

Assessment process in the technical education: how teenager's students show their emotions in challenging situations

Emotions in challenging situations

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Citation

Pinho LS, Mello EMB. Assessment process in the technical education: how teenager's students show their emotions in challenging situations. JONED. Journal of Neuroeducation. 2021; 2(1): 15-21. doi: 10.1344/joned.v2i1.32744

Ethical statement

No empirical data were collected in the context of this paper. I therefore have no ethical statement to make.

Author contributions

These authors contributed equally to this work.

Editor

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Abstract

This article aims to analyze how students' emotions appear in challenging pedagogical situations, more specific periods of evaluations in regular face-to-face classes. The research is characterized as qualitative phenomenological. The data were collected through a semi-structured questionnaire, analyzed according to the Discursive Textual Analysis methodology. The context in which the investigation was carried out is the integrated technical education of a campus of the Federal Farroupilha Institute, a technical education institution in the south of Brazil. The analysis of the data collected showed that in assessment situations, negative emotions such as anxiety, fear, and insecurity predominate. On the other hand, negative emotions may vary, depending on the assessment instrument used, but they are predominantly associated with the evidence. The analysis showed that it is necessary to look for alternatives to minimize the effects of negative emotions on the teaching-learning process, especially about the evaluation process, and to find ways to improve these practices so that they contribute to learning with more quality.

Keywords: Emotions; Assessment; Learning; Teaching; Neuroeducation.

Introduction

Emotions are typical of mental operations in the animal kingdom and, in human beings, “the most complex functions that brain is capable of”¹. These operations may manifest through physiological reactions, provoke changes in cognitive function, regulate behavior and give rise to feelings. The role of emotions in human and animal life is so important, although they are related to process as the homeostatic regulation, that ensures the individual preservation and the cognition that involves among others phenomenon, the learning².

Considering this role of emotion, the neurobiologist Humberto Maturana states, “no hay acción humana sin una emoción que la funde como tal y la haga posible como acto”³. Since the simplest to the most complex emotions, everyone is influenced somehow by our emotions, either positives, as pleasure and well-being or negatives, as fear and anger. Besides, they also work as a signaling that something important is happening⁴, and may determine choices and actions which followed by these occurrences.

In school environment, during teaching-learning process, it is natural that students feel more comfortable in determined moments, and in others feel themselves challenged and overloaded. With a diverse number of curriculum components from different fields of knowledge, it is also possible that for students some subjects are more difficulties than others, or the relationship with the teacher from each of those components are different. There are moments of the class that may be felt in many ways by students: a group dynamic activity or a written test without consultation in their material, for instance. All the elements mentioned involve emotions which, when are positives, may enable the process of learning and have the opposite effect when they are negatives⁵, whereas the emotions are affected by cognitive function as attention and memory.

In 2020, added to the variables that affected teaching and learning, live classes were replaced by remote teaching as a containment measure of SARS-Cov-2 virus. In March of the same year, the World Health Organization (WHO) had declared the pandemic situation of coronavirus before the disease’s dissemination in several countries. In addition, in the same month, Brazil Health Ministry states the virus’ community transmission in the entire country. From

then on, several measures were taken to avoid new contaminations, among them closure of educational institutions, which started the remote teaching, formalized until December 31st, 2020 by Education Ministry through regulation 544/20. This regulation replaced live classes for remote teaching through digital media while SARS-Cov-2 pandemic lasts.

The emergency remote teaching presented many challenges for teachers and students because it was new for most of them. In this education modality, the classes are through the internet, with the same duration of live classes, same contents, and class load. A virtual environment with necessary adaptations replaces the classroom one. Therefore, the students are responsible for organizing their study routines; manage their schedule and deadlines without teacher presence. In this context, there are students who do not have these important elements to their learning, as a suitable and silent environment, high-quality internet connection, and suitable equipment. Thus, existing difficulties in live classes are added by others that appear in remote teaching.

The situations that most generate negative emotions, such as stress, “are those in which the individual thinks he/she is helpless, when he/she encounters difficulties that he/she cannot overcome or thinks are unavoidable”⁶. Thus, we seek, with this research, to answer the following problem: how are the emotions of students of integrated technical education shown in challenging pedagogical situations, such as moments of evaluation? In these situations, the student needs to create strategies to solve problems without the full support of the teacher, to demonstrate that he has reached certain goals stipulated by the teacher.

We seek to answer this question from a phenomenological point of view. The phenomenon, in this perspective, appears in an act of perception of a subject within a certain context⁷. Thus, this study aims to analyze how students’ emotions are shown in challenging pedagogical situations, such as assessment periods in regular classroom classes. In the following sections, the procedures for research and data analysis will be described.

Materials and methods

This investigation started from data of research developed by the Graduate Program Academic master’s in education, at the Federal University of Pampa, lo-

cated in the south of Brazil. The research is dedicated to the study of the relationship between emotion and learning assessment.

The context in which this research was carried out is a campus of the Federal Farroupilha Institute, located in the Rio Grande do Sul, in the south of Brazil. The research was carried out in two integrated technical courses, in which technical education is carried out in an integrated manner with basic education. In these courses, students take all basic high school subjects, in addition to technical subjects focused on the specific area of the course. We will analyze data collected in 2019, during regular classroom classes of the courses.

The participants were teenagers aged between 14 and 17 years old. These students were part of three first-year classes and four second-year classes in the integrated Computer and Administration courses. Of the total of 174 participants, 55% were in the first year and 45% were in the second year.

We characterize this research as qualitative phenomenological⁸. According to the author,

[...] the phenomenon is what itself shows in intuition's act made by a subject contextualized individually, that looks towards what is shown attentively and that perceives what it shows in the modalities by which it is seen in the own soil in which it stands out as a background figure. The figure is delineated as a phenomenon and background carrying the environment in which the phenomenon makes sense itself.⁹

This phenomenon will be observed from what emerges from the discourse of the students participating in the research about our initial question. However, it is not just about describing how emotions are manifested in the situations presented. It is intended to assign meanings to the data and seek to understand how the phenomenon is experienced by the subjects¹⁰.

Data collections

The data collection of this research was made in 2019, during regular classroom classes in the integrated technical courses. This semi-structured questionnaire was delivered to the students in printed form, during a face-to-face class, by the class teacher, who is the researcher herself. The students were free to answer it and did not need to identify

themselves. In the end, 174 students answered the questionnaire.

The instrument contained seven questions, some structured, others free, related to emotions and evaluation. All questions were prepared by the researcher based on specific research objectives previously defined. They were to know the participants' conceptions of evaluation; to know which assessment instruments had already been used in the research context; know the emotions, feelings, sensations, and physical reactions perceived by students during assessments; understand how these emotions interfered with their performance in the proposed evaluation activities.

The questions answered by the students were:

- 1- Which series/year do you attend?
- 2- What does evaluation mean to you?
- 3- Which assessment instruments are/were most used in the curricular components that you are taking or have already taken?
 - Individual written test without consultation
 - Individual written exam with consultation
 - Oral test
 - Individual seminar
 - Group seminar
 - Concept Map
 - Textual production
 - Debate
 - Self-assessment
 - Portfolio
 - Other. Which? _____
- 4- What emotions do you feel when carrying out an assessment when you know you are being assessed?
 - Happiness
 - Sadness
 - Fear
 - Anger
 - Strangeness
 - Frustration
 - Aversion
 - Pain
 - Pleasure
 - Anxiety
 - Admiration
 - Relief
 - Calm
 - Confusion
 - Astonishment
 - Horror

- Interest
- Surprise
- Boredom
- Another. Which? _____

5- Do you feel any of these reactions when performing an assessment?

- Fast heartbeat
- Face contraction
- Tiredness
- Feeling of heaviness in the shoulders
- Will to cry.
- Difficulty concentrating
- Euphoria
- Tremors
- Sweat on hands.
- Pain in the stomach
- Headache
- Memory lapses
- Another. Which? _____

6- Do you notice the same reactions with different assessment tools? Justify.

7- For you, does the evaluation contribute to the improvement of your performance in the teaching/learning process? Justify.

Data Analysis

The methodology of analysis of the collected data was the Discursive Textual Analysis. This is a qualitative analysis methodology that allows you to analyze the data in depth. Different levels of interpretation and latent meanings are considered to “produce new understandings about phenomena and discourses”¹¹.

The Discursive Textual Analysis allows us to find out meanings in complex systems through creativity, self-organization, and its emergent character. Therefore, the analysis will be made in four steps: dismantle the texts, in which the data obtained are fragmented in constituent units; classification of these units into categories, created from meaning realized by the researcher; capitulation of a new emergence that happened when the categories are done. With it, we seek to find a new comprehension of the whole. Finally, the building of a metatext in which the meaning units are described and interpreted.

The data obtained were codified for purposes of answering transcriptions in metatext with capital letter and numbers, which identify questionnaire (Q), student (S), answered question (A) separated by point.

Results and discussions

We will present, in this section, the obtained results from collected data analysis, and we will discuss how students’ emotions are shown themselves in challenging teaching-learning situations, as assessment moments at the beginning of distance teaching. This discussion will be based in Neuroscience point of view, from authors as Cosenza and Guerra, Humberto Maturana, Suzana Herculano-Houzel and Antônio Damásio.

Cosenza and Guerra¹² state that the assessment process may be considered a stressful situation. In addition, the changes in the brain reward system, which happens in the teenage years, let these subjects more susceptible to stress. In this stage “the brain responds to the reason for stress-provoking a bigger increase in blood pressure and cortisol production than in adults and children”¹³. The changes that happened in this system has considerable influence on motivation and welfare feeling; also, may cause disorders, like depression or bipolar disease, which are related to motivation.

From the analysis of the questionnaire responses, it was possible to identify three general categories of responses. The criterion was the concept of evaluation that appears in each of the responses. Thus, we classify students’ views in this way: assessment as verification and/or demonstration of learning and/or knowledge (category 1); evaluation as judgment, test and/or proof - quantitative method of measuring knowledge (category 2); assessment as a time of tension, anxiety, and stress (category 3).

Considering these categories, we expected to find out in collected data negative emotion and physiological responses related to them frequently, what has been confirmed. In the form applied in 2019, which has as aim to relate student’s emotion to assessment moments, we observed that 140 participants (80,5%) answered that they feel anxiety when they were evaluated. In addition to it, answers of fear are stood out (108 answers/ 62,1%), confusion (94 answers/ 54%), frustration (88 answers/ 50,6%) and sadness (46 answers/ 26,4%). Positive emotions, as calm (25 answers/ 14,4%), happiness (11answers / 6,3%) and pleasure (7 answers/ 4%), maybe considered infrequent during assessment processes.

The predominance of negative emotion during assessments was also revealed when students pointed

out the physiological reactions to who they felt when they did it. The more frequent reaction in this group was: difficulty concentrating (122 answers/ 70,9%), fast heartbeats (111 answers/ 64,5%), memory lapses (108 answers/ 62,8%), sweaty hands (97 answers, 56,4%), will cry (92 answers/53,5%), tiredness (79 answers/ 45,9%), headache (75 answers/ 43,6%), tremors (56 answers/ 32,6%) and stomachache (43,25%). Others pointed reactions, which were not among the provided options in the questionnaire, where a feeling of weight on the shoulder (Q1.E18.A5), dissatisfaction with themselves (Q1.E28.P5), loss of the notion of time (Q1.S52.A5), insecurity, insufficiency (Q1.S60.A5), grudging (Q1.S71.A5) and nausea (Q1.S112.A5).

However, considering that question five (A5) were structured, the following question (A6) had the target of clarifying if this reaction was observed in every assessment tool, and the perceptions varied. Some students pointed that not, the reaction varied according to each tool, as we can see in the following answers: "No, some maybe let me comfortable" (Q1.S5.A6); "No, depend on the kind of assessment and sometimes the teacher"(Q1.S6.A6); "No, there is some kind of assessments that are easier" (Q1.S12.A6); "No, when we did schoolwork it is better because I never feel nervous, no pressure" (Q1.S13.A6); "No, but the test is what defines your future if you're going to move on to the next grade or not." (Q1.S28.A6); "No, the test has a higher pressure." (Q1.S31.A6); "I just have anxious crises with tests." (Q1.S75.A6.1); "No, because the reactions depend on the subject and assessment's day also influences it" (Q1.S165.A6).

We realize, from these answers and analysis of other obtained answers, that test is what triggers off more negative emotions in comparison with the rest of the assessment tools mentioned. Luckesi¹⁴ believes that the educational system, in general, is centered on a result that determines if the student will be approved or fail at school. According to the author, "Our scholar pedagogical exercise is crossed more by test' pedagogy than by teaching-learning pedagogy". In this scenario, the main tool used to get quantitative results that determine student promotion in the educational system is a test. According to Luckesi¹⁵, this tool centers on the present moment, it does not consider the student teaching-learning process. It just seeks to identify the problems in the teaching-learning process, and it has a classificato-

ry function. In many cases associated with fear of failure in the grade or do not get the expected colocation.

On the other hand, other students said they feel the same reactions when they do assessments, any kind of assessment tool may be used, as, for instance, in the following answers: "Yes, I don't feel comfortable when I am been evaluated". (Q1.E10.P6); "Yes, because I feel nervous in the same way" (Q1.S35.A6). In some of these answers, it is possible to see that negative emotions are caused by the concern about their performance and the grade resulting from it. "In most of it, yes, I guess because of the grade, we feel afraid of results or when I feel I'm not prepared for the assessment" (Q1.S53.A6); "Yes, I feel bad in everything involves school, I feel insufficient" (Q1.S60.A6); "Yes, when I know that I am been evaluated I'm afraid because I guess I will do bad" (Q1.S162.A6).

In other cases, the assessment moment, for being a moment that students need to show what they learned or that they feel judged, just it is a reason to feel tension, as you may see in these answers: "Yes, just the fact that I realize I am evaluated, let me this way." (Q1.S90.A6); "Yes, by the pressure from the teacher" (Q1.S105.A6). Emotions, as angry, fear, anxiety, and insecurity are related to low self-esteem quite often in answers from students, "it may prejudice the learning because self-concept and self-esteem are the representation of affective evaluation that the person has about your characteristics in a certain moment"¹⁶. Thus, the emotions interfere not just in the learning process, through emotional blocking, but also in the evaluation that students make from themselves, leading them to feel incapable and insufficient.

The tension caused by evaluation affects cognition and learning¹⁷ because it compromises important cognitive functions, like attention and memory. It is what we verify in this answer: "Yes, doesn't matter the kind of assessment, I always forget the content and I feel nervous" (Q1.S112.A6). It may be seen that it is not a favorable context to learning, because "it is important that school environment is planned in a way that mobilizes positive emotions (enthusiasm, curiosity, engagement, challenge), while negatives (anxious, apathy, fear, frustration) should be avoided"¹⁸.

Few students referred to several assessments tool positively, as in the following examples: "Practical

activities interest and reassure me.” (Q1.S96.A6.1); “In some assessments, I am peaceful and confident, it is related to the subject.” (Q1.E98.P6); “Yes, I like the assessments and I am opened to new assessment proposals” (Q1.S108.A6); “No, I often feel calm with some assessment, because I pay attention in the content” (Q1.S143.A6). We verify through these answers, that the affinity for the curricular component is important to assessment moment do not be stressful, as well as prior activity preparation.

We verified, from these answers, that some factors influence the student’s performance and relationship with the assessment. Putting into practice what is studied in class can be a strategy to arouse the student’s interest. In addition, having an affinity with the curricular component is important so that the time of assessment is not stressful. The previous study and the preparation time for the execution of the activity is also a factor that helps the emergence of positive emotions in the process.

Conclusions

The objective of this research was to know how the emotions of students of integrated technical education are shown in challenging pedagogical situations, more specifically moments of evaluation in classroom classes. We observed, through the application of a questionnaire in 2019 that in these situations’ negative emotions such as anxiety, fear, and dissatisfaction predominate.

When it comes to evaluations, these negative emotions were mainly associated with the proof evaluation instrument. In some cases, we realize that emotions vary according to the instrument, but in others, any situation in which students feel evaluated or judged is challenging and stressful. A few students associated assessment with happiness or calm. When this occurred, these emotions were related to good prior preparation or affinity with the discipline.

With this investigation, we signal that it is still necessary to reflect on the relationship that exists

between emotions and the evaluation process. It is important to seek solutions so that the problems arising from the stress associated with the assessment are minimized so that it is a resource to support teaching and learning, and not the other way around.

We also emphasize that, in the current pandemic context of SARS-Cov-2, the challenges for education are good. Previously challenging practices become even more so when there is the distance between students and teachers necessary to contain the spread of the virus. Boaventura de Souza Santos states that:

The pandemic and the quarantine are revealing that alternatives are possible, how society can adapt itself to a new lifestyle when it is necessary and felt as corresponding to the common good. This situation becomes conducive to think in alternatives to the way of life, produce, consume, and cohabit in first years from 21st-century.¹⁹

To think about this new way of living, challenges or difficulties that existed before the current context must be understood and overcome. One of these challenges is to find ways to minimize the existence of negative emotions related to the learning process, making it satisfy and rewarding. Practicing teaching and associated practices that arouse positive emotions can be an important way to improve pedagogical practices in an already so difficult context.

For this reason, we indicate as necessary for future studies an investigation regarding emotions in evaluations carried out in remote emergency teaching. Knowing these emotions in a specific way and comparing them with other contexts can be quite enlightening for teachers who want to improve their teaching practices and be prepared for the new ways of living that Santos talks about.

Limitations

The most important limitation of this study is the impossibility of comparing the results found during classroom and emergency remote teaching.

References

1. Lent R. Cem bilhões de neurônios? Conceitos fundamentais de Neurociência. São Paulo: Editora Atheneu; 2010(2).
2. Ledoux J, Damásio A. Emotions and feelings. In.: Kandel ER, Schwartz JH, Jessell TM, Siegelbaum SA, Hudspeth AJ. Principles of neural science. McGraw-Hill Global Education Holdings; 2014(5).
3. Maturana H. Emociones y lenguaje en educación y política. Madrid: Ediciones Dolmen Ensayo; 2002.
4. Cosenza RM, Guerra LB. Neurociência e educação: como o cérebro aprende. Porto Alegre: Artmed; 2011.
5. Cosenza RM, Guerra LB. Neurociência e educação: como o cérebro aprende. Porto Alegre: Artmed; 2011.
6. Cosenza RM, Guerra LB. Neurociência e educação: como o cérebro aprende. Porto Alegre: Artmed; 2011.
7. Bicudo MAV. Pesquisa qualitativa segundo a visão fenomenológica. São Paulo: Cortez; 2011.
8. Bicudo MAV. Pesquisa qualitativa segundo a visão fenomenológica. São Paulo: Cortez; 2011.
9. Bicudo MAV. Pesquisa qualitativa segundo a visão fenomenológica. São Paulo: Cortez; 2011.
10. Bicudo MAV. Pesquisa qualitativa segundo a visão fenomenológica. São Paulo: Cortez; 2011.
11. Moraes R, Galiuzzi MC. Análise textual discursiva. Ijuí: Editora Unijuí; 2011.
12. Cosenza RM, Guerra LB. Neurociência e educação: como o cérebro aprende. Porto Alegre: Artmed; 2011.
13. Houzel S. O cérebro em transformação. Rio de Janeiro: Objetiva; 2005.
14. Luckesi C. Avaliação da aprendizagem escolar. São Paulo: Cortez; 2005(17).
15. Luckesi C. Avaliação da aprendizagem componente do ato pedagógico. São Paulo: Cortez; 2011.
16. França EB, Diniz C. A influência do afeto no processo de aprendizagem. In.: Velasques B, Ribeiro P. Neurociências e aprendizagem: processos básicos e transtornos. Rio de Janeiro: Rubio; 2014.
17. Ledoux J, Damásio A. Emotions and feelings. In.: Kandel ER, Schwartz JH, Jessell TM, Siegelbaum SA, Hudspeth AJ. Principles of neural science. McGraw-Hill Global Education Holdings; 2014(5).
18. Cosenza RM., Guerra, L. B. Neurociência e educação: como o cérebro aprende. Porto Alegre: Artmed; 2011.
19. Santos BS. A cruel pedagogia do vírus. Coimbra: Almedina; 2020.