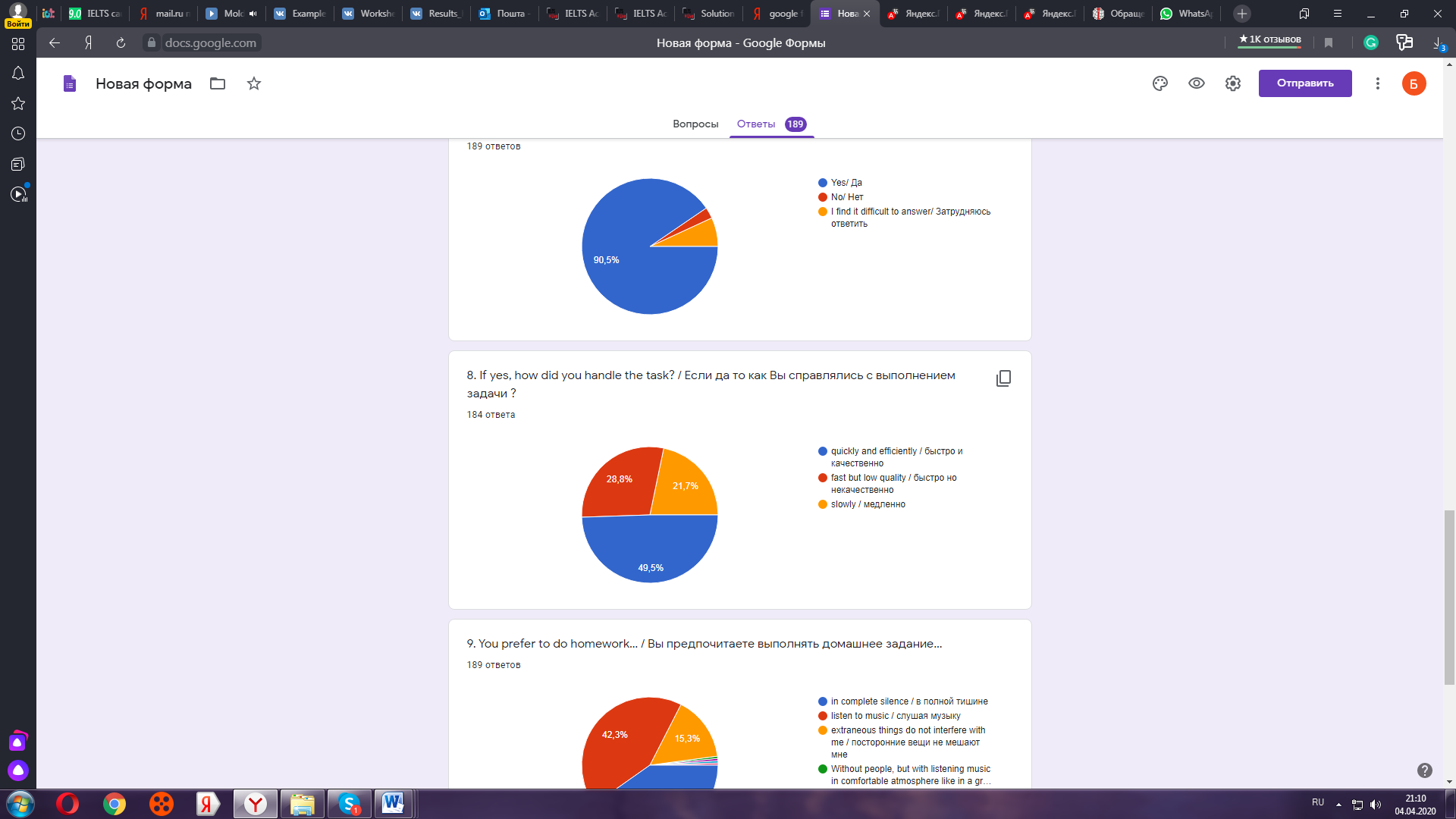


Рисунок 3 multitasking capability

*Table 1*

|  |  |  |  |
| --- | --- | --- | --- |
| Rating scale | | Number of respondents | Percentage, % |
| 1 | Quickly and efficiently | 91 | 49.5 |
| 2 | Fast but low quality | 53 | 28.8 |
| 3 | slowly | 40 | 21.7 |

Mean=0.97

Mode=1(quickly and efficiently)

1. The mode for this answer is 1, mean=1. Therefore, the centralized tendency for this sample size demonstrates that NIS students tend to multitask during doing some tasks like homework. In General, the participants of the selected group and the experts agree that students in most cases are multi-tasking while performing a specific task

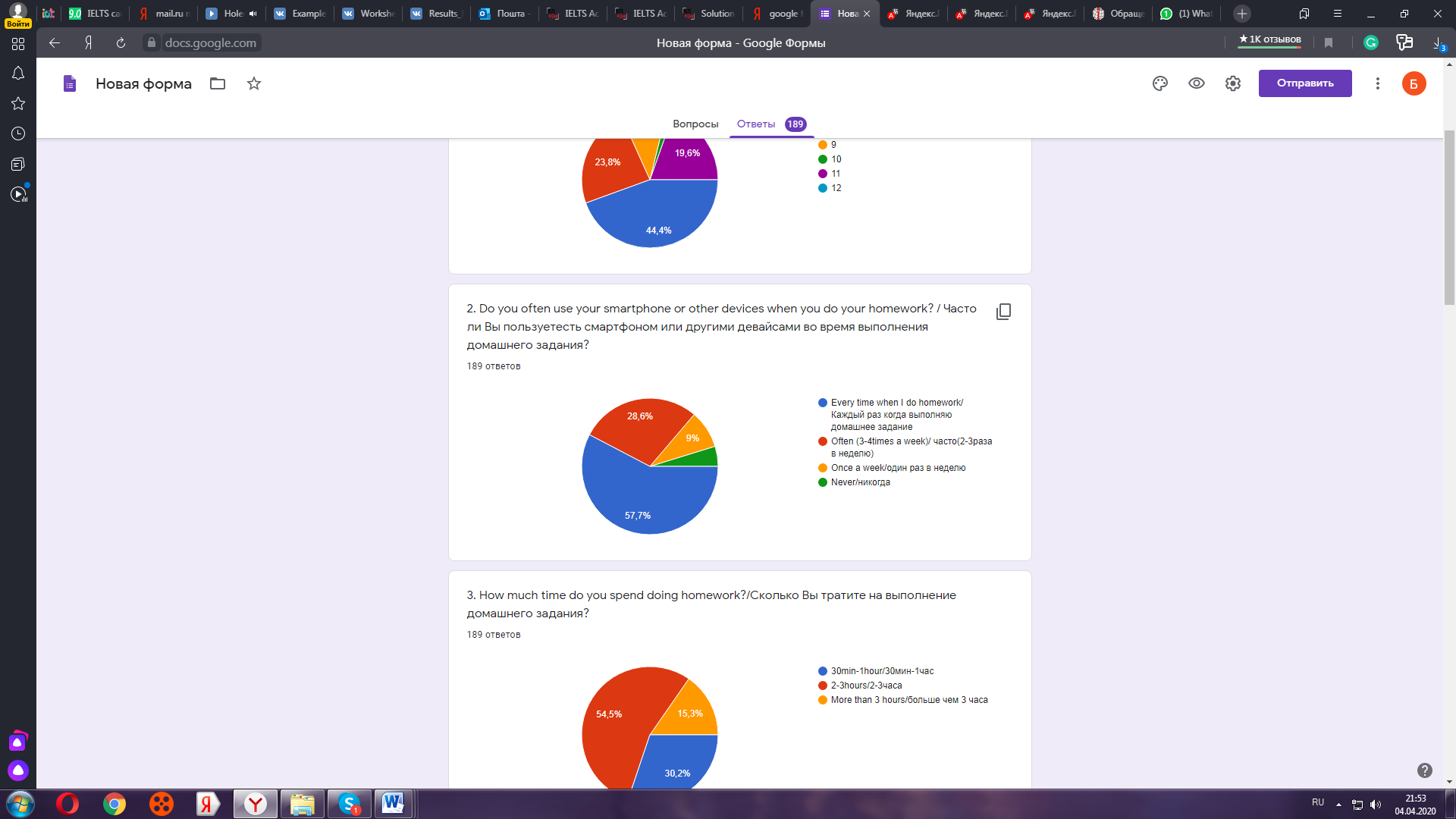


Рисунок 4 using smartphones during homework

*Table2*

|  |  |  |  |
| --- | --- | --- | --- |
| Rating scale | | Number of respondents | Percentage, % |
| 1 | Every time when I do homework | 109 | 57.7 |
| 2 | Often | 54 | 28.6 |
| 3 | Once a week | 17 | 9 |
| 4 | never | 9 | 4.8 |

Mean=1

Mode=1(every time when I do homework)

*Table3: The correlation between grade and academic performance*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade  Academic  performance | 7 | 8 | 9 | 10 | 11 |
| High | 11 | 14 | 6 | \_\_ | 14 |
| Average | 60 | 30 | 12 | 2 | 18 |
| Below average | 1 | \_\_ | 2 | \_\_ | \_\_ |

Table4: The correlation between grade and multitasking skills

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade  Academic  performance | 7 | 8 | 9 | 10 | 11 |
| Quickly and efficiently | 48 | 24 | 11 | \_\_ | 9 |
| Fast but low quality | 20 | 9 | 4 | 1 | 15 |
| slowly | 14 | 11 | 4 | 1 | 7 |

According to the table3 and table4 following statements could be made:

* In all grades, the vast majority of students have average academic performance, a smaller number have high academic performance, and there are almost no students with below-average academic performance
* In all grades except grade 11, students complete tasks quickly and efficiently in multitasking mode, while most grade 11 students complete tasks fast but low quality in multitasking mode. But it is worth noting that the proportion of students with high academic performance in grade 11 is higher than in others. This shows that in multitasking mode, some are easy to perform tasks qualitatively and some do not. However, students with higher academic performance are students who prefer concentrated work.

Survey results correlated with interview and FGD:

67.7% of respondents consider multitasking effective only in some cases, 16.9% consider it completely ineffective, and 12.2% consider it completely effective. The opinion of only one expert agrees with the main trend of the survey result, while the opinion of two experts does not correspond to the trend. There is a clear correlation between the results of the survey and the results of the focus group discussion, the participants of the discussion completely consider multitasking ineffective. The comparison revealed that multitasking affects people to varying degrees

Interview and FGD correlated:

Experts disagree about the impact of multitasking on students. One expert believes that in a multitasking environment students can't cope and this response is consistent with the focus group's responses. The selected group of students fully believes that multitasking is completely ineffective in the curriculum. But there is a correlation between the other two experts believe that the impact of multitasking on productivity depends entirely on the psychological and physical characteristics of each person. A person is a personality, that is, he can be both passive and active. As a rule, assets have high productivity, which makes them comfortable to work in a multitasking environment. However working in multitasking mode can put a person in a stressful situation. The results of these two methods show that most multitasking is not effective for use in educational processes.

**Conclusion**

The research project was conducted to identify the impact of multitasking on student performance. The hypothesis that was put forward at the beginning was that the probability of a negative impact of multitasking would be high. So, the methodology that was used to collect information helped to draw the following conclusions.

1**. How well can students perform tasks in a multitasking environment?**

Looking at the answers of survey respondents(189 participants), the conclusion is that most students believe that multitasking can be effective in learning only in some cases, but at the same time, a large number of students also uses multitasking when completing tasks. In addition, the vast majority of students consider themselves to be able to focus in a multitasking environment. The correlation of these results with the views of experts from an interview many students are influenced by multitasking, many can work in this mode, but not all students are able to do this due to their physiological and psychological characteristics. This is consistent with research done in Portland, which shows that only 10% of people are able to perform tasks in multitasking mode (information from the context). Based on this, the conclusion is that the productive work of students in multitasking mode depends entirely on their individual qualities, but the number of such students who are able to work productively in this mode is small. These results are valid for students of the Nazarbayev Intellectual school in Oskemen , since representative samples included students of this school, different grades. However, this cannot be generalized to all students in Kazakhstan

2. **How many students like to multitask while doing homework?**

An unexpected result was noticed , according to the results of the survey, it can be concluded that more than half of students constantly perform homework in multitasking mode. Psychologists are fully confident that a large number of students are constantly in a state of multitasking. Participants in focus group discussions (6 participants) fully claim that they constantly use multitasking while completing homework.

3. **How does multitasking affect academic achievement?**

According to the results of the survey, students in grade 11 are more successful than in other classes (this can be seen in the cross table) –and focus group discussion students in the same grade who were in multitasking mode and find that multitasking is completely ineffective –It can be concluded that multitasking negatively affects academic performance. This result is consistent with the study of English psychologist Glen Wilson, who showed that people who perform tasks in multitasking mode have IQ level drops by 10 points. However, the opinion of psychologists shows that a person's ability to multitask depends on psychological and physiological characteristics, that is, for someone it can be effective, for someone on the contrary. In addition, the majority of survey participants believe that multitasking is effective in some cases. This means that the hypothesis has not been completely rejected, but there are students who are very good at multitasking.

**Evaluation**

The main goal of the study was achieved. In the course of a descriptive study, data were collected on the patterns of perception of multitasking by students of the Nazarbayev Intellectual school. Methods integrated interview, survey and focus group discussion data collection, so analyzed this non-quantified topic , however, there are aspects to be improved:

1. To apply the results to the target population and increase external validity, the study should have included respondents from other schools in Kazakhstan. Since the system of education of the Nazarbayev Intellectual school differs from General education schools, the situation could be different. However, the study covered grades 7-11 of the school, which helped to find out the General trend.
2. The answers that were received from helped answer the research questions. However, not all psychologists were familiar with the topic of multitasking, so the quality of the response was not high. To improve the reliability of this method, it would be better to select people who have studied the topic of multitasking as experts. However, psychologists who know the school's students well were able to answer most of the questions.
3. The focus group discussion was conducted remotely so it was not possible to observe the emotions of the participants. Only 11 grade students participated in the discussion and all participants ' responses were similar. To improve the accuracy of results it would be effective to include participants from other classes in the discussion.

Consistent conclusions drawn from the results of the survey and focus groups suggest that the results obtained are reliable and representative. However, it is not certain that the results obtained can be applied to students from other schools.

**Further research**

The goal for further research is to minimize the errors of the work done and to fully consider the topic of multitasking

The first step in improving the project is that another research tool can be used, such as observation. By observing students, it would be easier to assess the impact of multitasking on their daily lives, and compare these results with results taken from other methods.

Moreover, an unexpected result was observed: students in grade 11 who perceive multitasking more as a negative phenomenon, academic performance is more successful compared to others. Therefore, investigating the issue of multitasking in terms of age would be good for future research.

In the future it would be better to conduct another interview with students and psychologists, since the interview was only taken from psychologists about the impact of multitasking on students. It would be appropriate to ask students questions as well.

On a local scale, a study was conducted on the impact of multitasking on academic performance, that is, the study only affected the Nazarbayev Intellectual school . On a global scale, studies were conducted by scientists from different countries who also studied the topic of multitasking. However, no research has been conducted on a national scale, so it would be better to continue studying this topic at the national level, including studying schools from other regions.

This study answers important research questions. But new research goals may be added in the future. For example, “how can multitasking affect compliance with time management requirements?" Thus, it would give an opportunity to look at this issue from other points of view.

Future research will help to achieve new results on this topic and link the impact of multitasking with other aspects. This study changed the original judgment about multitasking. Now it is clear that it is necessary to formulate a hypothesis that multitasking has not only a negative effect.

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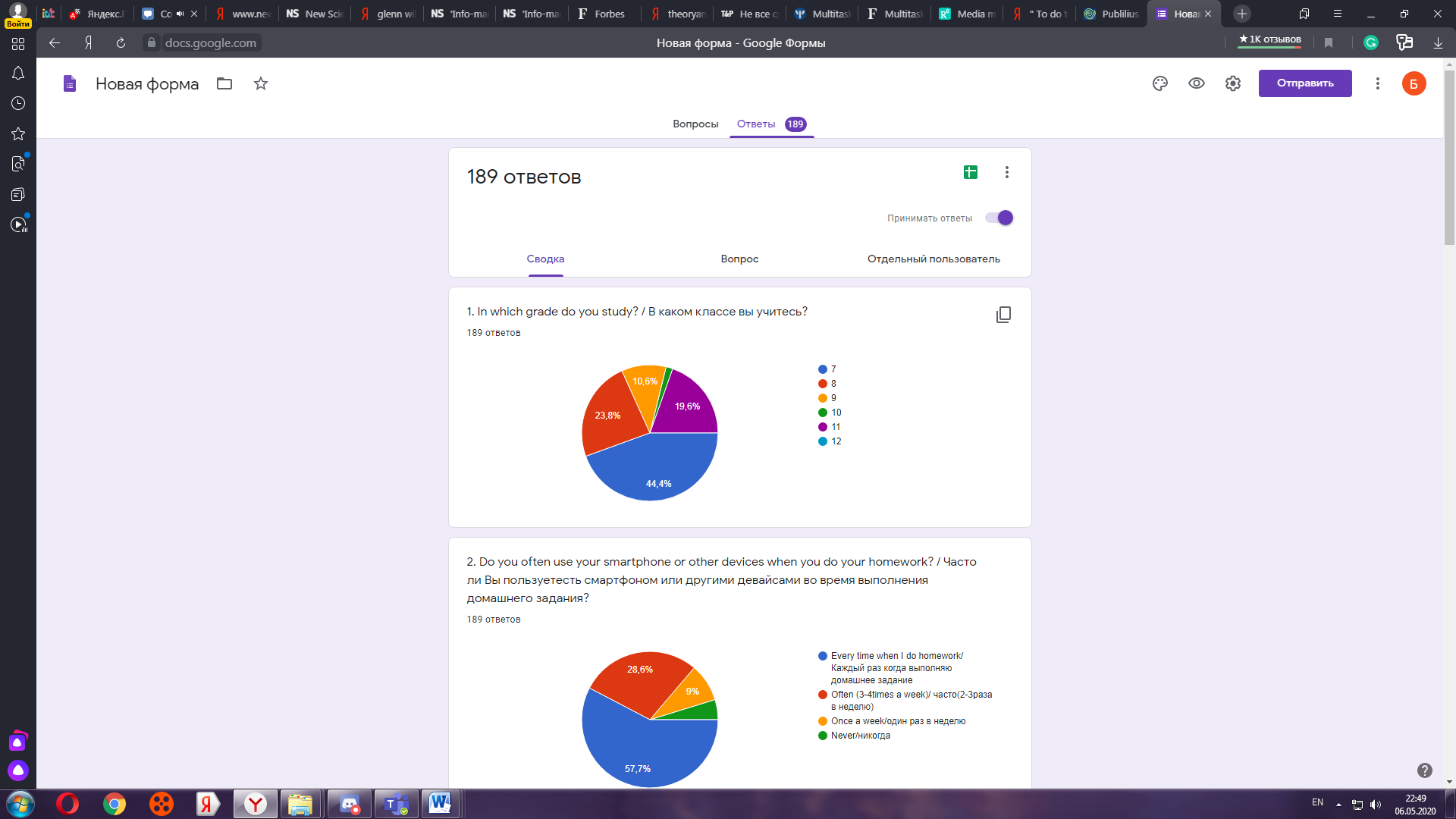
**Appendices**

Appendix 1

Survey

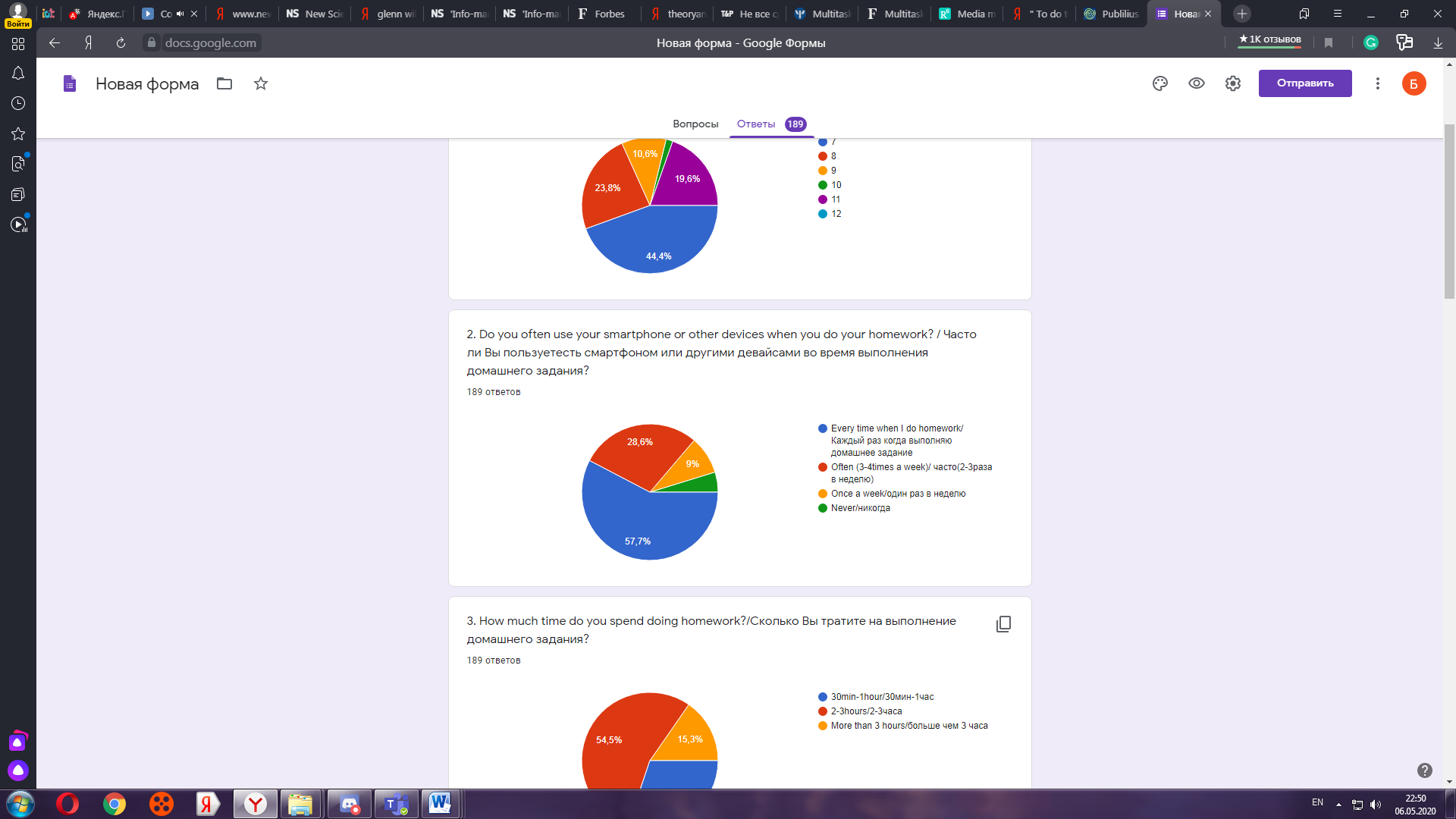
1. In which grade do you study? / В каком классе вы учитесь?

* 7
* 8
* 9
* 10
* 11
* 12



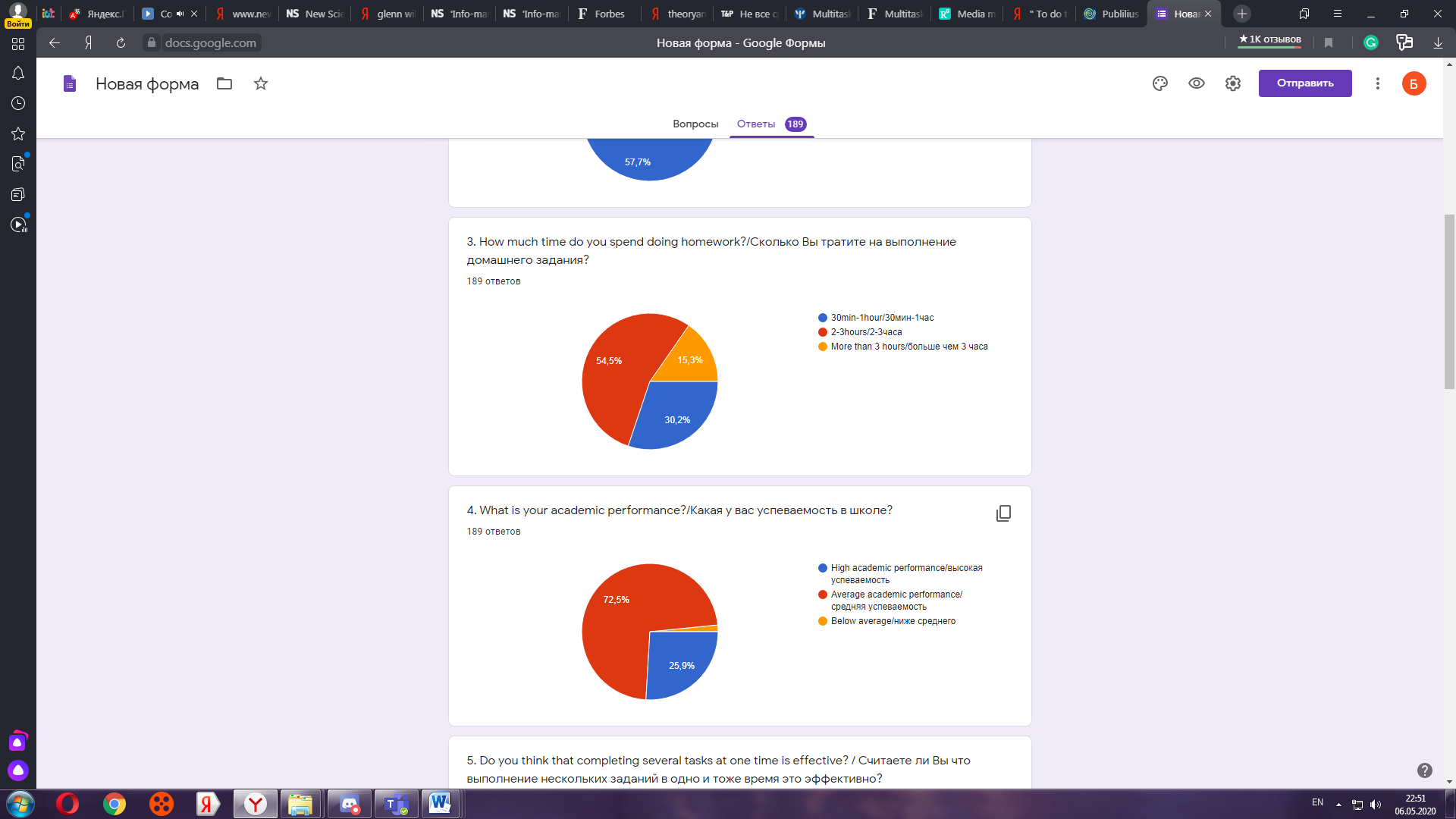
1. Do you often use your smartphone or other devices during your homework? / Часто ли вы пользуетесть смартвоном или другими дэвайсами во время выполнения домашнего задания?

* Every time when I do homework/Каждый раз когда выполняю домашнее задание
* Periodically(3-4times a week)/периодично (2-3раза в неделю)
* Once a week/один раз в неделю
* Never/никогда



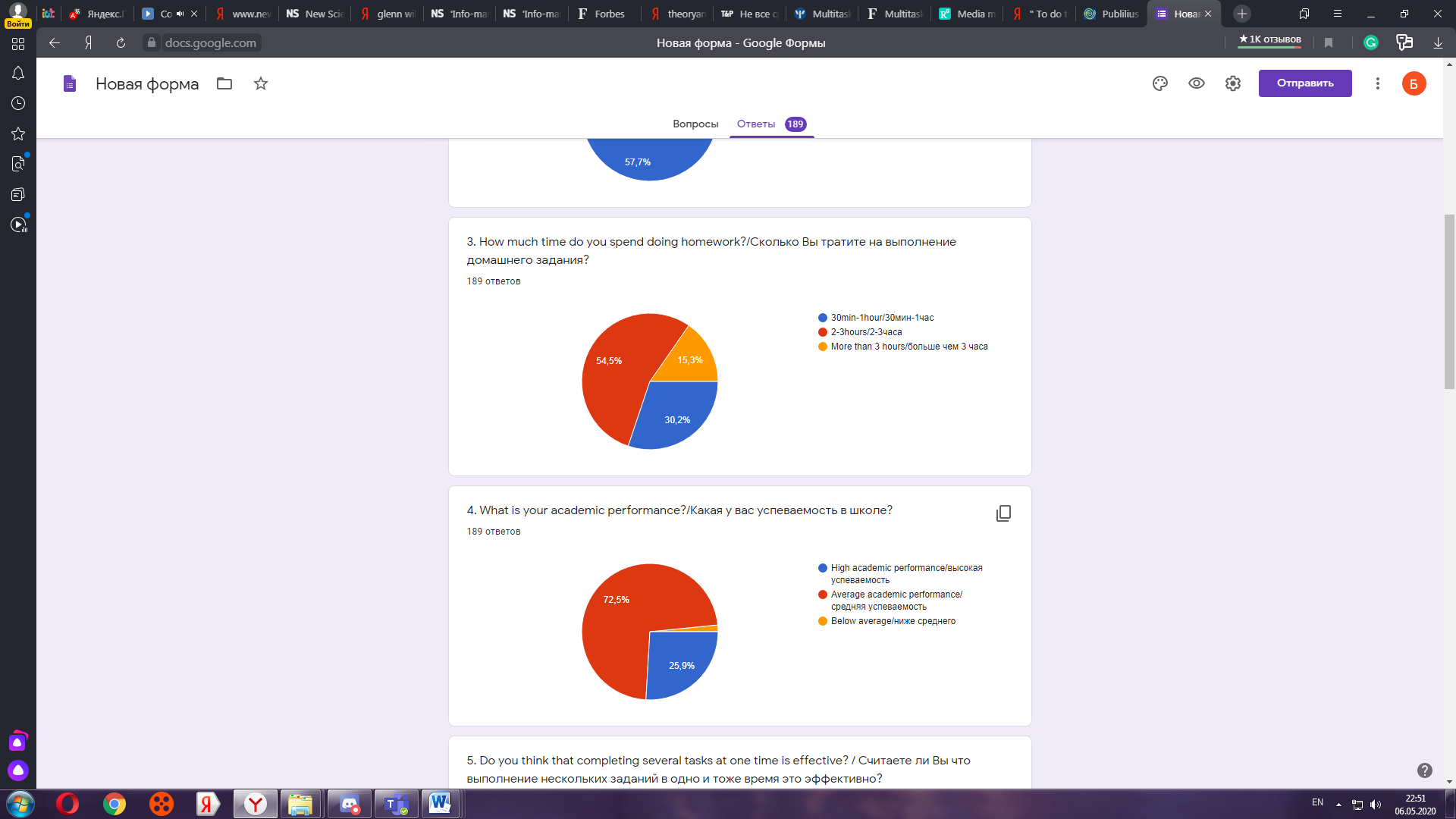
3.How much time do you spend doing homework?/Сколько вы тратите на выполнения домашнего задания?

* 30min-1hour/30мин-1час
* 2-3hours/2-3часа
* More than 3 hours/больше чем 3 часа



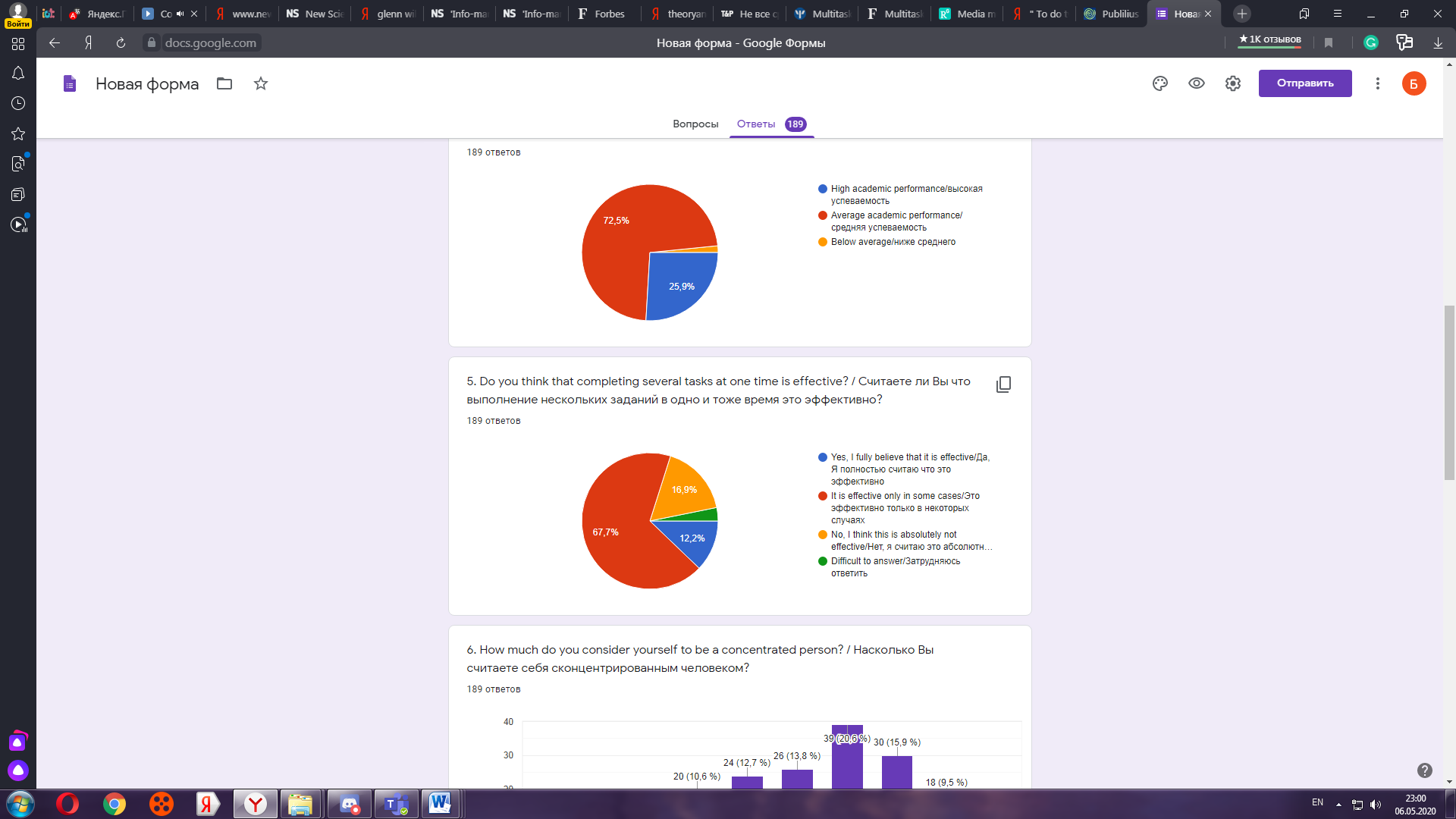
4. What is your academic performance?/Какая у вас успеваемость в школе?

* High academic performance/высокая успеваемость
* Average academic performance/средняя успеваемость
* Below average/ниже среднего



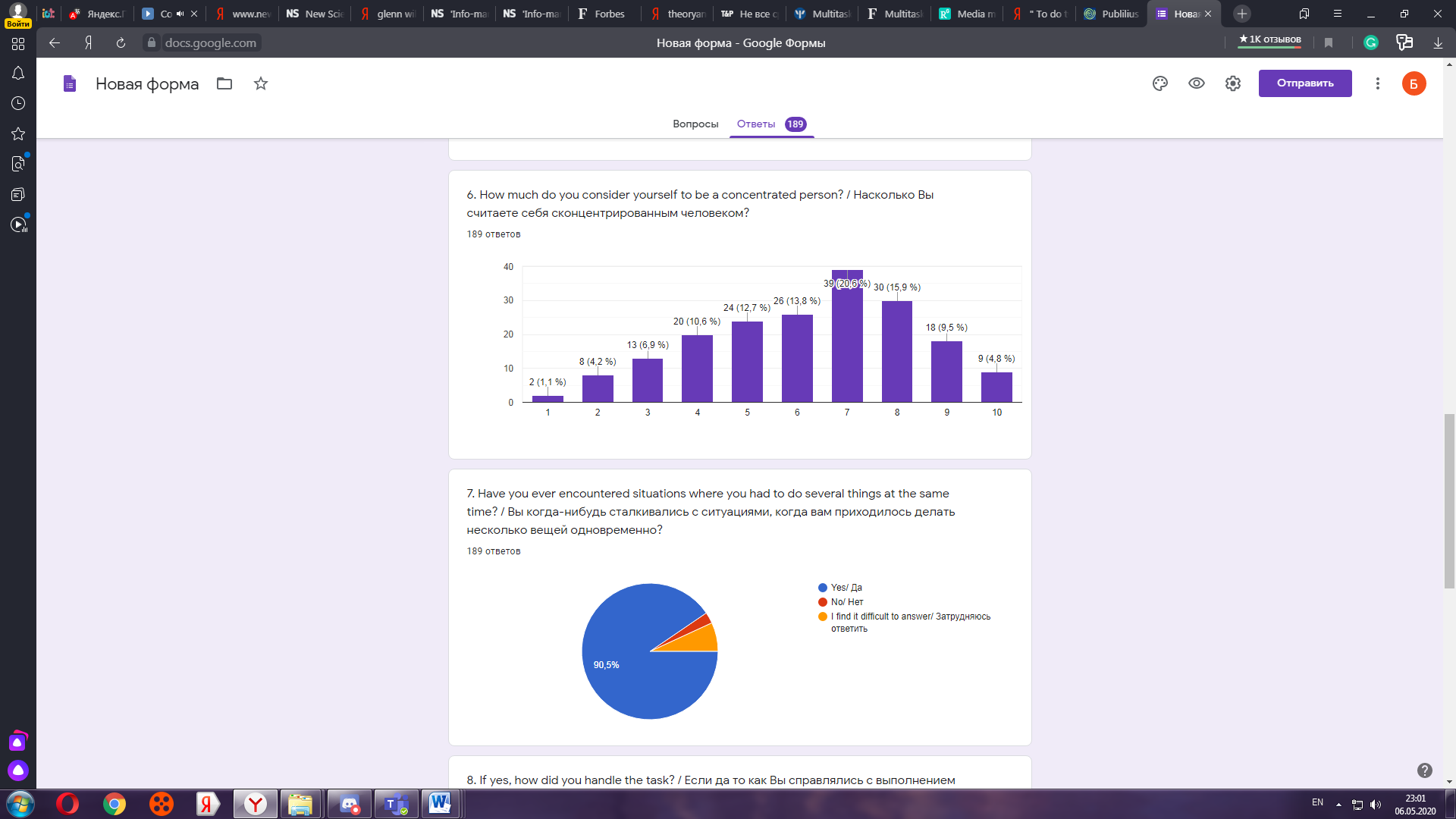
5. Do you think that completing several tasks at one time is effective? / Вы считаете что выполнение несколько заданий в одно и тоже время это эффективно?

* Yes, I fully believe that it is effective/Да, Я полностью считаю что это эффективно
* It is effective only in some cases/Это эффективно только в некоторых случаях
* No, I think this is absolutely not effective/Нет, я считаю это абсолютно не эффективным
* Difficult to answer/Затрудняюсь ответить



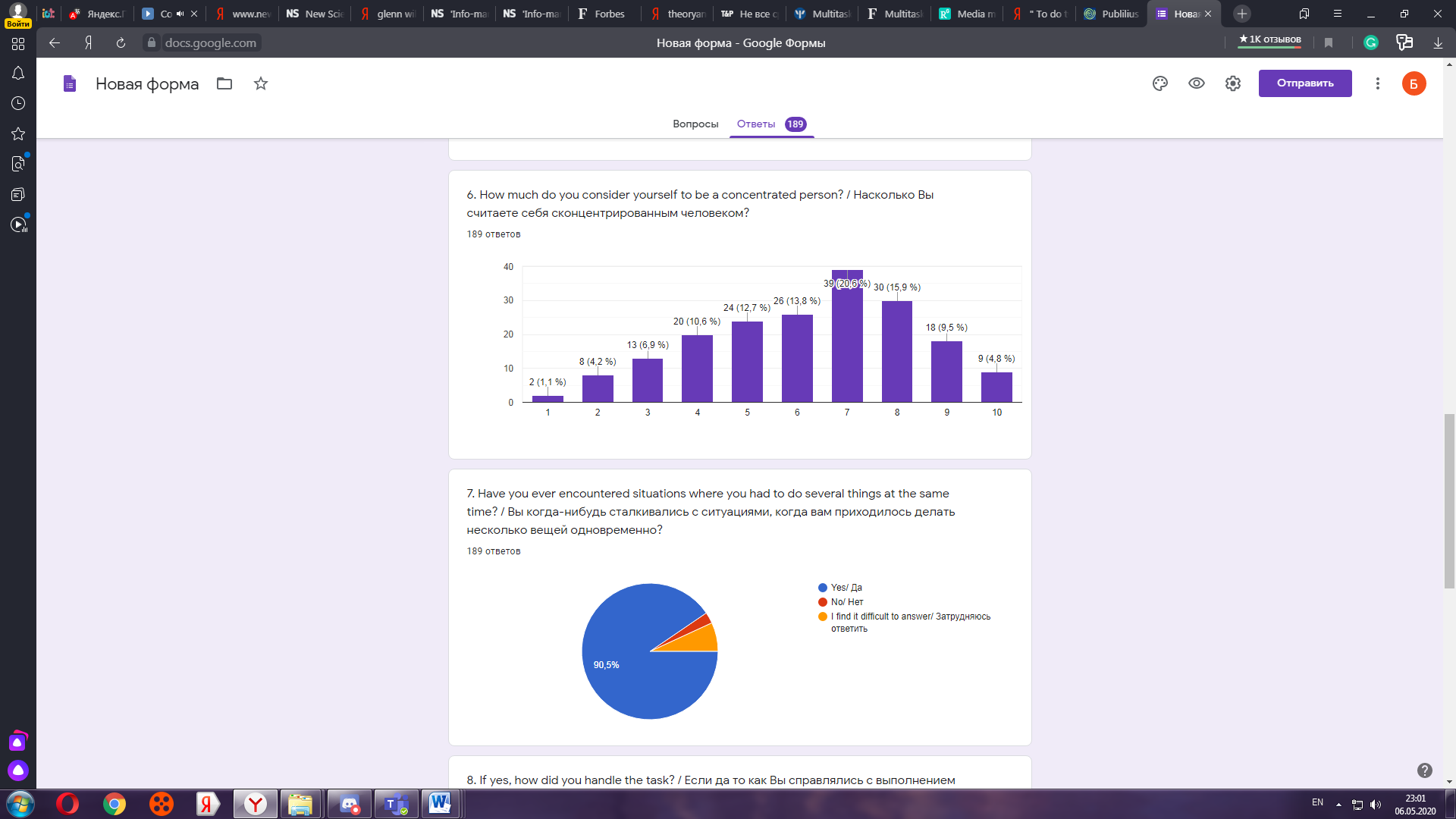
6. How much do you consider yourself to be a concentrated person? / Насколько вы считаете себя с концентрированным человеком?

1 2 3 4 5 6 7 8 9 10



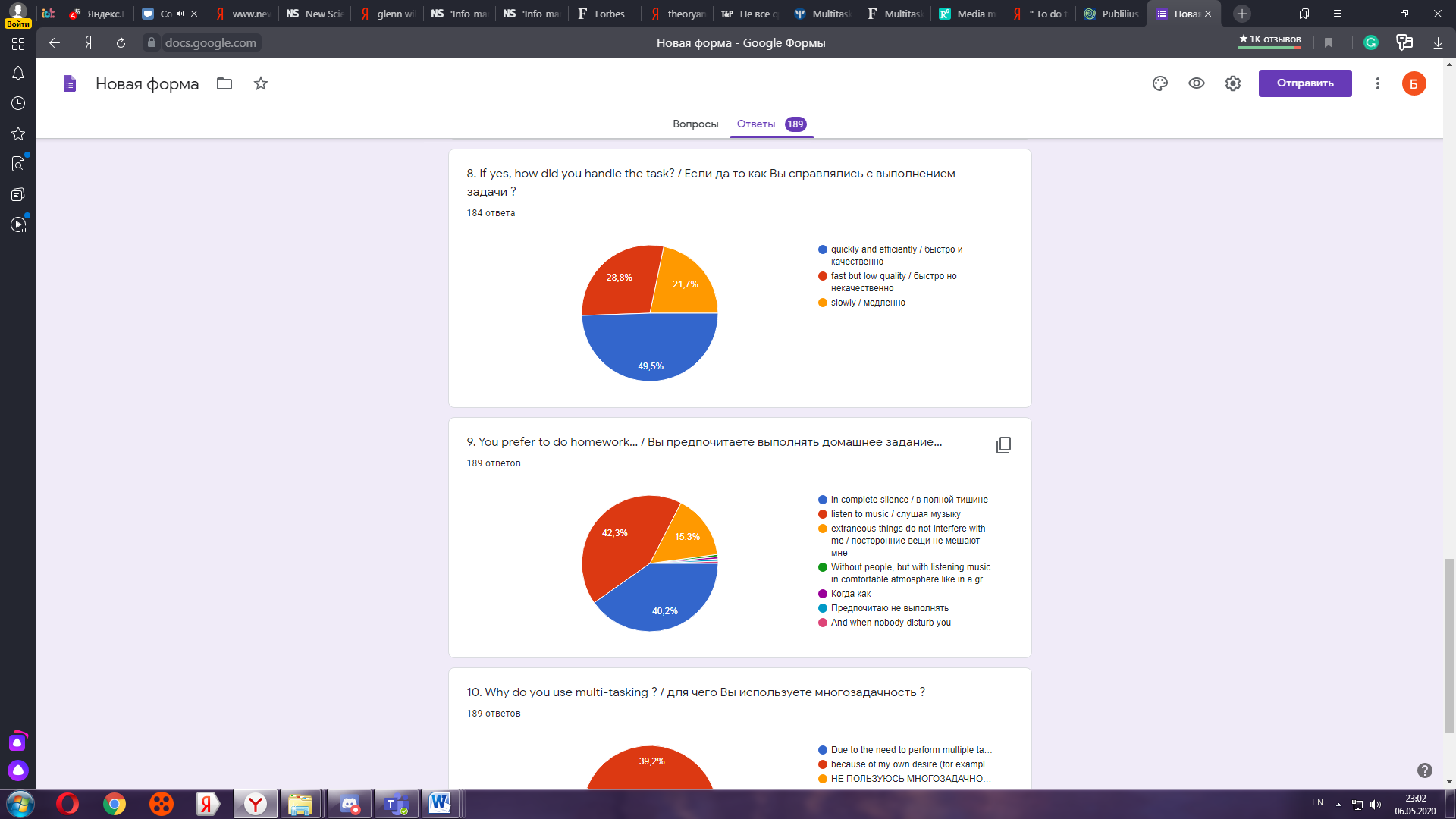
7. Have you ever encountered situations where you had to do several things at the same time? / Вы когда-нибудь сталкивались с ситуациями, когда вам приходилось делать несколько вещей одновременно?

* Yes/ Да
* No/ Нет
* I find it difficult to answer/ Затрудняюсь ответить



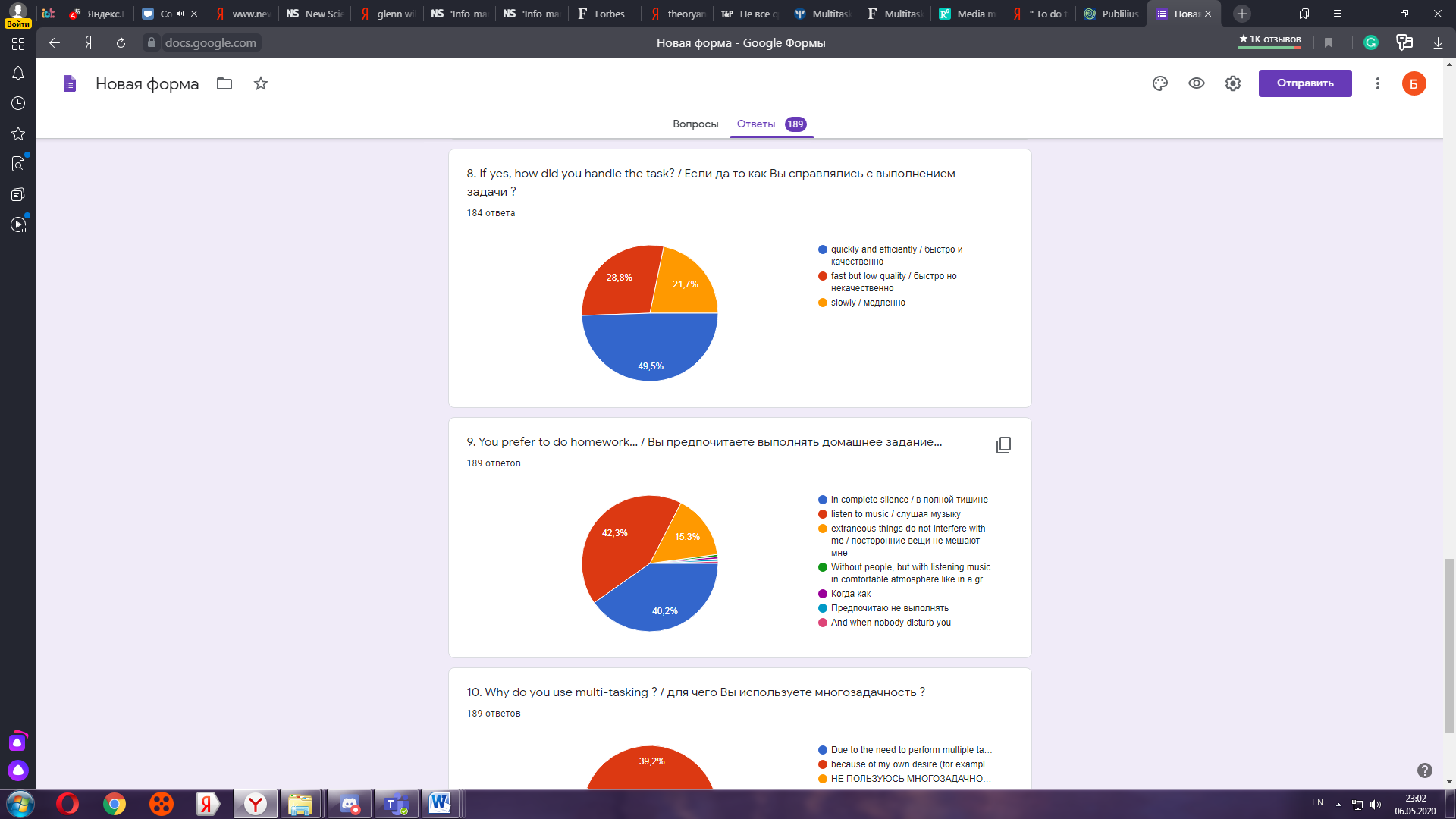
8. If yes, how did you handle the task? / Если да то как вы справлялись с выполнением задачи ?

* quickly and efficiently / быстро и качественно
* fast but low quality / быстро но некачественно
* slowly / медленно



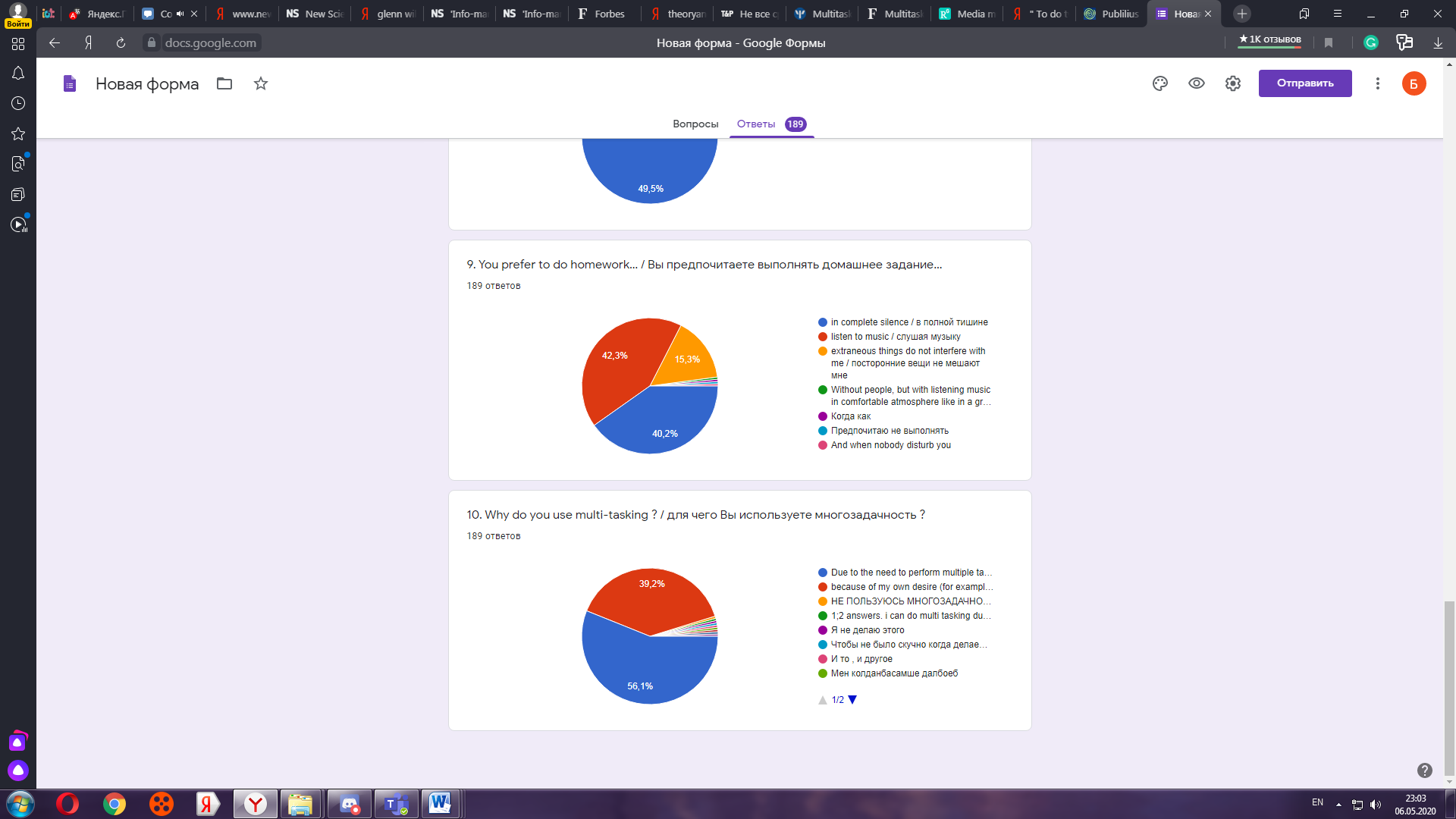
9. You prefer to do homework… / Вы предпочитаете выполнять домашнее задание…

* in complete silence / в полной тишине
* listen to music / слушая музыку
* extraneous things do not interfere with me / посторонние вещи не мешают мне
* other answer / другой ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

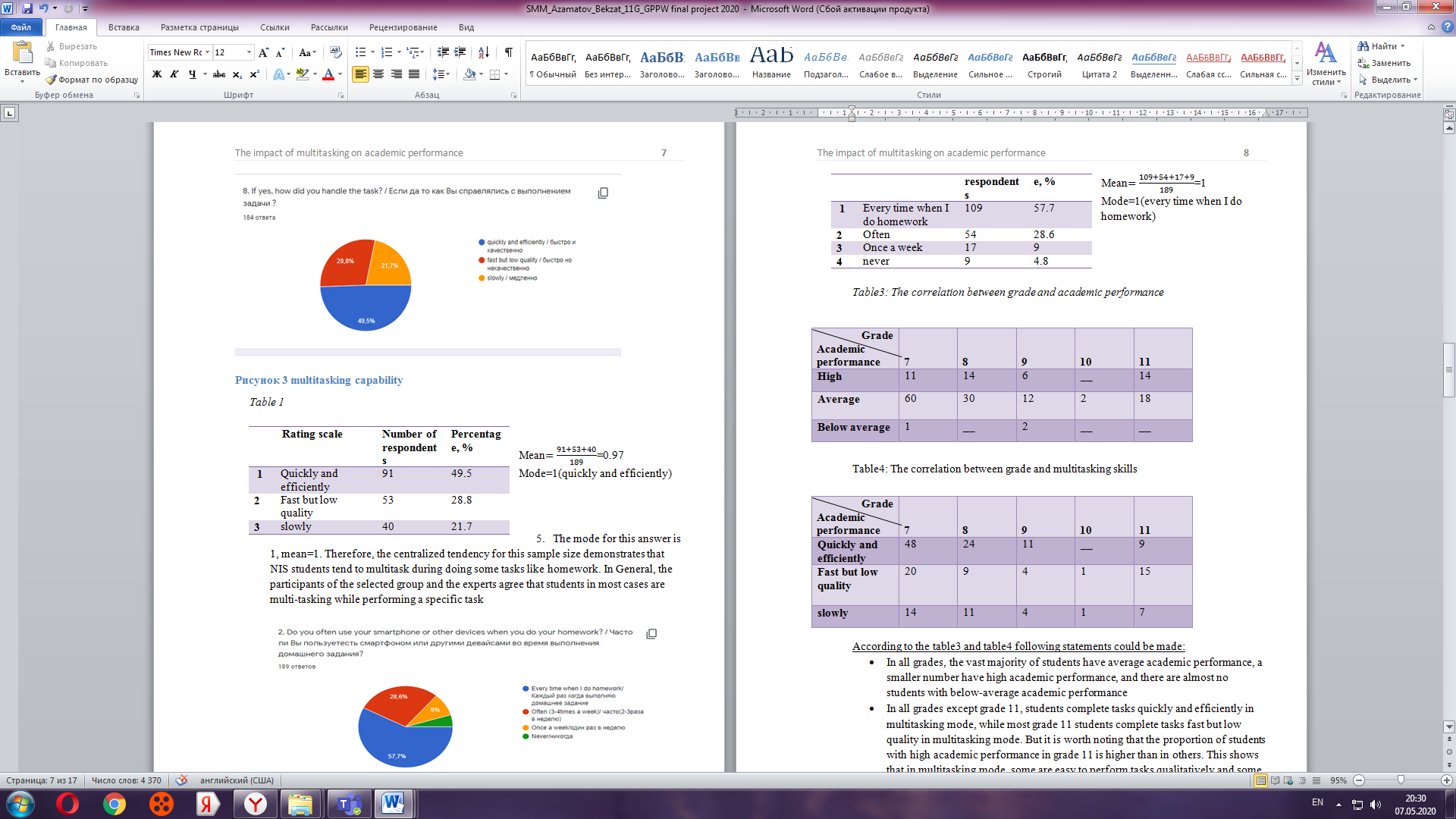


10. Because of what you have often seen multi-tasking ? / Из за чего у вас часто проявляется многозадачность ?

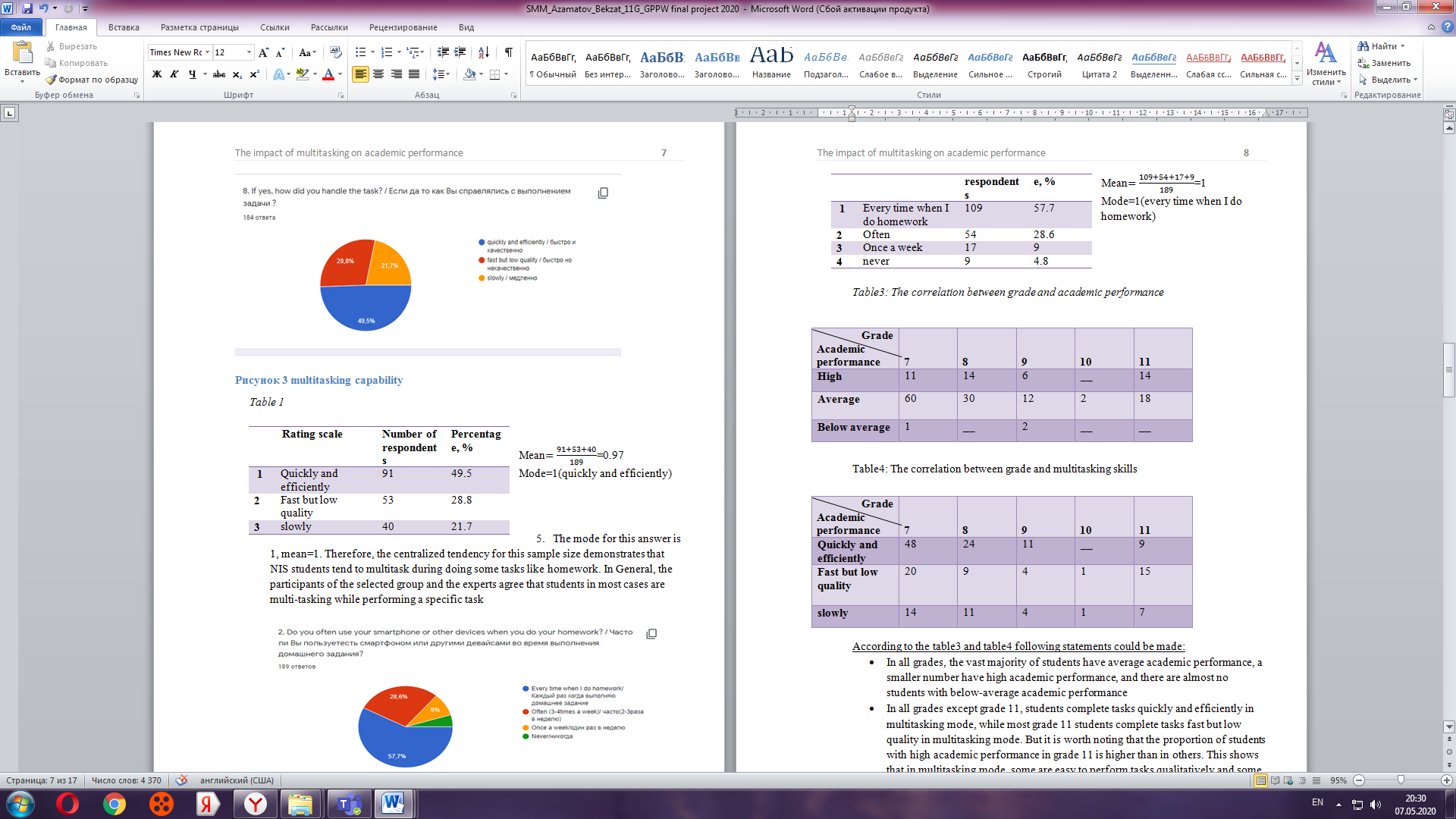
* Due to the need to perform multiple tasks at the same time / Из за необходимости выполнить несколько задач одновременно
* because of my own desire (for example, I wanted to watch a TV series and at the same time I need to do my homework ) / из за собственного желания (например, захотелось посмотреть сериал и в то же время надо сделать домашнее задание )
* other answer/ другой ответ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



*The correlation between grade and academic performance*



*The correlation between grade and multitasking skills*



Appendix 2

Interview

Questions for psychologist:

1. Do you know what multitasking is and how can you explain this phenomenon in your own words?
2. From a psychological point of view, do you think that performing many tasks in a short period of time is bad for a person's productivity?
3. As a psychologist, what do you think a person needs for concentration ?
4. As a psychologist at our school, have you noticed that multitasking affects students in some way?

Appendix 3

Focus group discussion

Questions for student:

1. Do you know what multitasking is and how can you explain this phenomenon in your own words?
2. How do you think performing multiple tasks at the same time can be the cause of the inefficient performance of the training task?
3. Do you think multitasking affects you and your performance? How can it affect?