AFFECTIVE ISSUES IN SOLVING CHALLENGING MATHEMATICAL PROBLEMS WITHIN AN INCLUSIVE COMPETITION

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In this paper, we describe the behaviour patterns reported by the participants in a web-based problem solving competition of inclusive nature. In particular, we look at the help-seeking patterns to solve the problems and enjoyment and perceived difficulty in solving those problems. The results provide evidence of the challenging character of the competition problems, namely their moderate challenge degree. When seeking help, participants turn mainly to family members and teachers; in general, they enjoy solving the problems throughout the competition and find them of low or average difficulty. Regarding SUB12, there is evidence of a strong correlation between enjoyment and low perceived difficulty, as well as between enjoyment and no need to seek help. Yet, these tendencies are not fully found concerning participants in SUB14. Some questions for future research are raised.

RESEARCH GOALS

In recent years, we have witnessed an increasing number of mathematical competitions around the world, varying greatly in scope (regional, national, and international), form, contents, duration, and target population. Some competitions are aimed at highly talented students, while others have an inclusive character, welcoming all students, regardless of their mathematical problem solving skills.

Research has suggested that students' participation in mathematics competitions, especially at younger ages, positively influences their motivation to learn mathematics. In addition, participating in beyond-school mathematics competitions comprises positive affect towards mathematics and promotes the development of problem solving skills, regardless of students' success or difficulties manifested in school mathematics (Freiman & Vézina, 2006; Kenderov, Rejali, Bussi et al., 2009).

Inclusive competitions are aimed at all students. In such competitions, students are faced with challenging and exciting mathematics, which is perceived as accessible to average students, close to their daily lives, and socially and emotionally engaging. SUB12 and SUB14 are the two leagues of an inclusive mathematical problem solving competition, promoted by the University of Algarve. SUB12 is intended for 5th and 6th graders (ages 10-12) and SUB14 addresses 7th and 8th graders (ages 12-14), both

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covering the southern region of Portugal. The two leagues are web-based, have similar rules and operate in parallel. This paper addresses the *Qualifying* phase of the competition in which participants have to solve 10 problems, released every two weeks. Participants may choose the approaches, strategies, representations and resources they wish to solve the problems, and they have to express clearly their thinking process. Formative feedback is provided to every answer and participants are allowed to resubmit their answers as often as needed until reaching a complete and correct solution, within the available time slot. Seeking help is explicitly encouraged by the organization.

Acknowledging the role of affective variables in the context of inclusive mathematical competitions, we intend to describe the behaviour patterns reported by the participants in SUB12 and SUB14 concerning their seeking for help to solve the problems throughout the *Qualifying* phase, and their enjoyment and perceived difficulty in solving those problems. We consider the following questions: (1) What is the significance of the help provided by the several partners that participants can resort to during the competition? (2) How do participants express themselves in relation to their higher or lower enjoyment with the various problems posed? (3) What is the participants' perception of difficulty regarding the problems? and (4) What trends can be identified combining these dimensions?

THEORETICAL PERSPECTIVES

Challenging mathematical problems

The relationship between affect and cognition has sparked considerable interest among researchers for a long time. Initially, affective factors were associated with causes for the effects on cognition. "Mathematics education, however, need not necessarily draw cognition and affect together by means of causal links alone. (…) affect, far from being the 'other' of thinking, is a part of it (…) The two interact" (Walshaw & Brown, 2012, p. 186).

A challenge is "a question posed deliberately to entice its recipient to attempt a resolution (…) A good challenge is one for which the person possesses the necessary mathematical apparatus or logical skill, but needs to use them in a nonstandard or innovative way" (Barbeau, 2009, p. 5). Students usually see good mathematical challenges as different from regular problem solving classroom activities, and even when they are perceived as not easy to grasp with, they stimulate feelings of pleasure and satisfaction (Jones & Simons, 1999). The notion of (good) challenge reflects how affect must be integrated with the cognitive aspects involved in it.

Mathematical competitions, especially those of inclusive nature, provide a privileged context for challenges beyond the classroom (Kenderov et al., 2009). The problems posed in SUB12 and SUB14 briefly and succinctly describe a context-framed situation, casting a well-defined question. However, they are expected to be seen by participants as challenges, which amounts to believing that students feel inwardly compelled to

solving them. Therefore, there is a delicate difference between the idea of mathematical problem and the concept of challenging mathematical problem. A *mathematical problem*, usually conceived as a situation from which the initial and the final states are known but the process to move from the first to the last is not immediately available through mathematical techniques and reasoning, has its grounds on the cognitive components of the problem solving activity. On the other hand, a *challenging mathematical problem* includes a strong affective appeal by involving curiosity, imagination, inventiveness and creativity, therefore resulting in an interesting and enjoyable problem not necessarily easy do deal with or to solve (Freiman, Kadijevich, Kuntz, et al., 2009).

Research has stressed the need for balance in the degree of challenging questions (or problems) posed to students (Schweinle, Turner, & Meyer, 2006) and the idea of *moderate challenge* has come to the fore (Turner & Meyer, 2004). The idea of moderate challenge needs to be complemented with features typical of challenge seeking contexts. One of them is viewing help seeking as legitimate and another is pressing for explanations and accountability for thinking. These two aspects are clearly present in SUB12 and SUB14: not only is help seeking explicitly encouraged, as reporting the solution process is required. The competition meets the conditions of environments that promote moderate challenge and shares the two essential categories that may describe challenge supporting practices: requiring accountability in demonstrating understanding and providing an emotionally supportive atmosphere for learning (Schweinle, Berg, & Sorenson, 2013; Turner & Meyer, 2004).

Students' help seeking and help avoidance

When a participant seeks help, can we assume that the problem was actually perceived as a challenge? If not, why? We suspect that the degree of difficulty of the problem may have been too high, leading to the need of seeking help. Moreover, the very act of asking for help can compromise the challenging character of the task in the eyes of the participants since the sense of achievement, namely if it is equated with performance demonstration, may not be as full – the credit for having answered well goes not just to the participant but is shared with others.

Help seeking has received increasing attention for its role in the learning process. Zusho and Barnett (2011) stress the social connotations of help seeking in tune with the costs involved: being perceived as needy and admitting failure or incapacity to accomplish a task. Thus, help avoidance is sometimes the consequence of a perception of threat to one's self-efficacy. Yet, there is evidence that self-regulated and confident learners are more likely to look for instrumental help: where the reasons to find help are the wish to learn and to understand the material, as opposed to a shortcut to get a task completed. In addition, low achievers tend to perceive greater threat in help seeking and therefore report higher levels of help avoidance; reversely, students with higher perceptions of cognitive competence show lower levels of help avoidance. "Taken together, these findings suggest a relatively strong link between students'

expectations of and confidence in academic success and patterns of help seeking and help avoidance" (Zusho & Barnet, 2011, p. 153).

Finally, patterns of help seeking are consonant with a caring, supportive and exploratory learning environment. This is also related to students' perception of moderate challenge where conditions of support and accountability for understanding are nourished, and where a preference for challenging activities goes together with engagement and enjoyment. In such environments, students' preference for solving problems on their own may rise and help seeking becomes closer to seeking clues rather than answers (Zusho & Barnet, 2011).

Students' perception of task difficulty

How youngsters perceive task difficulty matures as they develop cognitively and socially. "Young children define 'difficulty' as a property endemic to the task (…), while older children cast greater complexity on the term, placing emphasis on how readily the task is accomplished by others" (Schweinle et al., 2013, p. 1). As age progresses, there is an increasing tendency to associate greater task difficulty with greater effort to accomplish and with lesser people who manage to fulfil it. Hence, there is "an inherent social comparison to perceptions of difficulty" (p. 3).

Although the ideas of challenge and difficulty have common features – for example, both require effort and involve a certain level of complexity – and are used frequently as synonyms, they are distinct. Schweinle et al. (2013) argue that "while value and importance are often attached to challenging activities, they are not necessarily attributes of all difficult activities" (p. 3). Thus, not all difficult tasks are challenging enough to those who approach them. In addition, "challenging tasks may encourage positive motivational orientations while difficulty ones may not" (p. 5). In the context of SUB12 and SUB14, all the proposed problems are challenging mathematical problems. They are not selected to be difficult tasks but rather to trigger participants to solve them, to engage with enthusiasm, to feel they are capable of reaching a solution which, nonetheless, may be a troubled process.

On the relationship between challenges and affect

Despite the realm of approaches to studying emotions and the various definitions that have come to the fore, there is large consensus about certain aspects of this construct. For example, emotions connect to personal goals: "they code information about progress towards goals and possible blockades as well as suggest strategies for overcoming obstacles" (Hannula, 2001, p. 61). Emotions "have an important role in human coping and adaptation" (p. 62), and are always present in human experiences. Yet, they become observable only when they are intense. When solving problems, people experience intensive emotions, whether of frustration or joy, for instance.

"The importance of a task and its link to student interest cannot be ignored as each relates to challenge" (Schweinle et al., 2013, p. 4). Students' interest in a topic may influence their perception of challenge, thus, students' disposition to pursuit a

challenge is fostered in learning environments in which the activities are seen as valuable and important.

Acknowledging the relative character of moderate challenges, there are indicators supporting the claim that such challenges promote the development of positive affect. Yet, a complex social environment around moderate challenges must be set: promoting feelings of enjoyment, pleasure and self-confidence as well as appreciation of mathematics; providing substantial formative and encouraging feedback which also serves to alleviate frustration, treat errors and misunderstandings as springboards for improvement, allow multiple opportunities to complete the tasks, and stimulate persistence; maximizing cooperation and minimizing competition and social comparison; emphasizing conceptual understanding and mathematical processes (Schweinle et al., 2006): "Optimal levels of challenge, coupled with affective and motivational support, can provide contexts most supportive of students' feelings of enjoyment, efficacy, and value in mathematics" (p. 289).

The challenging environment of SUB12 and SUB14 meets these characteristics. The feedback that is provided to all participants, a key element in this competition, and ultimately its overall design contribute largely to its inclusive nature. Inclusion is, in fact, part of a wider goal of promoting enjoyment and pleasure in solving (challenging) mathematical problems.

METHODOLOGY

Data were collected through the participants' answers to a mini-questionnaire consisting of three multiple-choice questions included in the online form available on the webpage to submit the answer to each problem. The answers were given by choosing a single option: i) I solved with the help of: a) Teacher; b) Family; c) Friends; d) SUB12 (or SUB14); e) Nobody; ii) I enjoyed the problem: a) Much; b) So-so; c) Little; and iii) I found the problem: a) Difficult; b) So-so; c) Easy.

Answering the questionnaire was mandatory when participants chose to use the online form to send their problem solution. Yet, the option of not responding to the mini-questionnaire items was ensured – problem solutions could be sent directly to the e-mail of SUB12 or SUB14, using the participants' own personal e-mail account. Although participants could send several versions of a problem solution (drawing on the feedback that was always provided), only the answers to the mini-questionnaire relative to the last version of the solution were considered, even if there were changes in those answers throughout the swinging feedback process.

Usually, slightly less than 50% of the total number of participants answered the mini-questionnaire in each round of the competition. This number basically corresponds to those who used the online form to submit their answers. As the competition unfolds, the number of participants decreases (some are eliminated or just leave the competition) and so does the number of respondents to the mini-questionnaire (Figure 1).

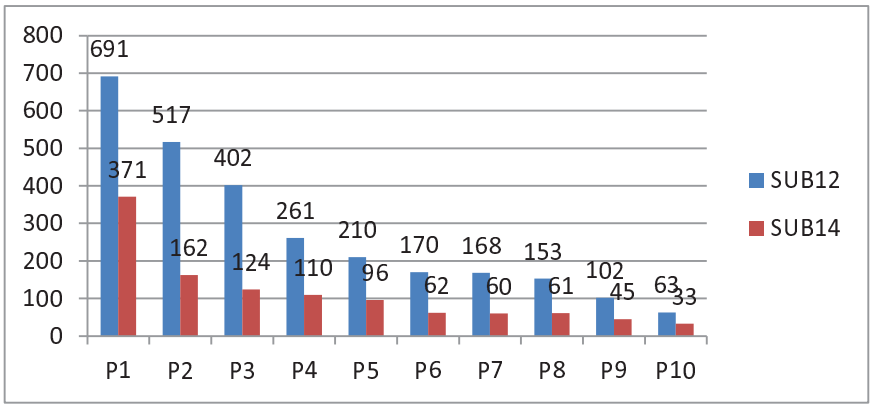

Figure 1. Number of respondents to the mini-questionnaire.

Our approach to analysing the data is mainly descriptive, based on the number of answers and percents regarding each option per problem. By looking at such values across the series of problems, the aim is to get a global picture that may indicate interesting aspects of children's involvement in solving moderate challenging problems within the SUB12 and SUB14 competition.

DATA ANALYSIS

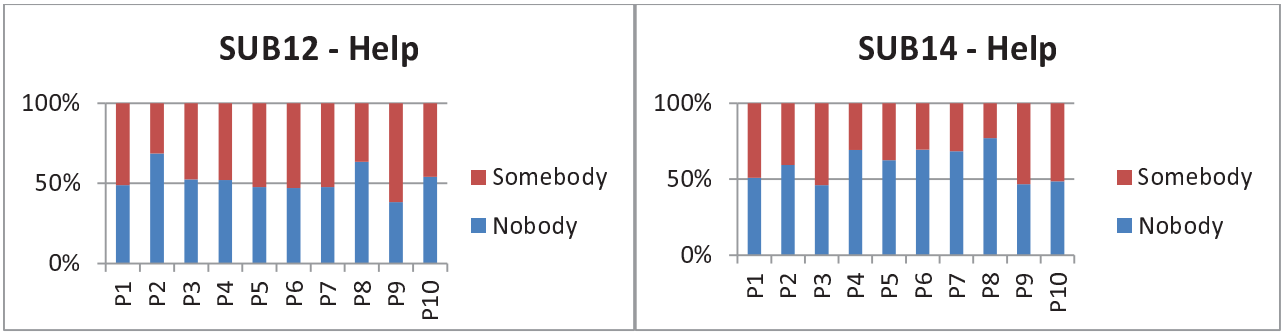

Figure 2. Help-seeking behaviour reported by participants in SUB12 and SUB14.

Figure 2 indicates how participants report on help seeking for each of the ten problems. As shown, help seeking was quite significant in the vast majority of problems, both in SUB12 and SUB14: the search for help was always indicated as higher than 46% except for problems 2 and 8 in SUB 12 – for which only 31,3% and 36,6% of participants sought help – and problem 8 in SUB14 – for which solely 23% of participants reported having asked for help. Participants felt a stronger need to ask for help in some problems: problem 9 in SUB12 and problems 3 and 9 in SUB14.

The two major sources of help are family members and teachers, for both SUB12 and SUB14 (Figure 3). Yet, the assistance of family members is not as expressive in SUB14 as it is in SUB12. It may well be that the same teacher is a source of help to a large number of participants – there are some teachers who reported in interviews that they give support to their students throughout the competition, and so the help of teachers may cover a lot of participants.

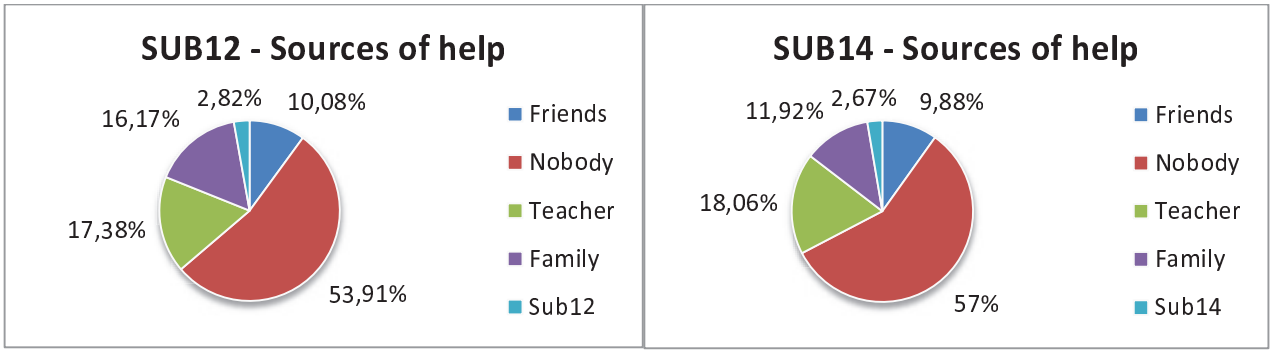

Figure 3. Overall sources of help reported by participants in SUB12 and SUB14.

The third source of help is the participants' friends, although the amount of inputs from friends is smaller in both leagues, especially SUB12. The participants' classmates may be included in the group of friends who provide them with help – for example, if the problems are solved in the school context (as we know is the case in several schools) or even if the problems are solved in group rather than individually.

Finally, the SUB12, or SUB14 (i.e. the organization of the competition to whom the participants contact by e-mail), is a residual source of help. However, all participants who sent an initial wrong or incomplete answer to each problem received feedback from the organization in order to reformulate their answer, and eventually this resulted in a correct solution. There is a discrepancy between the number of participants who claimed to have received help from SUB12 or SUB14 and the number of cases that actually succeeded after receiving feedback from the organization. A question then comes up: is it true that participants only recognize to have received help when they explicitly asked for it? There are only a few cases in which they take the initiative to seek the organization and ask for help, for example to start solving the problem. In these rare cases, participants do acknowledge the organization as a source of help.

Problems 3 and 9 (in SUB12) triggered a significant need for help. While problem 3 deals with geometrical topics, which typically pose some difficulties in school mathematics, problem 9 is related to numbers and regularities, a topic that is usually quite well received by students. Coincidently, problems 3 and 9 in SUB14 also required more help but they do not deal with any particularly complex curricular topic. Therefore, help seeking may be problem dependent.

Figure 4 depicts the participants' perceived degree of difficulty of the challenges posed in the *Qualifying* phase. Problems 2 and 8 were considered as the easiest problems in SUB12, and these were also the problems for which the percentage of help sought was the lowest: 68,7% and 63,4%, respectively. Regarding SUB14, problem 4 was clearly the easiest one to solve but, though participants reported not having sought much help to solve this problem (69,1% did not use any help), it was not the one for which the lowest need for help was felt – that was problem 8, for which 77% of the participants declared not having had any help. Problems 3 and 9 in SUB12 stand out as the most difficult to solve: only 25,1% and 26,5% of respondents, respectively, considered them to be easy. Those problems also led the participants to seek significant help and did not

trigger feelings of enjoyment. Regarding SUB14, problems 2 and 9 were the most difficult ones, and these were also the least appreciated problems; problem 9 was the one triggering the highest need for help.

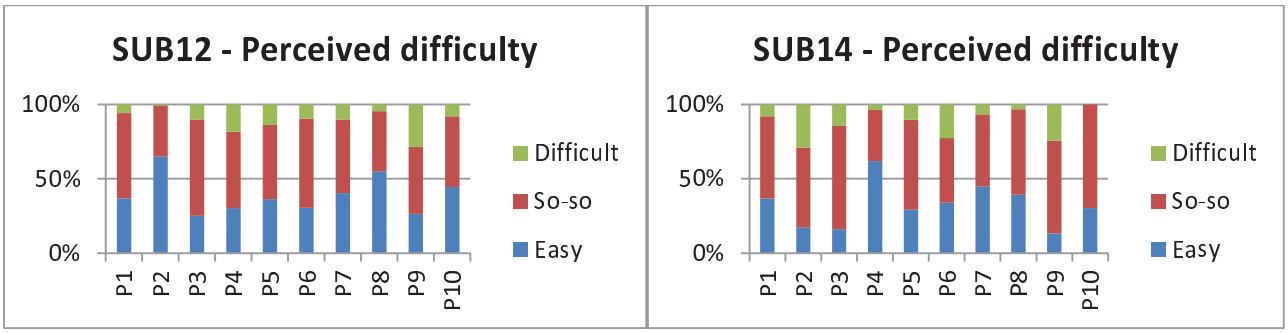

Figure 4. Perceived degree of difficulty reported by participants in SUB12 and SUB14.

In what concerns enjoyment, the overall manifested feeling shows a general positive emotion of participants in facing challenging mathematical problems (only 5,72% of participants in SUB12 and 9,07% in SUB14 report to have enjoyed little the problems). Nonetheless differences between SUB12 and SUB14 seem to exist. There are more participants in SUB12 reporting having enjoyed much the problems than in SUB14 (54,53% against 47,15%); at the same time, there are more participants in SUB14 reporting median or little enjoyment of the *Qualifying* problems. Moreover, the percentage of SUB14 participants who did not enjoy the problems (9,07%) almost doubles that of SUB12 participants (5,72%).

Looking at the reported enjoyment per problem, per league (Figure 5), it is easily noticed that in problems 3, 4 and 9 of SUB12 and 2 and 9 in SUB14, the number of answers stating "much enjoyment" is lower. At the same time, for these problems there is an increase in the number of answers indicating "so-so" and "little" enjoyment. These challenges are, in a sense, the deviants within the category of the enjoyment felt. Yet, the percentage of participants reporting "little" enjoyment is always below 13% for SUB12 and 20% for SUB14, which is consistent with an overall lower enjoyment of the problems on the part of SUB14 participants.

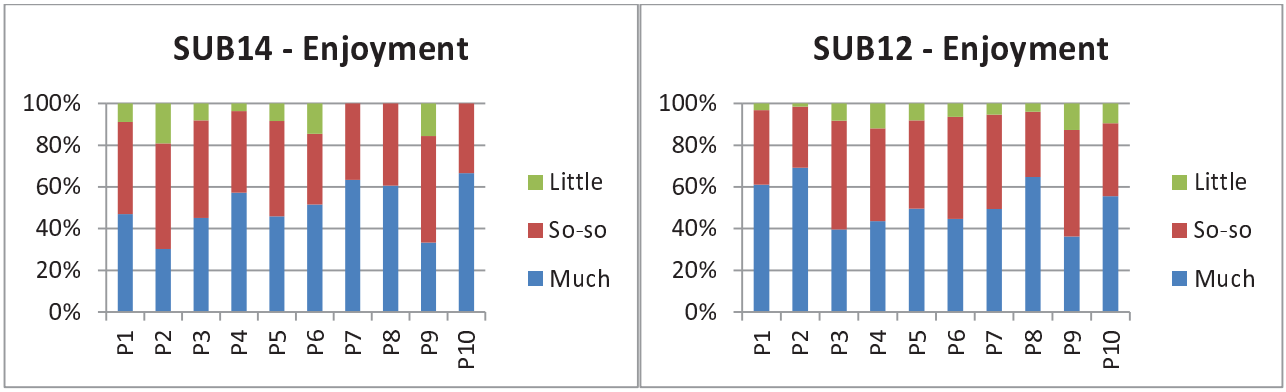

Figure 5. Degree of problem enjoyment reported by participants in SUB12 and SUB14.

Problem 9 in SUB12 is the one that triggered the highest need for help and the one participants enjoyed the least. It was also reported as one of the most difficult problems.

The complexity of this problem may be associated with a smaller degree of enjoyment. Yet, this greater difficulty may also indicate that the challenge was higher and therefore such over-challenge led to lowering the feeling of enjoyment. Problem 9 in SUB14, which is the one with the lowest degree of reported enjoyment, though also associated with the highest help-seeking behavior, does not exhibit such a strong relationship between enjoyment and help-seeking as its SUB12 counterpart.

The overall perceived difficulty of problems exhibits some differences between the leagues. The percentage of participants in SUB14 considering the problems as having median difficulty (54,8%) or being actually difficult (12,46%) is generally higher than that of participants in SUB12 (51,19% and 8,65%, respectively).

By crossing the data about the three affective issues that we consider in this paper – help-seeking behavior, level of enjoyment and perceived degree of difficulty of all the problems throughout the *Qualifying* phase of SUB12 and SUB14, we can identify some trends and some similarities and differences between the two leagues. For example, it is not surprising (it is even expected) to find a positive correlation between finding a problem to be *difficult* and feeling the need to seek *help* (ρ=0,78), as well as a negative correlation, also significant, between finding a problem to be *easy* and searching *help* (ρ= –0,85). This is the case for SUB12.

However, it is not possible to find similar correlations in SUB14. In fact, like in SUB12, finding a problem to be easy and searching for help are correlated negatively but with distinct strength: the relationship is not as strong in SUB14 (ρ= – 0,66) as it is in SUB12 (ρ= – 0,85). But the most striking difference is related to the association of seeking help with finding a problem to be difficult. While in SUB12 the correlation of these two dimensions is significant (ρ= 0,78), in SUB14 we cannot even consider those dimensions to be correlated (ρ= 0,21). Nevertheless, asking for help is welcome among the participants in both SUB12 and SUB14. Asking for help when feeling difficulties in solving the problems is also natural for the younger participants but not really relevant for the older ones.

Our data suggest that, in SUB12, there is a strong positive correlation (ρ=0,91) between *enjoying much* a problem and finding it *easy* and between *enjoying little* a problem and finding it *difficult* though not as strong as the former (ρ=0,88). This latter relationship is even stronger for participants in SUB14 (ρ=0,95). However, for participants in SUB14, finding a problem *easy* is not strongly correlated to *enjoying* it *much* (ρ=0,69). A possible explanation for these situations of strong correlation may be related to the fact that there might exist participants who do not enjoy a problem despite finding it easy to solve – some may even find the problem too easy to bother. Yet, this is not a common situation, at all.

When we consider a median enjoyment of the problems, we find more differences between SUB12 and SUB14. Participants in SUB12 who find the problems of median difficulty tend to enjoy them averagely (ρ=0,67). Yet, those in SUB14 do not make such associations. These correlations seem to indicate that the enjoyment of a problem

tends to be less associated with the easiness in solving it as the age of participants increases. In SUB12, *enjoying much* a problem is positively correlated with *not* feeling the need to *ask for help* (ρ=0,79). However, we do not find a similar situation regarding SUB14. In fact, there is no correlation between enjoying much, averagely or little a problem and needing help from someone to solve it (ρ= –0,41; ρ= 0,45; and ρ= 0,3; respectively).

DISCUSSION AND CONCLUSIONS

As research suggests help seeking is an important matter in any learning context, and even more relevant within an inclusive mathematical competition. In the case of SUB12 and SUB14, participants are explicitly encouraged by the organization to ask for help when facing obstacles in solving the challenges. Our data indicate that participants feel at ease to ask for help to solve the problems. The help provided by the various sources contributes to the participants' success throughout the *Qualifying* phase and their sense of accomplishment; in addition, if positively influences the number and diversity of students who decide to participate in the competition.

There are two main sources of help: teachers and family members. This signals a great family involvement alongside with a presence of the competition in the school environment, reinforcing and extending previously found results (Carreira et al., 2012, 2013). Nevertheless, the significance of family members' assistance is lower in SUB14 in comparison to SUB12. It is very likely that the same teacher is the source of help for a big number of participants – several teachers revealed frequently supporting their students' participation during the competition; thus, this source of help may cover a large number of participants (Carreira et al., 2012, 2013). Further research should follow to better understand how students perceive help seeking according to the different available sources, in particular the very own organization of the competition. This source of help is especially intriguing since it seems to be recognized as such only when participants specifically ask for it (cf. Carreira et al., 2013). Furthermore, participants may not acknowledge the feedback that is always provided as an actual source of help, perhaps because it is offered, not requested. In general, the participants may not perceive the feedback constantly provided by the organization as actual help since such feedback is offered without being requested; it arises as a reaction (and is possibly seen as corrective stance rather than a means to help improving the work already done) to the answer sent by the participants. The fact that all the communication established between the participants and the organization is at a distance may also condition the perception of the organization as a source of help – it is more distant from the participants than other, handier sources.

In general, participants do enjoy the problems of the *Qualifying* phase of the competition. We believe that most of these problems can be considered of moderate challenge (Turner & Meyer, 2004). This seems to resonate with prior studies which indicate that the challenging and competitive nature of activities like SUB12 and SUB14 is associated with a positive affect towards mathematics and developing

problem solving skills (Kenderov et al., 2009). Yet, despite the overall tendency, in relative terms, more participants in SUB12 enjoy much the problems than those in SUB14; at the same time, more participants in SUB14 enjoying little the problems than those in SUB12.

In both leagues, some problems may have been too challenging. For example, problem 9 in SUB12 and problems 2 and 9 in SUB14 stood out as being particularly difficult to solve. These problems were also indicated by the participants as having gathered a lower level of enjoyment. The problems' over-challenge may have lowered the level of enjoyment reported by the participants. Enjoyment may also depend on how participants perceive the value and interest of a problem. If those problems were not perceived as interesting to the eyes of participants, they may have not seen them as challenges, as Schweinle et al. (2013) suggest. In addition, participants may confuse enjoying a problem with reaching (or being able to reach) a solution. This may distort the data collected. Further research with a qualitative approach may help in better understanding these issues.

In general, participants find the problems to be easy or with median difficulty. However, in relative terms, more participants in SUB14 report finding the problems to be difficult or of median difficulty than those in SUB12.

It is possible to find some strong associations among the affective dimensions of participating in the competition considered in this paper. For example, enjoying little a problem is strongly correlated with finding it difficult to solve in both leagues. The correlations that were found among the data seem to meet Turner and Meyer's (2004) suggestions, providing evidence that the problems posed throughout the *Qualifying* phase of SUB12 and SUB14, in general, are challenging mathematical problems and of moderate challenge. They also support the claim that the design of SUB12 and SUB14 is consistent with practices that promote the development of problem solving skills. At the same time, enjoying much a problem is highly associated with finding it easy to solve, especially for participants in SUB12; this association is clearly not as strong for participants in SUB14. The age level of the latter, who are more mature than the former, may explain the differences found, as well as a possible larger experience in participating in the competition on the part of those enrolled in SUB14. This tendency may be related to the increasing maturity of the participants but it may also be due to other factors such as experience in participating in the competition. Indeed, many participants in SUB14 were enrolled in the SUB12 league of the competition and this experience may have taught them that not so easy problems also trigger enjoyment in the problem solving process. Participants in SUB14 may have developed the perception that the feeling of enjoyment in solving problems goes beyond the easiness in that process. Taking this into account, our data corroborates, in general, the connection among the inclusive nature of the competition, the moderate character of the challenges proposed and the positive affect around mathematical problem solving (Freiman & Vézina, 2006).

Finding a problem to be easy is negatively correlated with seeking help to solve it. This relationship is much stronger for SUB12 than for SUB14. On the other hand, finding a problem to be difficult is positively correlated with searching for help in order to solve it but this is so only for participants in SUB12; those in SUB14 do not report this association. Asking for help seems not to diminish the sense of self-efficacy, even when facing more difficult challenges, especially in SUB12.

In SUB12, the problems where the level of enjoyment lowers are precisely those for which participants seek most help. Yet, this is not the case in SUB14: enjoying much a problem is not associated with not feeling the need to search for help. It might well be that, as youngsters grow older, feeling the need to ask for help does not affect the level of enjoyment of the problem in question. The participants' experience in various editions of the competition may also contribute to this perception of enjoyment versus need to seek help.

In this study, although the participants could send several answers to the problems and reply to the mini-questionnaire differently in each submission, we considered only the responses to that instrument concerning the last submitted version of the problems' answers. We recognize that, despite our efforts to provide formative and encouraging feedback to an incorrect or incomplete answer, the very fact of receiving such feedback bears evaluative information as well – the participant is informed about the correctness and comprehensiveness of the submitted answer, and this may change how he or she perceives the problem degree of difficulty or how he or she enjoys solving the problem at hand. Further research should look more carefully to the evolution of responses to the mini-questionnaire when more than one version of the problem answer is involved to shed light into the influence of feedback in those affective issues.

NOTES

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