

Facilitation of the dialogue in the secondary mathematics class

Kyriakos Petakos

Abstract. *The importance of the dialogue in the modern-day mathematics class is generally accepted by everyone involved in the educational process. But there is always a distance between theory and practice. In this article we are going to see how students view this matter and appraise the facilitation of such a dialogue on behalf of the teacher by posing them such a question. The theory of emotion (Ortony et al. 1988) will be employed to construe the provided answers.*

Key words. *Dialogue, facilitation, educational process, the theory of emotion, mathematics.*

Sommario. *L'importanza del dialogo nella classe di matematica moderna è generalmente accettata da tutti coloro che sono coinvolti nel processo educativo. Ma c'è sempre una distanza tra teoria e pratica. In questo articolo consideriamo come gli studenti vedono la questione, come apprezzano il valore del dialogo con l'insegnante e come pongono all'insegnante domande specifiche. La teoria dell'emozione (Ortony et al. 1988) sarà utilizzata per interpretare le risposte fornite.*

Parole chiave. *Dialogo, facilitazione, processo educativo, teoria dell'emozione, matematica.*

Introduction

Taking into account the nature of the journal and its tendency for the applicability of the herein presented works in classroom, I will restrict myself as much as possible to describe the basic tenets, on which the basic model I follow here is supported (Ortony et al. 1988).

By just touching the theory of emotion, I will distinguish the three fundamental tenets, which are objects, events and agents (DiMartino and Zan, 2011, as cited in Petakos, 2020)

- **Objects.** This category includes all variations of the affective reactions of liking and disliking (let us ponder love and hate).
- **Events.** This group encompasses reactions of being pleased and displeased. These reactions are primarily repercussions of how a person construes a situation as desirable or undesirable (here we can refer emotions like joy, hope, fear).
- **Agents.** The dipole of approving and disapproving (pride, shame, admiration, reproach) is included here.

I will try to associate students' answers to a specifically posed question with the three aforementioned factors in an effort to maintain an equilibrium between theory and practice always targeting at the betterment of the teaching performance in mathematics.

The main question

From your experience in Middle school- High school, how could the teacher facilitate the dialogue in the mathematics class? If possible, use at least one of the following expressions: I like/I do not like, I approve/I disapprove, I am pleased/I am not pleased.

This question is posed before first-year students heading for a degree in Hotel Management in the first semester of their studies. I feel it is the appropriate time to look back on their educational past and resister their views on such an effective educational means, the dialogue in the mathematics class.

Students' responses

Student 1

When the teacher gives you just the ladder and does not supervise you how to climb up, when he does not explain the way to climb up and does not supervise you for a time to see if you do it right, then how do they expect to learn something really unknown?

I detect here a tacit disapproval of the teacher, who does not explain how to climb up the ladder. The phrase "he does not explain" engenders suspicions about the shortage of the required dialogue that will undoubtedly shed light on this unknown subject. An intertwined case of actions with events, since the student's articulation registers displeasure with the already extant situation.

Student 2

I like it when the teacher is in the mood to better explain the lesson when kids do not understand it. I like it when the teacher makes successful jokes to lighten the burden of the class.

Here the student repeatedly employs the verb "like", which corresponds as a word of common parlance to the objects' category of the emotion theory. It is instantiated what we all who teach have understood and experienced throughout our teaching years. A weak-student teaching approach, which will surely encompass a special form of dialogue with the students. I do understand that such a process might be construed by some as discrimination policy, as one that stays unaffected by the presence of the talented student.

I assure you this is not the case. This answer is provided by a talented student in mathematics whose preference for a weak-student and humor-based teaching approach is straightforward.

Student 3

The experience I had in the Middle school was quite different from the one in High school. The most basic difference was that in the Middle school there was

bigger eagerness on behalf of the teacher to explain the lesson and make a dialogue on the historical parts of mathematics.

The phrase “bigger eagerness” really encompasses the emotion on behalf of the student. He clearly approves the existence of the dialogue in the mathematics class. He makes it more concrete by referring to the History of Mathematics, which forms, according to what is stated in his answer, the gist of this dialogue. It is to me a clear agents’ demonstration. The teacher as agent of the connection between the past and the present of this scientific branch that bears the name mathematics. As referred by the student,

“On the contrary this eagerness was not extant in High school”

grief is caused when such a dialogue is absent in High school. A clear interest is demonstrated for the root of a problem, before we set out to develop the technique that will finally solve it.

Student 4

In order for a teacher to make easier the transmission of mathematics, she is primarily due to focus on a student-centered lesson, where the educational process presupposes student’s participation and does not include a teacher who makes a monologue.

In a previous answer we encountered the weak-student based approach, which is substituted here for the student-teacher approach. The student here adamantly opposes the one person’s show. He disapproves of this attitude and sublimates student’s participation. It is a reverberation of the actions’ component of our emotional model. Approval of the participation through the means of the dialogue and disapproval of the monologue, a word not really encountered in any other answer. I tend to appreciate the gravity of such an enunciation.

Student 5

It is a fact that the dialogue plays an important role for the student, since through that means she responsibly rebuffs views and is edified to balance and control her vents. At the same time, it is an opportunity to develop a warm and human atmosphere among the students, as well as between the students and the teacher.

This paragraph really provides another dimension of the dialogue in a mathematics class. A rich and powerful vocabulary notwithstanding, I will make an effort to deepen in her insights.

She believes that through the dialogue, the student gains control over her vents, over her reactions. Let us ponder it a little. Not only do the students enunciate their consent or disagreement but they also bridle what they say and orally support. A clear agents’ approach.

In this answer, the word agents are instantiated more since she sticks to the human component of it, students and teachers. In the general emotion theory, I follow the concept of agents is wider so that it can encompass nonhuman entities. Here the student focuses on the reference of students and teachers

“The existence of equivalence between the dialogue participants, in other words between teachers and students”.

She does not abolish discipline, but she requires that an equivalence between the dialogue parts be a priori taken for granted. This inevitably jibes with the modern pedagogical trend of the interchange of the roles between students and teachers. Everybody who teaches has to learn from

her students in the in-class dialogue.

Conclusions

What is really important to me is to not just present the importance of the dialogue in a mathematics class. I had the intention to induce students in a very critical transition period for them, graduating high school and entering college, to articulate and enunciate in their own parlance how to appraise such a dialogue.

I have to admit that I was afraid of a convergence of the majority towards the like/dislike principle, since it is much closer to the everyday used vocabulary. Nevertheless, one answer was objects-centered according to our emotion model and the rest of them centered on the more complicated agents' component.

We have here a new “ladder” of deliberations starting from the weak-student approach, passing to the student-centered approach and ending in an equality-based dialogue, which simultaneously regulates and gauges students' reactions. In my own opinion the same regulation applies as well to the teachers' demeanours. All that emanates from the use of two words from our everyday parlance, “dialogue” and “facilitation”.

So, should we provide students more frequently with opportunities to talk about how the view education? Does this not reveal some dormant aspects of our educational system, on which some light can be shed? I already knew from the beginning of this process that the dialogue is important. The students' answers provide me with answers as to why it is important and how I can appreciate its gravity based on their own words and the existence of an emotion model such that by Ortony (Ortony et al. 1988).

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