than usual		things than usual
I have not learned to program	6.50	I have learned to program
It has not been interesting	6.63	It has been interesting
I have not understood what we have done	6.65	I have understood what we have done
The activities done with Lego WeDo have not allowed us to reflect	6.42	The activities done with Lego WeDo have allowed us to reflect
I am no longer interested in this topic	6.77	I want to learn more about this topic
It has been useless	6.69	It has been useful
I do not like this way of working	6.77	I love this way of working
The teacher has not helped us	5.88	The teacher has helped us
The teacher has not given us clear instructions	6.71	The teacher has explained clearly what we had to do
I have not learned to build models in 3D	6.31	I have learned to build models in 3D
We have not done the exercises well, working in group	6.46	We have done the activities well, working in group
The project has not allowed us to solve problems in a logical way	6.29	The project has allowed us to solve problems in a logical way
I have not learned to think creatively to make the 3D models.	6.37	I have learned to think creatively to make the 3D models
Lego WeDo has not allowed us to know the results of our decisions	6.38	Lego WeDo has allowed us to know the results of our decisions
The teacher has not indicated what was right or wrong in our work.	5.81	The teacher has indicated what was right or wrong in our work.

Regarding the results of the Mann-Whitney U Test (Table 3) of the items 'I have learned to program' and 'I have learned to build models in 3D', we point out that there were statistically significant differences between the mean of boys (item 15 $\bar{x}$=6.96; and item 24 $\bar{x}$=6.92) and girls (item 15 $\bar{x}$=6.07; and item 24 $\bar{x}$=5.74). The boys considered that they learned better how to build these 3D models and how to program them.

On the other hand, the results of that non-parametric test in the items that referred to 'the activities done with Lego WeDo have allowed us to reflect', 'the project has allowed us to solve problems in a logical way', 'I have learned to think creatively to make the 3D models', and 'Lego WeDo has allowed us to know the results of our decisions' showed that there were also statistically significant differences between the mean of boys (item 18 $\bar{x}$=5.88; item 26 $\bar{x}$=5.60; item 27 $\bar{x}$=5.72; and item 28 $\bar{x}$=5.76) and girls (item 18 $\bar{x}$=6.93; item 26 $\bar{x}$=6.93; item 27 $\bar{x}$=6.96; and item 28 $\bar{x}$=6.96). In these cases we emphasized that the girls assessed better all these items.

Table 3. Independent-Samples Mann-Whitney U Test

	Gender	Mean Rank	Sum of Ranks	Mann-Whitney U	Sig.	Z
item15	Boy	35.58	889.5	110.50	.000	-4.813
	Girl	18.09	488.5			
item18	Boy	14.42	360.5	639.50	.000	-6.228
	Girl	37.69	1017.5			

item24	Boy	39.04	976.0	24.000	.000	-6.465
	Girl	14.89	402.0			
item26	Boy	13.80	345.0	655.00	.000	-6.448
	Girl	38.26	1033.0			
item27	Boy	13.42	335.5	664.50	.000	-6.698
	Girl	38.61	1042.5			
Item28	Boy	13.98	349.5	650.50	.000	-6.472
	Girl	38.09	1028.5			

3.2. Students' Perceptions about the Strong and Weak Aspects of the Project

The majority of the pupils, 61.5% (n=32), stated they what they liked most about the activities developed in the project was the possibility that they had to build and program the models. Another 23.1% (n=12) considered that they could work as a team, sharing their ideas and working together. Finally, 15.4% (n=8) emphasized that this project allowed them to work playing. They believed that they learnt more than in a traditional class.

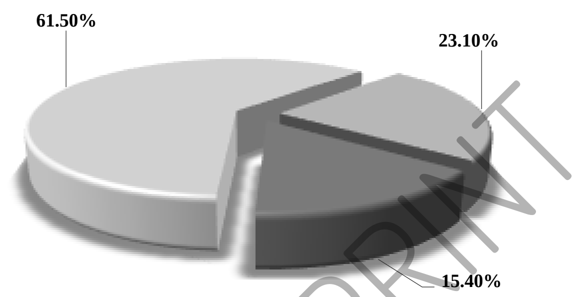

Figure 1. Students' Perceptions about the aspects they liked most

Regarding, the points that they like least, most of pupils, 46% (n=24), answered that nothing. On the other hand, 32.7% (n=17) pointed out that they did not have enough time to build and program the models, so they considered that they needed more practice to learn how to do it. 11.5% (n=6) also indicated that it was quite difficult to work as a team since they did not agree about the development of the activities or because some of the classmates wanted to do everything without taking into account their partners' opinions. 3 of the 52 cases (5.8%) stated that what they like least was the resources they had since they believed that they did not have enough tools, and it would be great to update them. Finally, just 3.8% (n=2) considered that the thing they liked least was to destroy what they had built.

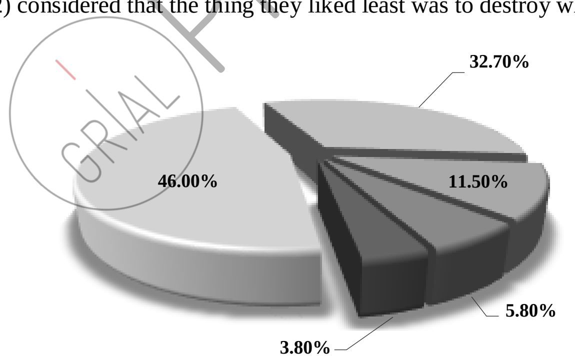

Figure 1. Students' Perceptions about the aspects they liked least

Pupils were also asked about the problems they had to build and program the working models. More than half of the pupils, 51.9% (n=27), indicated that they did not have problems. On the contrary, 15.4% (n=8) answered that they had problems to program the models and this demotivated them to carry on with the tasks. The pupils also answered that they had problems with the resources (13.5%, n=7) or to work as a team (11.5%, n=6). Just 7.7% (n=4) considered that they did not have enough time to finish.

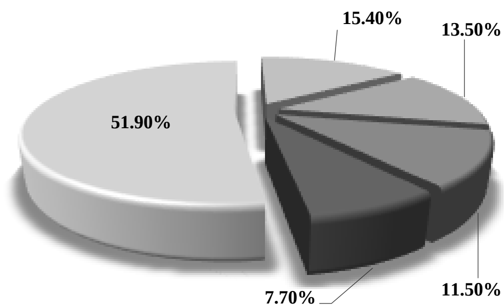

Figure 1. Students' Perceptions about the problems they had

3. CONCLUSIONS AND DISCUSSION

The results from the semantic differential suggested that the computational thinking project carried out in the subject natural sciences was effective to increase the participants' awareness of the computational thinking [28]. Specifically there were evidences of the possibilities offered to reflect and think creatively about the opportunities they had to fulfill the activities correctly, to know the results of their personal or group decisions, and to solve the problems in a logical way [3]. The research also concluded that according to learners' perception, the way in which activities were designed had provided them possibilities to learn to build models in 3D, and program them [20].

This study demonstrates that the students assessed very positively the teacher's role in the project. The research identified her role as a guide, explaining clearly what they had to do, and showing them what was right or wrong. The students concluded that her help had been fundamental for the success of the project [29].

This study provides evidence of the students' satisfaction towards the project, considering it useful and interesting [18]. The use of Lego Education WeDo have allowed them to understand better the activities, to work in groups, and to learn more things than usual. They showed great enthusiasm for the project, considering it a perfect way of learning which motivated them to learn more about the discipline of natural sciences.

To sum up, our study and its results have proved the potential of the software Lego Education WeDo in the subject of natural sciences to promote the computational thinking, and to engage primary education students in programming, and problem solving. It is important to promote this skill since it is essential in the current society and has to be developed in different subjects like science, technology, engineering and math (STEM).

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