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Edited by Simon George Taukeni

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Contributors
Pretty Thandiswa Mpiti, Ayanda Ncokazi, Johanna Vennix, Perry den Brok, Ruurd Taconis, Ricardo Serrado, Laura Di Giunta, Carolina Lunetti, Silvia Pagliarani, Giulia Gliozzo, Chiara Riccioni, Clementina Comitale, Alessia Teresa Virzì, Susan Rovet Polirstok

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Meet the editor

Simon George Taukeni is a professor, author, and editor working at the University of Namibia. He is a former post-doctoral research fellow at the University of Fort Hare, South Africa. Prof. Taukeni is a pioneering researcher in the bio-psychosocial model of health. He serves as a reviewer for *Frontiers of Public Health*, *Frontiers of Psychology*, and the *South African Journal of Education*, among others.

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Preface

This book is an edited volume consisting of five chapters that focus on motivation and success. Motivation and success are complementary physiological factors, and it is a well-established understanding that motivation breeds success.

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- Chapter 1: "An Exploration of Guide's Roles in STEM Outreach Activities: A Contribution to Students' Motivation for Career Aspirations?" by Dr. Vennix Johanna, Prof. Perry den Brok, and Dr. Ruurd Taconis

- Chapter 2: "Critical Evaluation of the Relationship between the Need for Achievement and Entrepreneurship Performance: Risk-Taking Propensity, Entrepreneurial Independence and Motivation" by Dr. Pretty Thandiswa Mpiti and Dr. Ayanda Ncokazi

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Simon George Taukeni
University of Namibia,
Windhoek, Namibia

Section 1

The Lens of Motivation

Chapter 1

An Exploration of Guide's Roles in STEM Outreach Activities: A Contribution to Students' Motivation for Career Aspirations?

Johanna Vennix, Perry den Brok and Ruurd Taconis

Abstract

This explorative study investigated guide's behavior and actions who had an active role in STEM-based (science, technology, engineering, and mathematics) outreach activities in secondary education. In outreach activities, schools and teachers work together with companies and other external institutions in learning activities to motivate students for the STEM domain. In these outreach activities, guides "taught" from a teacher's perspective and at the same time "were a role model" from an ambassador perspective. To observe guides behavior in two different activities, an observation instrument was constructed using both perspectives by conceptualizing a need-supportive behavior with a focus on effective and metacognitive outcomes for students, based on the self-determination theory. In this chapter, our findings and instrument will be described.

Keywords: STEM, outreach, secondary education

1. Introduction

Subjects in science, technology, engineering, and mathematics (STEM) are getting more attention in secondary education, industry, society, and policymaking. From an economical perspective, both knowledge and innovation capacities of (future) employees are key to growth in a sustainable manner [1]. In addition, to meet the sustainability goals set by the United Nations for 2030 [2, 3], technology, knowledge, and innovation are highly needed. This means, on the one hand, a demand for the number of STEM-based jobs and on the other hand an overall understanding of STEM-related topics for all citizens [4].

As known from former studies, fewer students are interested to pursue a STEM-related career [1, 5]. One of the possible factors for not being interested in a science career might lie in school science itself, as it does not always offer students the full picture of what to become and what impact STEM subjects have in daily life (e.g., [1, 6, 7]). In Ref. [8] it is stated, for example, that it is important to show students the connections between different subjects. This gives the students the opportunity to see the relevance and the use of STEM in everyday life [9].

A possible solution to contribute to filling the gap between school science and science as part of society is outreach activities provided by parties outside school, such as companies and higher education institutes. As outreach is a widely used concept, for this study, outreach activities were characterized by three main aspects: 1. active participation of a STEM-based company or higher education institute; 2. guidance during the activity is provided by the company or institute; and 3. a connection is made between school science and the real world of STEM [10]. The main objectives of these activities are about showing context, ways of working, and all kinds of technical possibilities within the world of STEM beyond school science [10]. Therefore, students can see and experience the impact of several STEM applications, and what kind of skills are needed to work in the STEM field. Sometimes, these activities are executed in an out-of-school environment, without grading and subjects of outreach activities, and were mainly context-based. Therefore, these activities can also be seen as structured informal learning environments [11, 12].

Within these activities, the guide appeared a key player, as the person who was organizing and "teaching" the activities and therefore might have an impact on outreach activity characteristics. In our former studies [10, 13, 14], from a student perspective, outreach activities appeared to be promising add-ons for science courses from a motivational and future career preparation point of view. In prior studies, about outreach activities, mostly university outreach programs with students or faculty members as STEM-ambassadors were investigated, in which the providers (i.e., students and faculty members) were trained in communication and content [15]. In other programs, faculty members were trained to educate content to secondary school teachers, to enable the teachers to provide the content [16]. In our study, the key player (guide) was an experienced expert in a STEM profession from industry and used this perspective from which the guide informed students about science content and the (commercial) work environment. The main objective was to inspire and inform students about STEM. STEM teachers are usually not fully aware of current STEM practices in companies and STEM career possibilities or may even have stereotyped career ideas. Hence, company-based STEM ambassadors might fill the gap and can provide career information to inspire students and to show STEM practices possibly enhancing students' enthusiasm and confidence for STEM [17, 18]. Therefore, we propose that the guides' activities can be seen as falling within a combination of two different roles. First, the guide—to a certain extent—acts as a teacher. This role comprises various sub-roles described by various authors [19], of which the sub-roles of content expert, learning facilitator, and possibly "catalyst for change" seem the most relevant for the coach. From this role, guides could also potentially contribute to (twenty-first century) skills that may be important, such as adaptability, complex communications, nonroutine problem-solving, self-management, and systems-thinking [20], as these skills are important in companies to stay in business. Second, guides can be seen as STEM ambassadors; that is, the guide is the personification of the company, their expertise or products, and the way of working [6]. He also represents science careers more generally. In this respect, the guide provides an "exemplary face to the abstract idea or possibility pursuing a science career" and can be a role model for students to identify the career opportunities [21]. Activities within this role may comprise demonstrating the relevance of science in that context, showing and talking about career possibilities, etc. In both these roles (i.e., teacher and ambassador), guides are expected to contribute to the intrinsic motivation of students and to students' awareness of the impact of STEM and willingness to engage in STEM-related future careers. More specifically, using SDT motivation theory,

motivation is assumed to come forth from addressing students' needs for competence, autonomy, and relatedness [22]. As the role of guides in outreach activities has not yet been specifically defined by the field and has not been studied from these two roles yet, this will be an explorative study to investigate guides' behavior during outreach activities from both roles and their added value for students' autonomous motivation.

2. Conceptual framework

In our conceptual framework [13] based on the self-determination theory (SDT), we stated that the outreach learning environment is assumed to be a motivational environment, wherein students' basic needs are satisfied to a certain level (**Figure 1**).

The outreach learning environment differs from a regular school learning environment with respect to tasks, subjects, objectives, locations, context, and the way the guide is organizing and teaching and can be seen as authentic, as the context of STEM determines the task. And the main objective does have focus on exposing students to the meaning of STEM outside school and encouraging students to consider a STEM career. As guides are not responsible for curriculum aspects, such as grading or other cognitive learning outcomes, therefore, motivational, attitudinal, and meta-cognitive outcomes [23] are of interest. The authentic tasks and topics are based on the actual work guides do in their daily life. Therefore, the role of the guides is different and special compared to a teacher's role: The guides in these activities will perform activities from both a teacher's perspective and a STEM-ambassador perspective. In these outreach activities, guides "taught" from a teacher's perspective and at the same time from a STEM ambassadors' perspective. To map guides' behavior and actions, the exploration in this study focused on their activities in the teacher role and/or STEM-ambassador role, which is expected to contribute to creating autonomous motivation based on our previous studies based on self-reported student perceptions [10, 13, 14]. In addition, observational studies exploring, for example, autonomy-supportive teacher behavior are limited and have only been applied to regular educational practices [24–26]. In the next sections, we will define and operationalize observational need satisfaction dimensions from both a teacher perspective and a STEM-ambassador perspective, based on the literature, to create an observation instrument and explore guides' contributions to student motivation for STEM. This instrument is based on the three basic needs based on SDT. All indicators described in the next sections might enhance or frustrate need satisfaction.

2.1 The perspective of the guide as a teacher

2.1.1 Competence support

We confirmed in our former study [13] that students' perceptions of personal relevance in outreach activities were positively associated with autonomous motivation

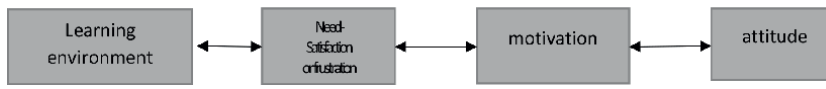

Figure 1.
Conceptual framework.

and negatively associated with controlled motivation. Therefore, the content is characterized by the *relevance*, and it is key for the competence support how guides give examples of *the relevance of their content knowledge and applications in relation to the curriculum*. To enhance learning about STEM, the science curriculum must include connections to the usefulness of abstract content in daily life including the restrictions of real-world applications [6, 12]. Therefore, guides *must shape the activity* by including explanations of complex real-world examples and *relate these* in a logical way to the idealized situations currently taught in the regular curriculum. To support students' feelings of competence further, guides *can provide positive feedback* and clear objectives [27]. In addition, working with and learning about real-life applications connected to students' (school) knowledge can enhance feelings of competence even further as the relevance of STEM is emphasized. Thus, from a teacher's perspective, relevant indicators are a) what typical curriculum domains are used and how these subjects are connected, b) showing the relevance of the curriculum and the connection of the field of guides' expertise to the school curriculum, c) the way the guide structures the activity with a clear objective (i.e., understanding STEM), and d) the way the guide is providing feedback.

2.1.2 Autonomy support

In the study [28], autonomy-supportive (teacher) behavior was positively correlated with students' autonomy-support perceptions, such as offering encouragement, time for student talking, teaching methods giving students the opportunity to make their own decision (*experience practice*), and avoiding controlling language, such as "must" or "have to." This will increase students' involvement. To support students' feelings of autonomy, even more, guides can give them a *rationale for* why they need to know certain content and can take student's perspective [27, 29]. This rationale might be given when a guide is using a *variety of typical curriculum* domains and making the connection between those domains with the context they work with (i.e., *richness*). When a guide is able to connect the context with the impact on students-every-day life, which is connected to students' personal interests, the feelings of autonomy might enhance.

2.1.3 Relatedness

Relational supportive behavior is part of the affective domain, where connections between guides and students are important. As the objective is to show students the possible skills needed for STEM-related jobs, fostering self-insight as part of the activity can be shown by caring, showing respect, enthusiasm, and being responsive to students [22, 30]. The knowledge of the curriculum content that is intertwined with knowledge of how students think about, know, or learn STEM content, and knowledge of the curriculum and content and teaching are assumed to be important for fostering autonomous motivation (i.e., PCK-model) [31]. This means that guides can address students' needs when students are asking questions during the activity, for example, being enthusiastic and encouraging students during activities [28]. In outreach activities, guides do not have an educational training, but mostly they have experience "on the job" and are well motivated to connect to students. Therefore, it is interesting how *guides respond to student questions* about content and the realistic examples shown. Finally, having students experience success and praising them, accordingly, are the important indicators for guides' behavior.

2.2 The perspective of the guide as a STEM ambassador

2.2.1 Competence

Also from an ambassador's perspective, guides might give students positive feedback to enhance students' feelings of competence, by using students' comments that advance the conversation and offering some extra advice during the activity [26]. From the perspective of a STEM or company representative, guides might include explanations of the complexity of real-world examples compared with ideal situations and the presence of more uncertainties and uncontrollable variables. Also, guides might show that how to use science knowledge is determined by social, cultural, and economic values as they are the content experts of applications in STEM. Connections to the company or society that are overtly made, making it easier for students to understand the topics better. Thus, guides who facilitate this border crossing and relevance might enhance students' feelings of competence [12]. Therefore, from the ambassadors' perspective, the structure of the activity will be determined by a work context and thematic based.

2.2.2 Autonomy support

Ratelle et al. [32] stated that autonomy support of adults other than teachers (in our study guides) might contribute to students' motivational resources. In addition, an autonomous supportive guide might compensate students for consequences of the negative effects of a controlling school environment. The expertise of the guide is bringing innovation in terms of authentic examples and context, and, therefore, contributes to the rationale of doing science courses in school. In addition, if guides emphasize value and impact of STEM, showing students that working in STEM gives them the possibility to shape the future and contribute to society in terms of health, happiness, and safety, this will promote confidence and will contribute to the need for competence and autonomy [17, 18]. Therefore, it is interesting to see what authentic contexts were mentioned by guides in relation to STEM, their STEM-based company, the impact of guides' work in STEM on society, and career possibilities (working with others). This can give students the possibility to reconnect their competencies with practical settings and satisfy their need for autonomy [12, 26, 28, 33].

2.2.3 Relatedness

Identifying with professionals helps students to develop a career identity and satisfy the need for relatedness if guides are non-directive and cooperative toward the student. To encourage learning and enthusiasm for STEM, guides might respond to students by sharing their sense of wonder and reflective storytelling, using a combination of facts and emotions [17]. Guides can share their personal interests in STEM and their career choice, and therefore might be a role model. As found by [34], working in collaboration with guides, students in informal settings described their guides as sharing identities. Using the way of working typical at the workplace, using student language to explain, encourage students asking questions, will satisfy the need relatedness. It might be interesting to observe how guides use these aspects during an activity.

Table 1 gives an overview of our conceptualization in terms of indicators of guides' behavior from both perspectives as described in these sections. Guides' might

Motivational need	Indicators	Specified indicators guide as a teacher	Guide as an ambassador
Competence	Objective & structure	• Understanding as objective mentioned and appropriate for the structure of the activity? • Linking activity to (several) curriculum domain(s)	-Interest as objective or showing new views of science and scientists as objective mentioned, and appropriate for the structure of the activity? -Linking activity to a specific company-based context or theme
	Relevance	• Relating content of the activity to curriculum. Connecting concepts to everyday experiences	-Relating the content to daily work and/or societal issues
	Feedback	• Providing positive feedback • for example, well done, good job, very good answer • using students' comments • offering students guidelines or advice to proceed	
Autonomy	Richness & rationale	• Variety of curriculum domains are used, and connected • Explaining the impact of the content for every-day life • Taking student perspective by using students' own phrases and ideas	• Authentic contexts used in relation to STEM or the STEM-based company • Explaining the impact of guides' work on society • Mentioning career possibilities
	Experience practice	• Offering students decision-making opportunities	• Giving the opportunity to experience various authentic tasks
relatedness	Communication	• Enthusiasm about STEM • Encouraging students	• Enthusiasm about his or her work/ company and/or in relation to STEM • Encouraging students to proceed in STEM
		• Giving students experiences of success • Putting effort and energy in the activity, demonstrating commitment	
	Collaboration	• Trying to understand and interpret students' questions about concepts	• Trying to understand and interpret students' questions about applications and working in STEM (career-related issues)

Table 1.
Categorization scheme of guides' behavior and actions by basic needs, indicators of needs, and specified indicators for each need.

support students' feelings of competence, autonomy, and relatedness on the one hand, but can also undermine these feelings on the other hand, if they do not connect to student needs.

3. Research question

We observed the role of guides in two different outreach activities (workshop and guest lesson), to analyze to what extent guides contributed to the possible need satisfaction of participating students. Ideally, guides can meet all the needs (i.e.,

competence, autonomy, and relatedness), with an emphasis on the relevance of the meaning of STEM, and with a clear but distinct way of school science, without a disconnect from school science. On the other hand, it is interesting to observe to what extent guides also undermine students' need satisfaction, by ignoring or depriving certain needs. Therefore, we combined previous data on these activities about perceived student motivation and related factors, such as activity characteristics, with additional data (observations and activity description documents by companies) to generate detailed and in-depth portraits of guides active in two different outreach activities. This helps us to answer the following research question:

What kind of behaviors of guides in two different outreach activities can be observed in terms of autonomy, competence, and relatedness support or undermining?

4. Method

Two activities were selected in the study, where were both representative for the outreach study and could be videotaped without any constraints on safety and technicalities. The activities had a fundamentally different setup and nature, including the role of the guide. The first activity was a workshop ("research-day"). About one hundred students (9–11 grade, N = 105) went to a STEM-based company for a couple of hours to experience *via* several workshops what kind of applications this company was working with. One representative video-taped workshop was analyzed. The other activity was a guest lesson about making liquid crystal displays (LCD) taught by the guide in school for several classes (8–9 grade, N = 86). Four out of six lessons were videotaped, and one lesson was analyzed. Both companies and students were informed about the video-taped observations and asked for permission to use these observations for research purposes only.

In our former studies perceptions of students', teachers and guides of the outreach learning environment were mapped. For both activities, teachers' perceptions were most positive compared to students' and guides perceptions. The workshop learning environment was perceived more positive by students compared to the guides, especially for the personal relevance, uncertainty, innovation, and autonomy support. Both students and guides had comparable perceptions of the guest lesson learning environment. Descriptions of the activities in company documents were used to reveal the intended objective, expectations, and role descriptions. Additional information about the perceived objective was asked for in a questionnaire for students. Also, during the activity, the objective as mentioned by the guides was observed. To determine observable activities of guides, we used indicators as conceptualized in **Table 1**.

4.1 Activities

Guides in two representative activities (a workshop and a guest-lesson) were observed. **Table 2** shows the characteristics and descriptions of these two activities.

4.2 Analyses

The video-taped activities were analyzed using the indicators, based on SDT according to **Table 1**. Each activity was observed several times and coded according to the indicators. After analyzing the separate observed activities, the results

	Activity:	
Characteristic	**Workshop "the piezo-electrical effect"**	**Guest-lesson liquid crystal displays (LCD)**
Teaching method	Three-hour workshops in groups of 6–8 students. Each group was able to attend two different workshops. No teacher presence.	Lecture-based, with interactive experiments. Teacher or teacher assistant present.
Objective	To influence students for choosing STEM-courses in high school by showing "the fun and unexpected aspects of technology" (source company report). Guides do so by explaining their subject.	New views of STEM and scientists
Context	Company-based	Company-based
Location	Out-of-school, partly with own classmates in a STEM-based company (R&D department)	In-school, in their own classroom
Selection	Yes, some of the students were selected by their teacher.	no
Frequency	Every year for schools in the area	Schools can book the activity every year.
development	Guides from the company with advice from teachers	Guides from the company with advice from teachers
guidance	2 guides per group (Alfred and Jacob), most of the time no presence of the teacher. Both guides had some former experience, but no educational background or additional training.	2 guides were present, one as the main presenter, the other to help with the experiment and the materials and both told something about their background in STEM.
Main structure	Science concepts were explained and used in one of the applications of both the company and daily life, and students were allowed to use company devices and examples of applications during the workshops. The workshop was based on the application of the piezo-electrical element (source: company description of activity and observations).	Explanation of the concept, the experiment and explanation of applications. In this lesson, these components alternated during the whole lesson.

Table 2.
Activity characteristics of selected and video-taped activities.

were combined with other data sources in a data display matrix to make an overview of the main results per data source for each guide. The focus of this matrix was to provide structured input for a portrait description of the role of the guide and his/her effect on students. Guide portraits were developed structured in two main components: background (based on descriptions, mapped perceptions, and observations) and behavior (based on observations). Finally, a cross-case analysis was conducted by systematically comparing the two guides with each other to

find patterns. The two guide roles were compared by using both the data display and the portraits. The reliability of the questionnaires (used to map the perceptions) was established in our former studies. The use of representative quotes from interviews and examples from video observations also supports the reliability of our portrait analysis [34].

5. Results

What kind of behaviors of guides in two different outreach activities can be observed in terms of autonomy, competence, and relatedness support or undermining?

5.1 Alfred and Jacob (Workshop)

Students' perceptions of the objective of this activity showed that 17% of the students thought that they learned just some other STEM topic, and 37% of the students thought it was to show them some new STEM applications, 18% it was for career counseling, and almost 25% did not know or thought it was to interest them. The guides did not mention an overall objective. A short description of the structure of the activity can be found in **Table 2**.

5.2 Competence supportive behavior

5.2.1 Objective and structure

At the start of the workshop, Alfred started with the explanation of how to do research: "doing research starts with understanding how things work." And he used reversed engineering by demolishing a simple gas lighter, so students should find the piezo-electrical element. During the explanation of the science behind this piezo-electrical element, many concepts were mentioned in only 8 minutes. As mentioned by Alfred as: "I figured out you need a small crash-course about chemistry first, to understand this application." During the second part of the activity, a second guide, Jacob, joined the workshop. They were changing roles constantly: One of them explained and the other assisted, although Alfred did most of the explanations. All concepts explained were linked to both the chemistry and physics curriculum, and were used in a context-based approach. This context approach together with the density of concepts was relatively new to students. Therefore, both Alfred and Jacob were challenged to stay on page with the students. For example, at the end of the piezo-electrical effect workshop, a student asked "why do you need this material anyway (i.e., piezo-electrical material)" and this student did not realize that this material was needed due to restrictions mentioned by Alfred in the second part of the activity, and therefore was the essence of the workshop.

Alfred's' behavior as seen from the teacher role was undermining students' feelings of competence. He tried to explain too many concepts in a relatively short timeslot, resulting in several storylines that were not always easy to understand in full by students. On the other hand, Alfred and Jacob used a theme (i.e., piezo-electric material) to connect all the activities and therefore, the activity was well-structured, and the structure of the workshop fitted the objective of the activity.

5.2.2 Relevance

During the workshop, many examples for the use of a piezo-electrical element were mentioned and demonstrated by Alfred, such as a post card with music, electrical guitar, and other examples from students' daily life. In the last part of the activity, both Alfred and Jacob explained about more complex-company applications (i.e., nebulizer and catheter), with the same material within the healthcare domain. Although the connections between curriculum concepts with everyday experiences and contexts were made, the link with daily work was not mentioned. Alfred did mention that when you are working at a company, just understanding how certain material works is not enough, you have to make something with it "That is interesting, but what can we do with this (i.e., piezo electrical material)? What is the practical use? We are working at a company....."

5.2.3 Providing (positive) feedback

This way of doing research was new for students. For the initial question "who knows where the flame originates from," students answers were not correct. Alfred's feedback was: "that it is a good explanation but not applicable for these...." Students were constantly encouraged during this hands-on activity to try and find the element they were looking for, by giving advice. Also, when asking questions Alfred encouraged students to answer and gave positive feedback when students tried to answer these questions. "Very good answer" and "can you come up with all possible differences between these objects, just start." Despite this positive attitude, the amount of time for students to think was limited.

Table 3 gives an overview of all need supportive or undermining guide behavior.

5.3 Autonomy supportive behavior

5.3.1 Richness and rationale

Alfred started with an example close from the daily life of the students (gas lighter). During the experiment, students were free to join, interact, and choose how to proceed. Next, Alfred explained concepts needed for understanding the element he wanted to focus on. This was a thematic approach, and as a result, the concepts were connected. Alfred verified regularly if students knew certain concepts. For example: "who knows what an ion is?" Later on, examples of work and company-applications were mentioned. Alfred explained what the company works on (i.e., crystal structure of a piezo-electrical material): "we did research on this material in our group." And why this is important: "we work at a company, so what is the practical use of this material?" Both the ultrasound and the nebulizer in the healthcare domain were mentioned as important products, and Jacob explained in general terms that this was his work. He did not work in a group doing research at this material, but in a group were micro-technologists' work. "Our main objective is to make things small and energy-efficient (in the healthcare domain)." Although both the impact of the applications (a nebulizer for people with cystic fibrosis) and the work and challenges were mentioned by Alfred, the interaction between students and Alfred was less frequent than in the first part of the activity and the reaction of Alfred to answers of students turned into a more controlling wording, without using students' input of ideas.

Motivational need	Indicators	Specified indicators guide as a teacher	Guide as an ambassador
Competence	Objective & structure	• Explanation of a concept and its applications fitted the structure of the activity • Several links with curriculum domains were made, sometimes too difficult for students	• The theme was clear
	Relevance	• The content was connected to the theme, but too many storylines • Several everyday examples were given	• No direct links with work were mentioned, but the use of a characteristic material in the perspective of a company was clearly mentioned
	Feedback	• Alfred used only general positive feedback, such as "well-done" or "good job."	
Autonomy	Richness & rationale	• A wide variety of concepts was mentioned, the connection was not always clear to students. • The use of the material in every-day life was given • Taking student perspective not observed	• Many authentic contexts were mentioned. • The impact of applications guides worked on was clear • No career possibilities were mentioned
	Experience practice	• Students were free to join and pick a way of working during the experiment	• The start of the activity was an example of how guides usually work
relatedness	Communication	• Enthusiasm about STEM • Encouraging students during experiment	
		• Giving students experiences of success during the experiment • Putting effort and energy in the activity	
	Collaboration	• Trying to understand students' questions, but not verifying if an answer was sufficient	

Table 3.
Specified descriptions of guide's behavior and action for all needs.

5.3.2 Experience practice

The experiment Alfred started with was derived from the way of working used in his daily work. During the workshop, Alfred let the students work together in small groups using re-engineering as an example of a common way of working in a STEM-based company to understand how things are working and how to improve these. Jacob (the second guide) joined the workshop as well, which was also an example of how people in a STEM-based company work together. During explaining concepts and contexts, one of them explained and the other demonstrated. Although this activity took place at the facility of the STEM-based company, the students were in a small room, and the workshop could have been provided at any location. **Table 3** gives an overview of all need supportive and undermining behavior.

5.4 Relatedness supportive behavior

5.4.1 Communication

Both Alfred and Jacob put a lot of effort and energy to show a diversity of examples, such as playing a guitar and showing the postcard with music (and demolish it to show the element in it). Joking: "we can do this; the company made some profits last year" as an indication of showing their work culture. When Alfred was explaining he was very enthusiastic, and as a result students reacted positively, with laughter and interest. In addition, Alfred told something about his personal life: He used an electrical fence to get rid of cats in his backyard he did not like. Students reacted as they found it a bit cruel. Later, he told something about the group he worked in and what kind of project he was involved. Furthermore, he encouraged students during the experiment to figure out themselves how to proceed, and let the students experience success when they found the little piezo-material. In addition, when he explained that what they were doing was re-engineering, a girl reacted: "I have three brothers who are in engineering." Alfred's reaction: "now it is your turn" as an indication of showing interest in the student and encouragement.

5.4.2 Collaboration

When Alfred asked a question (about STEM and applications), he encouraged students to come up with some answers and always reacted positively: "good answer," but did not rephrase any of the answers nor checked if students were satisfied or understood the answer. Despite his enthusiasm, Alfred was not always able to connect and be on the same level of the students.

Table 3 gives an overview of all need supportive and undermining behavior.

5.5 Fred and Anna (Guest lesson)

In this activity, students had to make a one-pixel liquid crystal display as an illustration of liquid crystal display (LCD)material. Overall, students' perceptions of the objective of this activity made *via* a questionnaire showed that 17% of the students thought it was to interest them, 14% thought it was to inform them, 42% to learn something or doing an experiment, and 25% of the students thought it was meant to be just some other content and learning about STEM.

5.6 Competence supportive behavior

5.6.1 Objective and structure

At the start of the guest lesson, Fred told they were representatives from an organization that had the main goal to connect technology with youth. Later, Anna mentioned they worked for a specific STEM-based company, but they were not present to promote this company. Fred was giving the objective: "We work as engineers ..... and we hope we can give you an impression of what working in engineering means, so you have some extra information for your future...and the choices you are going to make for your courses in your senior years of high school." One of his questions was: "who knows already what kind of profession you are thinking of?" (a lot of students responded with a variety of possibilities, including STEM careers). During the lesson

though, students were learning about concepts, such as polymers and liquid crystals, and applications of LCD's in between students worked on a small (sheet-guided) experiment. During the experiment, both Anna and Fred walked around to provide materials and to answer questions. The waiting time needed for this experiment was used to explain the next step of the making process.

5.6.2 Relevance

The theme of the lesson was LCD, and the concepts mentioned by the guide were not part of the curriculum for this age group. Only the concept of polymers is part of the curriculum in senior courses. Several analogies were used to connect to the curriculum. For example, mixing oil and water and say something about transparency. Many daily examples of polymerization were described (i.e., the fillings dentists use), and Fred used previous experiences teaching this guest lesson: "I also learned an example from some other students during a former lesson: you are doing something somewhere and keep it under blue light and it hardens" Student: "ah nail polish!" Fred: "So it is not only a theoretical story, someone discovered something, but you will come this across any were."

5.6.3 Providing (positive) feedback

Although most of the lesson time (two third) was filled with explaining concepts, applications, and the experiment, Fred and Anna asked questions throughout the lesson during the explanations, such as: "Who knows…?, Anyone playing hockey? And what kind of stick are you using? Can you come up with even more possibilities? I know it is hard." After student answers, Fred's and Anna's reaction was in general positive, such as: "very well, good job." Student contributions to the discussions were welcomed but were not employed to advance the discussion. At the end: "it is nice to see that they (LCD) work with many people. So, points for you, very well done!"

5.7 Autonomy supportive behavior

5.7.1 Richness and rationale

During the introduction, Fred told the students: "this lesson is about an experiment, and you do not have to be prepared for this nor will be tested." In addition, Fred said that they wanted to introduce some engineering to students to show what it entails to support students' future choices, but also "It is ok if you think this is not for me. That's fine." Two main concepts were used by Fred, which were just partly curriculum content. Although content about polymers students might not be familiar with yet part of this domain will be explained in senior courses. Other concepts will not be explained in high school courses at all. Therefore, the activity subject was an authentic context, LCD, what is used by Fred's and Anna's company in a variety of applications. Although not all applications were made by the company, many examples from students' daily life were touched upon, to show the variety and the impact of LCD in real life. In addition, Fred explained all aspects of LCD, how it worked, all sorts of application, and parts of the production and why the production took place in another country. "the factory is about eight soccer fields." Despite the authentic context and the connection with the company, Fred did explain just in generalities about his job: "I have worked on several things, including LCD's. It was just one of his jobs within the company."

5.7.2 Experience practice

The lesson was indicated by Fred as an interactive experiment. The students had a guided description of the experiment, and it was an illustration what Fred and Anna just explained. In addition, it was also a model to show that students had to work precisely and clean. During the experiment, students had to figure out themselves on what side of the glass the conductive layer was. Fred and Anna did not check if students had found the right side, only helped students who had questions. Anna

Motivational need	**Indicators**	**Specified indicators guide as a teacher**	**Guide as an ambassador**
Competence	Objective & structure	• Some links with curriculum domains were made, that were not yet familiar for students	• Some STEM applications with the objective to interest students shown. The activity was mainly about concepts, the structure did not fit completely with objective. • The theme was clear
	Relevance	• The content was connected to the theme • Several everyday examples were given	• Thinking about applications not developed yet. • Use of a characteristic material in the perspective of a company
	Feedback	• Only general positive feedback given, such as well done or good job. In addition, all students complimented at the end of the activity.	
Autonomy	Richness & rationale	• A small number of curriculum domains were mentioned, and some topics were not part of the curriculum. • The use of the material in every-day life was given. • Taking student perspective was not observed.	• Many authentic contexts were mentioned. • The impact of applications guides worked on was clear. • No career possibilities were mentioned.
	Experience practice	• Although it was a guided experiment, students were free to pick a way of working during the experiment.	• No opportunity for authentic tasks or daily work aspects
relatedness	Communication	• -Enthusiasm about STEM • Encouraging students during experiment	• Guides were enthusiastic about their work
		• Giving students experiences of success • Putting effort and energy in the activity	
	Collaboration	• Trying to understand students' questions, but did not verify if an answer was sufficient	

Table 4.
Specified descriptions of guide's behavior and action for all needs for the guest-lesson.

indicated that it was important to brainstorm about more possibilities and also showed an application that was not yet developed: "who can come up with an example that does not exist at this time?."

5.8 Relatedness supportive behavior

5.8.1 Communication

Fred encouraged students to think about their choices for the future, that it is important and made clear this is one of the possibilities for their future of many out there. Fred did explain why he choose for his studies and what he liked about electrical engineering (i.e., visiting science centers). Anna told something about her own choices, and that she liked engineering and the human side of it (she worked with human interfaces daily). "Especially for the girls, do not think that engineering is only for nerds. Yes, they exist, but I work in engineering as well and I do not consider myself as a nerd. Actually, I am an engineer."

5.8.2 Collaboration

Although both Fred and Anna took time after asking questions to students, and encouraged students to come with their answers, they hardly rephrased any of the answers to try to understand what students meant. One conversation about two different bullet proof vests (as an example of plastic use) was about arguments why certain products were the way they are. **Table 4** gives an overview of all need supportive and undermining behavior.

6. Conclusion and discussion

In our view, the findings have given some interesting insights into not only the need supportive behavior of guides during outreach activities, but also the need frustration. This might be of general value for recruiting and training guides for outreach activities, and to enhance students' attitude toward STEM and considering pursuing a possible career in STEM by fulfilling students' basic needs during outreach activities, which makes STEM-education more versatile.

First, we were able to construct an observation framework by conceptualizing need supportive behavior of guides (i.e., guest teachers, without any educational background) for activities with a focus on affective and metacognitive outcomes. Concerning the framework, we can conclude that it enabled us to describe need supportive or undermining guide behavior and actions. This framework might be used on forehand to provide guidance for guides who want to develop or optimize an outreach activity and enhance their provision of need support.

Second, for both activities observed, guides supported all needs, although some behaviors also undermined them at the same time. For example, showing relevance might help students on the one hand and frustrate their needs on the other hand as guides might overdo the number of examples. From a teacher perspective, some co-creation with teachers might help. Overall, guides were successful from an ambassador perspective, by adding several aspects of personal relevance and impact of applications on daily life, as such outreach activities might contribute to enhancement of students' autonomous motivation for STEM. Nevertheless, some aspects of guide

behavior still need attention. For example, feedback might be more focused, students' remarks can be taken up to include in and boost the discussion, thus rewarding the students' comments. Interaction between guide and student can be increased, and care should be taken not to introduce too many concepts as to foster the need of competence (Reeve, 2016). In addition, clarity about the objective that suited the structure of the activity was not in all cases observed, which might undermine the feelings of competence. It is important for guides to be clear in what the objective of an activity is and also check it not only with students, but also with their teachers. According to SDT theory, clarity and autonomy supportive behavior will lead to higher autonomous motivation among the students [35].

Third, although in both activities guides took an ambassador role, just generalities were told about the company work, STEM, or interest of a company and no career possibilities were shown. Personal stories were shared about why guides were interested in STEM-based work. For example, by telling something about personal use of STEM, or by their educational background. In addition, they put a lot of effort, energy, and enthusiasm in the activity, but did not always connect to the students or understood what students asked. The need for relatedness might be undermined for some students [26].

Fourth, guides strongly emphasized relevance and rationale, both from a company perspective and a science perspective. Both relevance and rationale are important to satisfy the need for autonomy, if this fits the structure of the activity and students believe it is meaningful for them [35]. Both relevance and rationale were present, but the complexity of the contexts might be too much for students who are insecure or sensitive for interaction with guides [14].

Finally, the outreach learning environments showed several aspects of a context-based learning environment, according to a vision that looks at science from societal situational perspectives [36]. In these activities, both themes or contexts and relevance were leading. Students were introduced to realistic science aspects, although cognitive outcomes were not the main objective, rather affective, (i.e., valuing relevance) and meta-cognitive (i.e., challenging students to reflect on future possibilities). This emphasis is also the main challenge in outreach activities, and as guides used specific complex concepts to show the possibilities of STEM, students still needed to have a sense of understanding. In this explorative study, only two activities were investigated, with an explorative framework. We used our framework for two activities to explore guides' behavior and construct the portraits of guides. To elaborate and generalize this framework, more activities need to be mapped with our observation scheme to refine some of the categories. More details from students and guides are needed to analyze an activity in-depth. Interview data from both students and guides can help validating the observational framework. These can shed more light on the connection between school curriculum and activities. In this study, we investigated guides' behavior in specific outreach activities. Although we tried to create a complete list of need-supportive indicators, there might be more behaviors during activities that emphasize motivation for STEM that we did not include. Therefore, more activities might be mapped with this instrument. In addition, the instrument might be used for new guides in outreach to prepare and to create more awareness for supportive motivational behavior. As a result, this instrument might be used in the context of professional development to assist guides and teachers in becoming more aware of aspects that might be critical to enhance students' autonomous motivation [28]. The outreach learning environment is unique and authentic and has several aspects of context-based education. These aspects seemed to be potential in

enhancing students' autonomous motivation and their attitudes toward implications of STEM in daily life. Therefore, it is important to explore outreach activities more in depth.

Author details

Johanna Vennix[1*], Perry den Brok[2] and Ruurd Taconis[1]

1 Eindhoven School of Education, Eindhoven University of Technology, Eindhoven, The Netherlands

2 Education and Learning Science, Wageningen University and Research, Wageningen, The Netherlands

*Address all correspondence to: j.vennix@tue.nl

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Chapter 2

Critical Evaluation of the Relationship between the Need for Achievement and Entrepreneurship Performance: Risk-Taking Propensity, Entrepreneurial Independence and Motivation

Ayanda Ncokazi and Pretty Thandiswa Mpiti

Abstract

To understand and explain entrepreneurial behaviour in businesses, previous studies observed economic factors, but the little emphasis was placed on the value of the entrepreneur as an individual in the business venture itself. However, it was an oversight to disregard the individuality of the entrepreneur's personality and motivation for being an entrepreneur. Against this background, the study aimed to evaluate the relationship between the need for achievement and entrepreneurial performance thereby looking at some personality traits (risk-taking propensity, independence and motivation) of entrepreneurs in the Chris Hani District Municipality. The need for achievement as a personality characteristic was evaluated with the other characteristics. This literature suggests that the need for achievement could influence entrepreneurial performance. The study employed a descriptive research paradigm, and a stratified sampling technique was used to collect data from the participants. Data were collected using a questionnaire that was administered to 108 small- and medium-sized enterprise owners and managers in the Chris Hani District Municipality. The findings of this study indicated that the need for achievement has the potential to enhance entrepreneurship performance. Moreover, this study found that risk-taking, independence and motivation are the major components of the need for achievement as they serve as predictors of entrepreneurial success.

Keywords: need for achievement, risk-taking propensity: Entrepreneurial independence, entrepreneurship motivation, entrepreneurial behaviour, entrepreneurial performance, entrepreneurial success, locus of control

1. Introduction

Entrepreneurs are a dominant factor in an economy. They are creative and innovative, which bring about change, growth and wealth in the economy. They also re-energise economies, thereby creating jobs. Countries with a vibrant small and medium enterprise (SME) sector are said to have a low rate of unemployment with their gross domestic product (GDP) continuing to rise rapidly International Council for Small Business [1]. The Global Entrepreneurship Monitor stated that the Indonesian economy saw a decrease in the unemployment rate between 2011 and 2014. This decline was because of its healthy SME environment, which created more jobs in the same period [2]. In addition, 90% of GDP came from the SME sector. This is the reason why entrepreneurship has been receiving increased attention from both scholars and the public press; this is based on the contribution that entrepreneurship brings to economies. Abor and Quartey [3] state that SMEs contributed to about 91% of the formal business entities in South Africa, which accounts for approximately between 52 and 57% of the GDP and a further 61% of employer contribution.

Similarly, in Kenya, the small, medium and micro enterprises (SMME) sector comprises 98% of all businesses in the country, employing more than 4.6 million people, and accounts for 18.4% of the country's GDP [4]. These findings on the SMME sector tended to focus on entrepreneurial activities, which are the entrepreneurship opportunities, and not on how the success came about, which is the entrepreneurial behaviour. Zayadin [5] states that there is doubt about the contribution and importance of entrepreneurship in economic development although it has been extensively studied in the recent years. Similarly, entrepreneurship plays a big role in the SME sector and is central to the growth of their business. Therefore, decisions in this sector depend solely on the so-called human factors, the personal characteristics of the entrepreneurs. However, to take advantage of opportunities is neither a self-evident indication nor a matter of chance, but is a result of clear, positively motivated business intentions and actions on the part of the entrepreneur, driven by the belief that they can produce the desired outcomes [6].

Given the importance of entrepreneur success in South Africa, the Chris Hani District Municipality (CHDM) provided funding to small businesses across the CHDM district to assist them in expanding their business footprint and to further enhancing local economic development. These grants were awarded to several selected business owners based on applications that met the set criteria. The main objective of the CHDM grants was to empower entrepreneurs, ensure the creation of sustainable enterprise development, contribute toward job creation and assist in advancing the regional economy. CHDM received more than 300 applications for these grants and 54 enterprises got selected [1]. An important employment trend in CHDM is that household employment, as well as self-employed people, surpasses both the national and provincial averages (57, 37 and 51%, respectively) thus requiring that concerted efforts be put in place with a view to addressing the unemployment challenges besetting the district [1].

In economic theory, growth is viewed as a natural phenomenon that occurs until profit is maximised; nevertheless, not all SME owners want to grow their businesses to maximise profit [7]. Some entrepreneurs are determined to grow their businesses into larger businesses and attain substantial growth because they are motivated and have a drive. Thus, to be motivated is a constant need. Motivation is defined as an internal drive that activates behaviour and gives it direction [8]. Motivation is generally regarded as the drive to achieve targets and the process to maintain the drive.

The theory of motivation by McClelland [9] provides a better understanding of the link between the need for achievement (N-Ach) as a personal trait and entrepreneurial activity [10]. It is believed that individuals with an achievement need that is high easily find themselves in entrepreneurship and this leads to a high success rate [11]. These individuals by nature are high achievers; they set goals for themselves, they are opportunity seekers and they find comfort by achieving targets goals that are challenging but not beyond their capabilities. Therefore, it is imperative to understand N-Ach as one of the entrepreneurship traits that motivate entrepreneurs to start a business venture and to strive for survival in their businesses. It is thus important to focus this study on the need for achievement to improve the service performance of entrepreneurs in the Chris Hani District, Eastern Cape.

2. Literature review

Entrepreneurship has become popular and a researched area in the recent years. Thaief and Mudalifah [12] conducted a study on the influence of LOC, N-Ach and entrepreneurial intention. The results of their study showed that the LOC of students makes their entrepreneurial intention stronger, and as a result, it affects their N-Ach to pursue or achieve their goals and targets. A study conducted by Chavez [13] found that entrepreneurs tend to have a high N-Ach compared with non-entrepreneurs. On the other hand, the psychology of individuals as measures of success through satisfaction, feeling of gratitude and preparedness is a major personal characteristic of entrepreneurs. According to Gorgievski and Stephan [14], the power and strengths are embedded deep within the psychology of individual entrepreneurs. Entrepreneurs understand that success is not only in monetary value but is also perceived psychologically. The personal characteristics of entrepreneurs are not limited to the ones discussed above, but due to the scope of this research, the researcher will limit the discussion to the ones discussed; the same characteristics will be further discussed in detail below.

2.1 Entrepreneurial need for achievement

Entrepreneurs are viewed as people who are guided by N-Ach, which is a drive to excel, advance and grow. McClelland [15] stressed that the most important factor for an entrepreneur is achievement orientation. Entrepreneurs are people who believe in success, and it is understood that not everyone who pursues entrepreneurship can succeed, but the motive is to succeed in the business. Success in any business venture comes only to those who are persistent and believe in achieving the goals. In a study that comprised 700 business students in one university in the United Arab Emirates, the personality dimensions of individualism/collectivism as well as introversion/extraversion, alongside N-Ach, were examined to check their relative effects on entrepreneurial potential. The findings indicated that N-Ach (as a measure of motivation) is the most significant determinant of entrepreneurial potential [10]. This supports the idea that people who are high in N-Ach are more likely to have higher levels of entrepreneurial potential as an indication of their capacity and desire to engage in entrepreneurial activities.

According to Adesanya [16], external incentives have the potential to motivate entrepreneurs to be committed and to set goals that will yield good results and see the business grow. Incentives like financial support either from the private sector or from

government subsidies can attract individuals to enter the field of entrepreneurship and succeed in business. In addition, the government tax cut for certain categories of small business enterprises (SMEs) is meant to motivate the entrepreneurs to grow their businesses thereby bringing more innovative ideas that will make the entrepreneurs succeed in their entrepreneurial ventures [17]. Incentives can be generally understood as the influential factor and a motivator for entrepreneurship success since they make the entrepreneur commit more energy and time to grow the venture and also set goals that would be achievable to them.

2.2 Risk-taking and service performance

The question of why some entrepreneurs do not succeed with their businesses, while others do survive is one basic concern of entrepreneurial scholars nowadays. When starting entrepreneurial ventures based on discoveries and innovations entail a great deal of risk. In new businesses that pursue unexplored business opportunities with the intent of achieving substantial growth and above-average performance, the risk is an inescapable reality [6]. According to the trait approach, one characteristic an entrepreneur should have is the ability to take risks. Chimucheka et al. [18] suggested that the trait of risk-taking, along with creativity and flexibility, is a better indicator of the likelihood of starting a business than is achievement motivation. Taking risks is an inherent element to entrepreneurship, given the effect, it has on the constraining resources of the individual. Risk-taking involves acting, despite uncertainty or the presence of competitive threats. Risk-taking would take into account all of the resources that the entrepreneur or organisation would be willing to risk while pursuing this opportunity, such as profit, time and other less apparent opportunity costs [19].

A risk is an uncertain event that if it occurs, may either have a substantial positive or negative effect on a person. Therefore, the degree of risk on a person's work-life may differ, but no one can be identified and specified as a person working in a risk-free environment. Similarly, the work-life of entrepreneurs is also faced with different types of risks. As defined by Erasmus et al. [20], entrepreneurship is "the process of taking a risk and converting it into profit." This definition simply suggests that risk-taking is the prime and important characteristic of entrepreneurship. Risk and entrepreneurship have a positive and very significant relationship. Without taking risk, there is no business, starting a business or for a business to commence, requires risk-taking from the side of the entrepreneur who is willing to even lose where profits are not made. Rishipal [21] argued that for the successful establishment, conduction and management of the business, an entrepreneur should be adaptive to risk. Risk adaptiveness is a mental state of the effectiveness and capability of an entrepreneur, which is rationally affected by the resulting negative elements of risk-taking, such as fear, excitement, uncertainty, insecurity, danger, threat, pressure and expectations for loss [21].

Risk-taking as a trait of entrepreneurs emphasises that individuals with high needs for achievement would have reasonable tendencies to take the risk [9]. However, the literature on entrepreneurship claims that the entrepreneurial process is usually undertaken under high uncertainty. Thus, entrepreneurs are expected to accept higher risks. Therefore, a lack of agreement on the nature of risk-taking is observed in the scientific literature [22]. Several meta-analyses are related to personality traits in the entrepreneurship domain [23, 24], and several studies aiming to disclose differences between entrepreneurs and managers [25] or employees investigated

risk-taking. However, conducted research provided mixed results and in many cases did not differentiate between entrepreneurs and other population groups.

2.3 Psychological capital of entrepreneurs

Linked to service performance is the aspect of a modern entrepreneurial mindset of job satisfaction, which then expresses the positive attitude of the entrepreneur about their business. Mokoena and Dhurup [26] ascertained that job satisfaction has a positive relationship with efficiency, performance and organisational commitment. Similarly, job satisfaction could be generalised as being associated with the positive mood and positive psychology of the entrepreneur. The psychological capital (PsyCap) is a structure that includes positive outcomes, in both personal and organisational levels, and improves human performance [27]. PsyCap relates positively to work performance, desired psychological outcomes and the general well-being of humans and in this case entrepreneurs [28]. The most recent empirical evidence in an entrepreneurship study shows a positive relationship, specifically between PsyCap and satisfaction among entrepreneurs [29].

In theory-based research, PsyCap is described as "a higher-order core construct consisting of four positive psychological resources," which defines the features of PsyCap such as hope, confidence, optimism, resilience and efficacy. It can be said that PsyCap is a combination of all these four elements and that it can be "measured, developed, and effectively managed" for improving work performance [27]. Hope generally gives the entrepreneur some form of encouragement and motivation that through trust, the goals or objectives will be achieved. At the individual level, many entrepreneurs voluntarily keep faith in their ventures, hoping for success, and despite the facts that they know, few would get through, while the majority march into the Death Valley as observed by Bean [30]. In essence, the need for achieving is desired goals requiring a sense of agency and expectations, which provides people with an internalised determination and willpower to invest the energy.

When one is optimistic, it means the person has a positive expectation for the future, regardless of circumstances. Optimistic individuals accept new ideas and have positive emotions [28]. Furthermore, optimistic people expect that positive situations will happen that serves as positive PsyCap Hmieleski and Carr [29]. demonstrated that optimism and personal well-being have a positive relationship in PsyCap. Cavus and Gokcen [27] stated that optimism can be defined as a psychological intention and expectation to hope for the best possible and positive outcome, which can positively influence peoples' mental and physical health.

Psychological resiliency is characterised as the ability for bouncing back, focusing on goals and successes [27]. Resilience as a dimension of PsyCap is something that entrepreneurs have accumulated to be successful in the work they do. In the meantime, research by Luthans and Youssef [28] supports that psychological resiliency is the coping skills of people in case of uncertainty, negative situations and obstacles; and according to Çetin and Basim [31], it contains in itself, the other components hope, self-efficacy and optimism.

Self-efficacy originates from Bandura's [32] study widely used and accepted social cognitive theory. This theory first developed the theory of self-efficacy based on the premise that individuals are proactive agents as opposed to passive reactors to their environment. The instability in the business environment for new business establishments saw many researchers postulate that entrepreneurs succeed in their business

because of a strong sense of personal commitment (self-efficacy) to implement their dreams and a keen eye for innovation to identify new products and markets [33]. Self-efficacy represents the general belief of people while they exhibit their performances and make a sense beyond the actual abilities that lead to completing tasks [27]. It can be said that high self-efficacy can influence motivation on both positive and negative sides. Self-confident people know how to improve their motivation. They choose challenging tasks to extend their performance and motivate themselves against the obstacles faced while working for accomplishing goals. Stajkovic and Luthans [34] argued that there is a strong and positive relationship between self-efficacy and performance.

2.4 Entrepreneurial motivation

Motivation is described as a desire to overcome a goal or value feeling activated, goal-driven, incentivised, being inspired or an impulse to be moved to do something and can be explained as someone being motivated [35]. However, a person who feels no inspiration, incentive or drives to be moved to do something is understood to be unmotivated. Motivation is a broad and complex field with various theories. For example, Bruno et al. [36] explained how intrinsic motivations are intertwined with the level of achievement.

Entrepreneurial motivation is important in the discussion of entrepreneurship. Looking at the discussion of entrepreneurial characteristics above, it is not enough to explain what makes an individual decide to pursue entrepreneurship. Bringing the issue of entrepreneurial motivation to the study is fundamental to understanding the reasons why individuals pursue entrepreneurship. Stephan et al. [37] stated that entrepreneurial motivation is a psychological process in which not all the motives may be influenced with the same force; it differs with the awareness levels of the individuals and factors responsible for the motivation. Motivation is classified along some dimensions that are better predictors of growth expectations and business survival and in turn the entrepreneurial success. These dimensions of entrepreneurial motivation are discussed in the following subsections.

3. Method

A descriptive and cross-sectional research design was employed in the study. According to Polit and Beck [38], a descriptive research design is said to have a large representation in which a researcher can obtain the participants' views. A descriptive survey research design was used in the study to collect data from the participants and for analysis of data, which involved finding the mean and standard deviation of the results, while a cross-sectional research method was used to analyse the relationship that existed between N-Ach and business performance. A cross-sectional research method was also adopted because of time constraints and the costs involved, and that data could be collected at one point in time and to find an answer to the research questions. Sekaran and Bougie [39] argued that a cross-sectional design comprises data that are collected from a population at one specific point in time. The study further employed a stratified sampling technique to collect data from the participants. Data were collected using a questionnaire that was administered to 108 small- and medium-sized enterprise owners and managers in the Chris Hani District Municipality.

4. Results and discussion of findings

The interpretation of results and an analysis of the findings from data will be discussed in this section of the study to conclude the need for N-Ach and entrepreneurial performance.

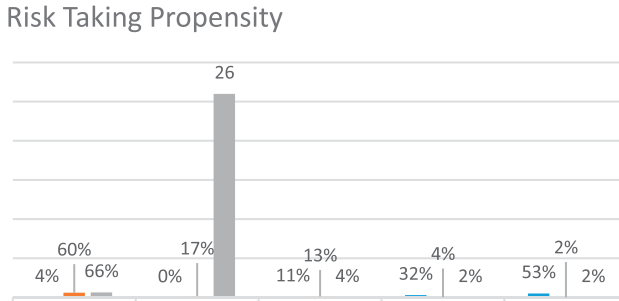
4.1 Participants' opinion on risk-taking propensity

The findings from the descriptive analysis show that most participants strongly agreed and agreed with the statement relating to entrepreneurial capability and risk-taking. **Figure 1** shows that when participants asked about their wiliness to take a risk on investment, 60% strongly agreed and 17% agreed. This is an indication that one of the characteristics an entrepreneur should have is the ability to take risks. When starting entrepreneurial ventures based on discoveries and innovations, it entails a great deal of risk. For new businesses that pursue unexplored business opportunities with the intent of achieving substantial growth and above-average performance, the risk is an inescapable reality [6].

Risk-taking as a trait of entrepreneurs emphasises that individuals with high needs for achievement would have reasonable tendencies to take the risk. However, entrepreneurship literature claims that the entrepreneurial process is usually undertaken under high uncertainty. Thus, entrepreneurs are expected to accept higher risk. The finding further suggested that even though no individual would risk by investing in a business that does not stand good chances of success, the risk is never avoidable in business. Therefore, entrepreneurs should always gamble on the type of risk they are to take before deciding on whether to risk the resources on the venture.

4.2 Entrepreneurial independence

The results in **Table 1** indicate that 78% of the participants were open to new ideas and preferred working independently and 78.7% were moderate risk-takers. The table further shows that 85.1% of the participants set the goals they wished to achieve, while



	SA	A	N	D	SD
I can take low paying job with apparent job security	4%	0%	11%	32%	53%
Willing to take risk for a sure return on investment	60%	17%	13%	4%	2%
Do not fear investing where there is calculated risk	66%	26	4%	2%	2%

Figure 1.
Risk-taking propensity (in percentage). Source: Ncokazi [40].

Characteristics	Statements	Strongly agree 1	Agree 2	Neutral 3	Disagree 4	Strongly disagree 5
Independence	I am open to new ideas and prefer to work independently rather than in teams	78.0%	0%	10.6%	6.4%	4.3%
	I set my mind to achieve a goal in relation to a set of standards	85.1%	8.5%	6.4%	0%	0%
	I am a moderate risk-taker and like to anticipate future possibilities	78.7%	6.4%	10.6%	2.1%	2.1%
	I do not see negative feedbacks and challenges as a source of discouragement	70.2%	2.1%	8.5%	10.6%	8.5%

Source: Ncokazi [40].

Table 1.
Entrepreneurial independence (in percentage).

70.2% strongly agreed with the idea that they did not see negative feedbacks and challenges as a source of discouragement. Those who were either neutral or disagreed and strongly disagreed with their responses ranged between 2.1 and 10.6%, respectively. Independence is understood as overseeing your own business and is the dimension of achievement motivation that is directly linked to entrepreneurial performance and results in the success of the entrepreneurial venture. As indicated, most entrepreneurs are in business because they seek independence and that their performance will be judged in terms of the number of years that the business existed and what the entrepreneur has achieved over those years will be counted as the business success.

This finding is supported by a study by Ndlovu [41] who had argued that individuals who venture into entrepreneurship with some personality inventories showed that these entrepreneurs were significantly higher than the general population on measures of independence. Similarly, entrepreneurs with high in achievement motivation are likely to engage in activities that are necessary for success than those who are low in achievement motivation. The performance of entrepreneurship was tested against some dimensions of entrepreneurship traits/characteristics such as independence, risk propensity, commitment and innovations. The findings suggested that independence can be regarded as the predictor of entrepreneurial service performance and that when properly developed, it can impact positively on the business performance/success.

4.3 Motivation for starting a business

The results in **Figure 2** indicate the motivational factors of participants to start their initiatives. **Figure 2** also indicates that 49% of the participants were motivated

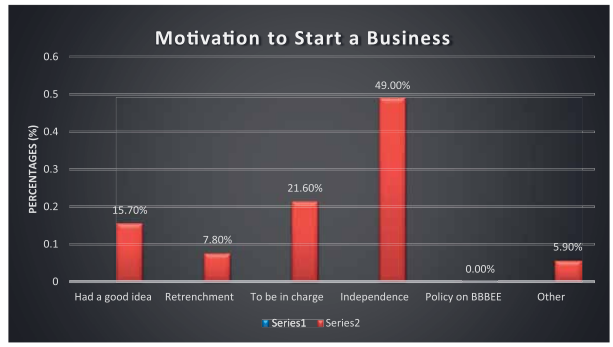


Figure 2.
Motivation to start a business (in percentage). Source: Ncokazi [40].

to start a business because of the need to be independent and for 21.6% of the participants their motive was to be in charge, which more likely means being independent. Independence facilitates the taking of responsibility to use one's judgement as opposed to following the statements made by others. In other words, entrepreneurial independence motivation is about being able to control one's work-life, including control over one's own time and work, making independent decisions, having the flexibility to combine work with one's personal life [42–45]. The results further indicate that 15% of the participants were motivated to start their own business because they had good business ideas and 7.8% was motivated to start a business because they were retrenched from work, while 5.9% of the study population was motivated by other factors not mentioned in the questionnaire, such as political and family reasons.

5. Conclusion

The analysis of this study revealed that there is a relationship between N-Ach and entrepreneurial performance, but the researcher used a one-time study; therefore, the result may be relevant at the time when the study was conducted; hence, the researcher proposes a further study under the same phenomenon. A new study may conclude a different finding on the understanding of entrepreneurial success and how the interpretation of entrepreneurial success may differ, depending on their underlying understanding of success. The results in this study were presented and analysed using charts. The results indicate that risk-taking propensity and result-driven persons had higher scores where the participants strongly agreed that they are linked to the entrepreneurial N-Ach. The same findings of the study expand the literature on entrepreneurial N-Ach by not only showing the importance of entrepreneurial performance, but also the need to develop the N-Ach motivation of entrepreneurs if they want to succeed in their entrepreneurial endeavours. The study concludes that N-Ach can improve entrepreneurship performance. The researcher understands that it was unlikely to collect data from the owners of failed ventures; therefore, the findings of the study were limited to data collected from the surviving or existing businesses.

6. Recommendation

The study recommends that entrepreneurs should be encouraged to develop N-Ach because of the responsibilities associated with entrepreneurship. Entrepreneurs play a compelling role in the success of their business ventures, they plan, organise resources, lead and execute the work for the realisation of the organisational goals. Independence was found to have been positively associated with entrepreneurial performance. Therefore, researchers recommend entrepreneurs should develop a sense of independence if they want to become independent business owners who can grow their business into a big venture that can compete anywhere in the globe. It is further recommended that government should provide workshops for entrepreneurs to enhance their skills to enable them to be innovative and identify new opportunities, as well as ways that would facilitate them to master their traits, thereby ensuring that the outcomes would be for the benefit of the SME sector.

Author details

Ayanda Ncokazi and Pretty Thandiswa Mpiti*
Walter Sisulu University, South Africa

*Address all correspondence to: pmpiti@wsu.ac.za

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Chapter 3

Sport as Socio-Cultural Homeostasis: Motivation, Degeneration and the Continuity of the Human Species

Ricardo Serrado

Abstract

Modern sport, as a prominent social event in contemporary society capable of mobilizing millions of people across the planet, appears to the researcher as a relevant object of study. This is because, not only is it a central activity in contemporary societies, but it is one of the most widespread phenomena of the twentieth and twenty-first centuries. This work intends to seek and obtain some answers to the central role that modern sport seems to have, through the ideas of sociocultural homeostasis of neurobiologist António Damásio. We will argue that modern sport is a socio-cultural manifestation of biological homeostasis which, in the form of feelings such as fear and motivation, embodies new ways of strengthening the body and new ways of achieving greater well-being. That is, modern sport is the result of unconscious biological mechanisms that, mediated by consciousness through emotions and feelings (like fear and motivation), act in the sociocultural space in order to create devices of homeostatic balance. As we will demonstrate, during the twentieth and twenty-first century, several studies proved the benefits of modern sport in health, which helped to strengthen the effectiveness of modern sport in combating, preventing and treat physical and mental illnesses. In sum, we will argue that modern sport is a sociocultural way of regulate the body homeostasis.

Keywords: sport, sociocultural homeostasis, António Damásio, motivation, degeneration

1. Introduction

Modern sport (MS) emerged during the nineteenth century in the context of the liberalization of European societies [1], and since then its impact on the human being's *modus vivendi* has been significant [2, 3]. In contemporary times, the huge number of people it mobilizes, the enormous resources it moves and the countless societies that, throughout the twentieth century, used and institutionalized it for various purposes cannot fail to arouse interest and some astonishment. In addition to religion, present in all known societies, from the most primitive to the most

developed, MS is probably the most mobilizing activity for people on the entire planet [1–3].

Now, given the ubiquity that MS seems to have in contemporary society, it is relevant to find answers to this phenomenon. What does MS have in particular, or what has changed in human understanding, so that certain sporting activities (such as football, athletics, rugby, basketball, among many others) that did not exist before the nineteenth century, were created and started to have the attention of millions of people around the world, which made them one of the main occupations of our life [1–3]? Is it simply a part of leisure-related activities, having a primary role of entertaining, amusing and distracting from "real life" as some authors argue [3], or does it have other functions, eventually outside the sphere of leisure, which must be taken into account for a more accurate understanding of the phenomenon?

In this chapter, we will argue that MS is a sociocultural manifestation of biological homeostasis which, in the form of feelings such as fear and motivation, created new ways of strengthening the body and new ways of achieving greater well-being. In other words, MS is a sociocultural manifestation of biology – it has the same function, namely contribute to the regulation of the body. Through feelings such as fear and motivation, homeostasis operates subliminally in the sociocultural space so that its role is fulfilled, both inside the organism and outside.

2. The problem

MS, born during the nineteenth century, became in the twentieth century one of the most central and mediatic human activities [1–3]. Every week, millions of people mobilize around MS, whether as practitioners (amateurs or professionals) or spectators, filling stadiums, pavilions and venues with tens of thousands of people. To this reality, some authors theorizing about the concept of MS tried to respond with some innovative theories [2–9]. Due to his prominence in academia and the epistemological scope of his thought, it seems to us that the sociologist Norbert Elias is the author who best manages to theorize about the role of MS in contemporary society, trying to explain the phenomenon in the light of the Civilizational Process as the main reason for the decrease in violence in human societies [10]. According to the sociologist, the Civilization Process, initiated during the late Middle Ages in European courts, originally in France, through the institution, first, of an increasingly centralized state – a court society, producer of new customs and new models of behavior – and later, of a set of rules of etiquette that aimed to replace the obsolete medieval traditions; as well as the development of new mechanisms of social control, led to the acquisition of a set of new behavioral patterns that repressed not only violence, but also the disposition to brutality verified in medieval customs ([10]: 336). The construction of a centralized court society that increasingly controlled the behavior of its subjects, applying heavy sanctions to those who deviated from the implemented social norms, meant that, according to Elias, social violence gradually decreased in a process of about 500 years. Over time, state coercion became self-constraint - the self-control that human beings acquired throughout this process ([10]: 620).

According to Elias, when the Industrial Revolution took place and enabled the institutionalization of some sports games within an urban dynamic, societies were already in a civilizing process of some success in controlling emotions, thus opening space for forms of leisure activities that, in line with the guidelines issued by the State, were intended to be effective in catalyzing emotions. According to the sociologist,

leisure activities were implemented as an efficient response to humans' needs to release the tension inherent in "real life" and the concentration of emotions repressed by the power of the State [3]. Now that violence was prohibited and repressed, the Search for Excitement (in the term used by Elias) would be sought during the twentieth century in leisure, where MS was inserted, along with theater, races, parties and other recreational games. MS would therefore be the quest for excitement forbidden in "real life".

Although Elias' thesis has been established as a paradigm, widely accepted by numerous sociologists and historians [11–13], despite some criticisms from some authors who consider his approach somewhat biased [14, 15], Elysian thought offers us a problem that we would like to see discussed. Elias' thesis provides answers from a perspective that seems to us oblique insofar as it explains it exclusively as a product of the Civilizational Process, with the exclusive functions of providing a space for the representation of repressed emotions in a fictional imagery framework, thus functioning as a catalyst for "real life".

In this chapter we discuss the hypothesis that sport has much more complex functions, much broader and, above all, more vital than those mentioned by Elias, namely therapeutic and medicinal functions, related to the concept of sociocultural homeostasis, developed by the neuroscientist António Damásio.

3. The rise of modern sport

MS can be defined as: "Physical exercise regulated by specific norms, suitable for the development ... of the human body and practiced individually or in a team" [16]. In its broader conceptualization, related to play and entertainment and not to physical exercise, sport must have existed for thousands of years, since human beings invented ways to recreate and relate in a more complex way, in forms of ritual and others, in a logic that could meet some of the ideas of historian Johan Huizinga [5]. As an activity related to physical exercise, it probably has its origins in the ancient Olympic Games, dating from around 800 BC ([1, 17]: 44–73). However, despite some convergence with hellenic physical practices, the result of an integrated representation of the body–mind problem in which the body should serve as a cult to the gods, contemporary sports activities are a new phenomenon, which have little or nothing to do with those that preceded them [18–21].

Contrary to what happened in classical greek culture, throughout the Middle Ages the body - seen as a mundane and sinful element – was deeply ostracized and humiliated, fundamentally, by the monks (medieval behavior model) ([22], p. 120), which subsequently led to the establishment of harmful bodily practices for the health of the individual and the social body, as well as the creation of ideal conditions for the spread of diseases [19]. Consequently, for many centuries there was the complete abandonment of any bodily practice that did not have military purposes. The soul, in turn, was represented in this period as the noble substance of the human being, the only one that would deserve special care, which led to a general concern to strengthen the intellect at the expense of the body. From the eighteenth century onwards, with the defense of states increasingly entrusted to professional military personnel, without the need for intense military training, the wealthier population began to dedicate themselves many times to idleness or to the cultivation of the mind since, according to Judeo-Christian tradition, there were no great reasons to exercise the body, since only the soul could crave eternal life [19, 20].

During the period of the liberal revolutions that began with the French Revolution, in 1789, in which social values and a political organization completely different from Absolutism were disseminated, a collective conscience that was broadly critical of the lifestyle of the Ancient Régime developed. With the perception that they were heirs of a new order, the nineteenth century authorities began efforts to replace social models and rooted obsolete behaviors, subsequently criticizing both the idleness of the elites and the poor hygiene of the most disadvantaged social extracts, both deeply imbued in medieval traditions and beliefs, in which the body was a condemned element ([23]: 35–43). The lack of public sanitation combined with poor food, the lack of decent sanitary facilities and an efficient organization of the territory, as well as the beliefs in secular traditions harmful to health, contribute to create population centers highly prone to diseases that not infrequently spread and caused high mortality ([19, 23]: 29–43).

After centuries in which the body was considered the tomb of the soul, in the nineteenth century new perspectives were opened regarding the human condition, valuing the body and life in a way that raised questions about the habits that for centuries were rooted in medieval societies [19, 20]. It is in a context of modification of the cognitive representations of the body–mind problem, in which an enormous appreciation of the body emerges as a repository of the integral individual, that doctors, philosophers, scientists, politicians and teachers will defend a set of measures that would allow a rupture with the obsolete way in which the body was treated, thus promoting the implementation of public health, in which physical education (and subsequently physical exercise and sport) was a central piece [24]. The very meaning of death and life was revised ([20]: 123–176), which led to a discrediting of all activities that could appeal to the afterlife, the immaterial and the supernatural, such as the veracity of witches, healers and sorcerers, but also the Church, widely criticized by the scientific and political community at that time [25]. The existence of the soul was disregarded in the intellectual environment and a materialist/naturalist current of the human being was implemented, widely in vogue throughout civilized Europe, which has some of its main Portuguese defenders in Miguel Bombarda [25], Teófilo Braga [26], Júlio de Matos [27], Bettencourt Raposo [28], Teixeira Bastos [29], among others. We argue that it was this new cognitive representation of the body–mind problem, in which the conception of human nature acquires an eminently physiological representation (positivist, materialist), either at the level of the mind, seen as a product of the brain, or at the level of the body itself, which has led to the emergence and implementation and promotion of modern sport as a means of strengthening human nature now seen from an integrated perspective [24].

A greater knowledge of the human body and brain, provided by the works of Louis Pasteur, Paul Borca or Ramon y Cajal, among many others, exponentially increased knowledge about human nature, completely modifying cognitive representations in relation to the body–mind problem. At the same time, the transformist theses of Charles Darwin and Jean-Baptiste Lamarck gave rise to the general conviction that, given the contempt that was seen (and still endured) for centuries in relation to the body, the human species had entered a process of degenerative physiological condition that was necessary to stop in order to avoid its self-destruction [30–33]. In other words, several intellectuals considered that the devaluation given to the body ended up implementing sedentary habits that had atrophied the human organism, which, combined with obsolete hygienic practices, could lead to the decline of the species, as well as its extinction [24]. In this way, a new perspective of human nature, in which the body and mind interact through physiological processes, paved the way for a

profound revolution in human thought. Mental problems such as alienation, epilepsy, hysteria and others began to be seen, not only as problems of the mind, but as physiological illnesses that, as a result of obsolete hygienic behaviors, took root in bodies and manifested themselves in minds, and could then jump generations and contaminate the offspring once acquired by the parents [27, 31]. In this period, a deep feeling of decadence of the "race" sets in and numerous authors appear to warn that something should be done to avoid the extinction of the species.

4. The MS in curing the degeneration of the species

This deep sense of the decadence of the "race" that emerged in the nineteenth century throughout Europe could be, at the time, legitimized by the Prussian victory over France in 1870, attributed to the better physical preparation of the Prussians against what was considered the greatest European military power at the time ([33]: 368; [31]: 40, 70, 72). In fact, it is not by chance that the main "decadentist" authors are more successful after 1870, namely the French psychiatrist Bénedict Morel, who launched "the concept of degeneration in its historical trajectory." ([32]: 102), and the Italian anthropologist Cesare Lombroso, whose ideas on the degeneration of the "race" circulated in Europe even before the eugenic ideas of the Englishman Francis Galton [30, 31].

It is with the intent of combating the degeneration of the species that, mainly, from 1870 onwards, numerous thinkers, doctors, hygienists, philosophers and other authors ostensibly defend the implementation of gymnastic and the practice of MS in the entire population. Otherwise, according to the scientific and philosophical elite, the human species was at risk of extinction, such were the vices to which the human body was subjected by obsolete habits and traditional practices that facilitated the spread of diseases such as syphilis, tuberculosis and alcoholism ([33]: 368; [19]: 23, 55, 130–145; [20, 21]). Scientific and medicinal advances, combined with a greater knowledge of human nature, helped to promote the idea that MS strengthened the body, prolonged life and prevented diseases, which stimulated the creation and implementation of various forms of gymnastic and of various sports all over Europe. In other words, first gymnastic, and then MS, will appear in the eyes of doctors, philosophers, teachers and scientists as the cure for the physiological decay of the species [24].

This therapeutic dimension of MS can, in fact, be verified in a wide range of sources and documents during the transition from the nineteenth to the twentieth century. In 1874, the doctor José Ferreira Castro considered MS as the essential factor "for the maintenance of health" (162) and "beautification of the body" (170), namely the practice of jumping, fighting, swimming, walking, hunting, dancing, riding, among other exercises (170). Along the same lines, the doctor and professor at the University of Coimbra, Augusto Filipe Simões, wrote and published two books [34, 35] with the aim of publicizing the urgent need for the population to practice physical exercises in order to avoid the decline of the portuguese "race". In 1891, the physician Carlos Alberto Lima published his thesis entitled *Improvement of the race through physical exercise*, developed with the precise objective of regenerating the Portuguese "race" through sport (62). That same year, Miguel Bombarda defended in *Contemporary Medicine* [36, 37] that the practice of sport was the most efficient means of regenerating and strengthening the body against diseases and ephemeral events (24-5-1891, 163) [38]. The importance of MS in the regeneration of the "race"

can also be observed in the nineteenth century press. *The Diário Ilustrado*, most likely the first Portuguese generalist newspaper to have a sports section, said in 1894 [39]: "... given the benefit that can be for our country and spread the sport, thus achieving a good amusement for many, and at the same time its development, or perhaps the refinement of our entire race under all the points of view that everyone claims, which today walks in a sad decadence..." (20 March 1894, 1). In 1897 the newspaper *O Sport*, in its debut issue, said the following [40]: "The sport! What enthusiasm to pronounce it?! Sport is the salvation of human life; it is our future education; it is our own soul [...] The purpose of sport is physical development; it fortifies us and gives us agility; it gives us...a life as pleasant as possible, completely turning us away from all kinds of vices and thus making us robust and healthy [...] Is sport, then, the salvation of human life? It is for certain, or at least we are sure of that [...] It is clear that sport is all that is most beautiful and sublime" (12 February 1897, 1).

It is in a historical context of deep rupture with the old daily practices, in which the most literate Portuguese society plunges into a collective feeling of decadence of the species, that MS, not only is increased but, fundamentally, acquires its most prominent social function - to contribute to the salvation of the species. It is within the scope of improving public health, in which the individual is valued according to the vitality of his body as a core instrument for the progress of a society that was intended to be turned to the future, that sport acquires its function of contributing to social empowerment. In fact, it does not seem to us that the development of MS is an autonomous process that can be conveniently studied without understanding it within a paradigm of control of the social body, within the scope of an institutionalization of a public health that intended to implement new models of bodily conduct. It seems to us that it is in this continuous process of regeneration of the social body, in which we witness the institution of public health, that MS finds the main strength of its existence – to strengthen, in an integrated way, the subject's body and mind, in order to avoid the decline of the "race" [19–21].

In short, a seemingly strong awareness of the need to control the social body, combined with the dissemination of the idea of degeneration of the "race", led not only to the institutionalization of new everyday bodily practices, with greater expression for the implementation of public health, but also to the institutionalization of physical education, where MS was inscribed as one of the most efficient means of ensuring the health of societies.

5. The sociocultural homeostasis

Homeostasis is generally understood as the continuous effort of the organism to maintain the physiological limits necessary for the existence of life within it. In the words of António Damásio: "life requires that a series of limiting parameters be maintained at all costs in literally dozens of components of the dynamic interior of the body". This limit is "known by the term homeostatic and the process through which this balanced state is reached is called homeostasis" ([41]: 64). In support of homeostasis – the complex, automatic and totally unconscious process of managing and protecting life – is the biological value, the value of life – the natural force or indispensable incentive for this regulation ([41]: 64).

Biological value has an omnipresent presence in Nature through genes resulting from Natural Selection that endowed organisms with homeostatic capacities, in which, first emotions and then feelings flourished ([41]: 65–66). Emotions are

physiological systems created by evolution to serve homeostatic purposes, motivating the organism to find sources of energy, opportunities for developing and partners with whom to ensure genetic continuation, or avoid predators and other situations that could endanger the integrity of the organism. Emotions, such as fear and motivation, among others, guide the behavior of organisms, manifesting themselves: "... as simply as in the release of chemical molecules linked to the reward [in finding a source of energy or a partner] and punishment [in the face of danger], or as elaborate as our social emotions and sophisticated reasoning." ([41]: 45). Feelings, in turn, correspond to the mental substrate of emotions: "they are images of actions and not actions in themselves" ([41], 143). A certain feeling is, *mutatis mutandis*, the mental experience of an emotion, which allows the subject to consciously experience a certain emotion and mentally retrieve it whenever necessary [41–44]. If emotions are homeostatic bodily programs of action, feelings, in turn, are the "... mental adjuncts of homeostasis" ([44]: 43) - the mental experiences of the state of life in the body ([44]: 43) or "the mental expressions of homeostasis" ([44], 17). That is, when we are faced with a certain challenge, it is the emotions that make us act to solve it, but it is the feelings that consciously qualify this situation (as positive or negative) so that in the future we can anticipate it, remember it and deal with it more efficiently.

By helping to predict events, emotions and feelings are crucial for organisms to optimize their body's health. It is feelings that codify experiences and signal situations (as good or bad), providing the necessary motivation to create certain sociocultural devices that ultimately aim at a more efficient homeostatic regulation. Without emotions and feelings, it would be impossible to catalog and identify any stimulus, situation, object or person, as good or bad, beautiful or ugly, rewarding or punitive, pleasant or painful ([44], 147).

According to António Damásio, emotions and feelings are at the origin of the sociocultural devices that have been developed over time as means of sociability. In other words, emotions and feelings were the interlocutors between human beings and their peers, in a relationship that led to the elaboration of codes of conduct, laws and social norms, as well as institutions, which aim to enhance the hypotheses of individual and collective survival. These social and cultural devices are designated by António Damásio as socio-cultural homeostasis [41, 44]. Therefore, emotions, first, and then their mental substrate - feelings - are sophisticated devices, originated by homeostatic mechanisms that essentially aim at the same thing: to guide and encourage organisms to seek better means of survival. It is feelings, such as fear and motivation, that "indicate to the mind, without saying a word, the good and bad course of the processes of life inside the respective body" ([44]: 26). Homeostasis without feelings is clearly possible, as the countless species that are highly effective in adapting to environments that do not have them, such as bacteria, prove, but once present in evolution they fulfill and improve homeostatic mechanisms by consciously qualifying situations, objects and the internal environment of the organism, which makes it possible to anticipate and predict these qualified situations through what human beings call memory.

The emergence of consciousness in evolution has equipped its holders with new devices in the management of life, more optimized and more efficient, through a much more detailed knowledge of their inner environment and the environment in which they are inserted. Consciousness has allowed an organism not only to feel and experience its internal state and the external world, but also to know them and be able to reflect on them, being able to subsequently intervene in them [41, 44]. Human consciousness - the ability it offers to intervene and modify the environment - will have

allowed an improvement in the social manifestation of feelings in the sense that it has expanded the spectrum of action of the latter. That is, consciousness has allowed feelings to be embodied in what human beings call culture. It is important to note, however, that consciousness has little or no ability to directly intervene in the unfolding of the homeostatic process. In fact, some authors have been demonstrating that consciousness does not have the power of decision or action [45–47] so consciousness may have emerged in evolution to serve as an intermediary between internal homeostatic processes and the environment in which an organism is inserted. Consciousness would have, in this perspective, the function of mediating the basic homeostatic impositions with the environment so that the former are fulfilled and optimized in the socio-cultural environment. In other words, consciousness does not interfere with homeostasis but makes it knowable ([41]: 56), allowing the value of life to intervene beyond the limits of the body and create, in the socio-cultural context, new and efficient forms of life regulation. To a large extent, consciousness made it possible for the subject to know the hidden "wills" and "desires" of the multiple microorganisms that inhabit their body. Feelings are the mental experiences of these hidden desires, which subsequently embody socio-cultural activities [44]. In other words, the vast neural capacities of human beings (emotions, feelings, self-awareness, language, reasoning, etc.) will have allowed for a better management of basic homeostasis which, in turn, enabled socio-cultural homeostasis ([41]: 358).

It is therefore not possible, according to Damásio, "to imagine the origin of the responses that became medicine or art outside an affective context" ([44]: 239). To rephrase it, medicine, art, and culture in general, had at their origin a feeling: a feeling of pain in the face of a sick individual who needed help; a feeling of concern for a loved one who needed help; a feeling of compassion towards the wounded warrior; a feeling of fear in the face of death or illness; a feeling of happiness when these pain situations were overcome, which motivated the subject to continually resolve them [44]. According to the neuroscientist, the primordial needs of Homo sapiens and hominid species before him led to the development of the first forms of culture: tools, weapons, clothing, shelter, rituals. Faced with difficulties in relation to individual and group survival, the first human societies created a set of devices to deal with the enormous challenges they would face, be they the search for food, the defense of a predator, the cold or the preparation of food. The most basic feelings of survival, such as fear, motivation, hunger, thirst and sexual desire, guided human beings in how they could increase their chances of life and, thus, reproduce ([44], 237, 238). Feelings of happiness, contentment and joy classified the stimuli as positive (to be repeated), while feelings of fear, anxiety, disgust, shame or guilt identified the stimuli as negative (to be avoided) ([44], 238).

At times when group coexistence became advantageous, first in small sedentary groups, and later in more complex societies, it became necessary to regulate human behavior in order to facilitate social relations and, in this way, create normative means of interpersonal relationships. In this ancestral context, feelings of motivation, empathy, fear, shame and guilt were necessary and decisive to build codes of conduct and judicial systems that could guarantee individual (basic homeostatic) and collective (socio-cultural homeostatic) balance. The elaboration of codes of conduct, laws and norms, as well as justice and government institutions were, in the words of Damásio, "a response to the detection of imbalances caused by social behaviors that endanger individuals and the group" ([41], 358).

Art and culture, for example, are excellent means of providing states of satisfaction, joy and ecstasy, what in biology is called a reward. Painting, dance, theater,

cinema or music can inject feelings of extreme well-being and enormous motivation, which can immediately explain their homeostatic function [44]. In fact, art forms such as music or painting have been shown to benefit mental health by stimulating neurotransmitters related to pleasure, focus, motivation and reward – such as dopamine – [48].

Religion, in turn, may play a homeostatic role. Born probably from the need for human beings to understand their finitude and support their mortal condition, religion may have the ability to help support feelings of pain, sadness and anguish. By offering answers to the place and purpose of human beings in the world, and by propagating the idea of a life beyond death, religion can help human beings deal with loss, illness and the finitude of life [44]. Medicine is probably the field in which we can most intuitively find homeostasis operating in the socio-cultural context. Pain, suffering, empathy and fear of death will have sharpened the need to create ways to cure diseases and prolong life, and medicines, tools and technology have been developed for this purpose, with obvious effects. As Damásio advocates, "... in illness, injuries, fractures and infections were first detected by homeostatic feelings, and then treated by «new technologies» that became increasingly effective and that we came to know as «medicine»" ([44], 238).

In short, socio-cultural homeostasis is the embodiment of biological homeostasis. The emergence of human consciousness potentiated the expression of feelings and, subsequently, the formation of sociocultural activities that are, in essence, externalizations of basic homeostasis.

6. Sport as a materialization of feelings

António Damásio does not mention MS in his long list of sociocultural devices that were invented to promote life and contribute to the homeostatic balance of the individual and social body. In the context of art and leisure as homeostatic manifestations, we can infer that MS could probably be inserted in leisure, in Damasian thought. We suggest that sport has a central role in the socio-cultural homeostatic balance advocated by Damásio.

The homeostatic role of MS comprises two dimensions that deserve to be analyzed separately, but which are interconnected: 1) a historical dimension and 2) a biological dimension. On the one hand (1), MS was created and promoted by a large group of minds who felt the need to regenerate the species through physical exercise. It was a socio-cultural creation (a historical phenomenon) that aimed to intervene in the future of the human species, strengthening it. On the other hand (2), contemporary sport is an effective and valid means of improving the health of the body and mind (biological dimension). Although the second dimension was only proven in the twentieth century, through numerous studies and tests on the clinical function of physical exercise, the biological component is present in the nineteenth century, that is, it is imbued in its historical dimension [24].

Interestingly, and in line with what António Damásio suggests in his theory of socio-cultural homeostasis, MS arises due to a feeling of physiological decay of the species. That is to say, it is a feeling (or several, as we will see) that is at the origin of the implementation and development of MS. It is a feeling of motivation that serves as an engine for it to develop and acquire a central role in human society, as well as a feeling of anxiety regarding the future of the "race" that makes sport above all a historical and social phenomenon. It is also a feeling of aversion – the felt identification of a

biological and social imbalance – which is at the origin of what we have already mentioned as the collective awareness of a need. Later, throughout the twentieth century, science and medicine gathered vast evidence that MS, when practiced regularly and in moderation, has an excellent preventive and therapeutic role, which brings about (or strengthens) a feeling of well-being and confidence about the effects of sport on health. In other words, the fact that sport has been proven to be beneficial for health reinforced the feeling that sport was something positive, pleasant, related to the well-being and survival of human beings. Feelings such as satisfaction, joy and well-being will have positively cataloged the effects of sport on the body–mind, on society and on the species in general. Therefore, at the origin of MS are feelings of motivation, fear and anxiety that led to the need to improve the organism of the human species (historical dimension). In its evolution, feelings of motivation, fear and anxiety are complemented by other feelings arising from the success of sport (joy, satisfaction, well-being, confidence and hope) in the vitality of the body–mind [24].

We suggest that the collective awareness, in the nineteenth century, that society had embarked on sedentary behaviors may have led to the emergence of feelings that qualified the current hygienic situation as highly negative and harmful to the human species. It is, in fact, possible that a sedentary lifestyle caused negative changes in the body that manifested in the mind in the form of negative feelings that identified homeostatic imbalances. It is likely that the marks of a sedentary lifestyle left in the body in the form of obesity, diabetes and other diseases had given rise to negative ideas about these morbid states, which unleashed feelings that, by qualifying these same states as unbalanced from a homeostatic point of view, gave rise to solutions, in the form of ideas. One of those ideas, probably the most important, was MS. This was a natural response, because it perfectly met the physical-cognitive needs that men and women needed to strengthen themselves. In other words, we believe that sedentary behaviors led to chemical imbalances inside the body that manifested in the mind in the form of feelings, which subsequently gave rise to the need to create responses to homeostatic imbalances [24]. The physical education advocated in this period and, subsequently, MS, corresponds to the materialization of feelings that, first, identified homeostatic imbalances and that, second, created solutions to restore the necessary balance [44].

From this perspective – that is, according to the idea that MS emerged to respond to a feeling of existential crisis of the species, MS is, in our view, a homeostatic manifestation [49]. In a context of profound pessimism, MS was implemented and acquired its place as a social practice, because it came to respond to a set of feelings. A feeling of aversion towards the disease, a feeling of fear towards transformist conclusions, a feeling of anxiety towards the future of the human species. But also, a feeling of hope that the human "race" could be saved and a feeling of courage that sport could eradicate the disease through practices that required new bodily behaviors. In fact, MS materializes the human motivation to solve a problem related to its survival. Later, as the benefits of sport were verified ([50], p. 258) either in the first person or through scientific experiments, other feelings emerged, such as confidence, satisfaction and well-being [24].

In summary, it seems to us that MS is the materialization of a group of feelings that, by identifying certain biological and social imbalances, qualified the critical need to intervene in the course of human evolution in order to guarantee the lost rebalance or to provide greater robustness to the needs of man/woman in the context of their survival and their affirmation in the context of life. In other words, the physical marks of the bodies caused by morbid states, not in line with the

homeostatic balance, will have led to the emergence of feelings that triggered the creation of solutions to these problems, with MS being the result of this process.

7. Homeostatic effects of MS

Since the mid-twentieth century, several health organizations have developed goals and collected data on the benefits of sports on the body's health. The World Health Organization, or other national institutions such as the Portuguese National Health Service (under the Health and Sports program) or the US department of health and human services systematically refer to the benefits of MS in public health, disease prevention and treatment of others [51]. In addition, when reading texts about health, the relationship between sport/physical exercise and medicine is impressive. As highlighted by Markula and Pringle: "The names of scientific organizations, the constant references to scientific literature, the qualifications of the scientific experts on physical fitness, the requirement for medically supervised fitness testing, the demand for reaching an appropriate physical fitness level to prevent illness all speak the language of medicine" ([51], 68).

As we have seen, both MS and public health instituted in the nineteenth century had the same objective. Public health is a phenomenon conceived by the central power that had become aware of the need to control the social body [19, 20, 51]. Established in Portugal in the nineteenth century, its origins can be traced back to the eighteenth century, when the first attempts were made to codify bodily behaviors at the level of new hygienic practices and new codes of conduct [51, 52]. It is, however, with regard to the Portuguese case, only in the nineteenth century that we witnessed the application of ideas that, transformed into institutions, aimed to regulate bodily practices in order to bring about a healthier, stronger and more useful society under the political-social point of view. Sport, in turn, acquires the same meaning as public health, but in different ways. While public health is an institutionalized phenomenon by the central power, sport is, above all, an individualized phenomenon that will be promoted by doctors, hygienists and teachers, first by private initiative and only later with the support of the central power. Although it will also be used by the central government and, in fact, framed in public health within the scope of school physical education, sport in Portugal is, originally, a medicinal activity - a remedy, a cure - that should be at the service and integrated in public health. In other words, public health is an instrument for applying measures to discipline the body, while sport is one of the many tools that public health should use to enforce its goals. There are hundreds, probably thousands, of studies that have proven the effects of sport on human health. Let us look at just a few examples.

From a motor point of view, it seems relatively simple to explain the effects of sport on the body's physiological systems in terms of preventing diseases such as type 2 diabetes, obesity, some types of cancer, osteoporosis and various heart diseases [51]. Numerous studies prove that sport promotes: muscle development, flexibility, agility, body strength, increased cardiorespiratory capacity, greater oxygenation and nutrition of tissues and organs, weight loss, etc. [51, 53]. The effects of sport on motor behavior are vast and, in fact, known for many decades. More recent and surprising are the studies on the effects of sport on mental processes, as numerous experiments have shown an increase in the cognitive capacity of people who practice sport or exercise regularly.

The mechanisms by which sport can affect cognitive functions can act directly or indirectly. The direct mechanisms are those that act directly on neuronal transmission, such as effective blood circulation and a good supply of oxygen and glucose, which can be improved by the practice of physical exercise. Indirectly, factors such as a decrease in blood pressure, a decrease in cholesterol and triglyceride levels in blood plasma seem to interact positively with the brain, increasing its cognitive capacity [54]. Physical exercise can, therefore, interfere with cognitive performance in two ways: 1) due to increased levels of neurotransmitters and 2) due to structural brain changes.

According to neuroscientist Hanna Antunes, there seems to be a fundamental role for oxygen as one of the possible fundamental elements in the exercise-cognition relationship, since neurotransmitters need an oxygen supply and good and efficient intercellular functioning [54]. The practice of aerobic exercise seems to release antioxidant enzymes, as happens with muscle tissues, as well as several neurotransmitters, such as an increase in the concentrations of dopamine, norepinephrine, noradrenaline, vasopressin, adrenaline, serotonin and endorphins, which seem to cause better neuronal functions, especially at the level of central systems, namely the hippocampus, amygdala, medial septum and entorhinal cortex [54]. Studies in rodents have shown that "high plasma norepinephrine concentration is related to better memory" [54].

There are also clear signs that demonstrate that sport regulates and increases neuronal plasticity (with effects on learning abilities, intelligence, etc.) preventing the decrease in cerebral circulation due to adverse effects, as well as the increase in "capillarization and the number of dendritic connections" [54]. Hanna Antunes' findings clearly suggest that the practice of sport densifies the brain, not only because it increases synaptic connections, but also because it makes neuronal communication through dendritic connections more efficient. In a 2010 study, Michelle Voss et al. [55] found significant changes in neuronal connectivity after aerobic exercise in the elderly. A 12-month training period was enough for an increase in interconnectivity in neuronal regions related to both the default-mode-network and the frontal executive network, which seems to suggest that physical exercise has a large-scale restorative effect on the brain.

Stanley Colcombe et al. [56], in a study on the effects of regular aerobic training in the elderly, concluded that aerobic exercise participants increased the volume in their gray and white matter in the prefrontal and temporal lobes, precisely the regions that appear to be most rapidly affected with advancing age. This study helped to understand the importance of aerobic exercises, not only as a preventive method for cognitive decline, but as a therapeutic technique for patients with dementia. Colcombe has also shown that the practice of just 6 months of regular aerobic exercise not only preserves brain volume but can increase it in older people. Physical exercise can thus prevent the loss of nerve tissue that characterizes cognitive decline and, ultimately, dementia.

Ramona Hopkins et al. [57] observed that active adults, who regularly participate in aerobic exercises, tend to show a greater brain volume in the frontal, temporal and parietal zones, precisely the areas where a greater morphological decline can be observed over time. Physical exercise appears to increase neurogenesis in brain regions related to memory, so adults who exercise tend to have a larger hippocampus and, subsequently, better memory and fewer cognitive deficits than those who do not exercise [57–60]. This study, carried out in 4615 healthy elderly people over 5 years, showed that physical exercise is associated with a lower rate of cognitive decline [57].

Hopkings' findings seem to complement the above, suggesting that sport can produce new neurons in the hippocampus, an area related to memory. We know that neurogenesis is a rare phenomenon. Apparently, it only seems to happen in the hippocampus, which can raise some questions such as: why does sport make neurons emerge in an area related to memory? It is possible that this happens due to the relationship that exists between physical exercise and H. sapiens, as if the latter, by practicing physical exercise, were stimulating a critical neuronal zone for the memorization of paths, habitats and crucial environmental contexts for survival away from the environment. In other words, it is possible that sport stimulates the hippocampus because physical exercise, like the one our ancestors practiced for millions of years, depends on a good navigation system. Without a good memory, the exploration of the territory carried out by our ancestors over long distances from the niche would have been impossible, so it is possible that natural selection selected the long-distance race and memory together. The long-distance race without a good memory, that is, without an efficiently functioning hippocampus, would not have been possible [61–63].

Katja Siefken et al. [64], in turn, verified the impact of various sports on the prevention and therapy of depression and anxiety, and found that the moderate but regular practice of some sports, such as football, running, cycling, hockey, basketball, volleyball, dance, tennis, rowing, among others, had a beneficial effect in the prevention and therapy of mental problems. In the same sense, John Guarin found that there is a strong relationship between good mental health and the practice of team sports during adolescence, which can prevent symptoms of depression and anxiety not only during this period but also in adulthood [65]. Among other things, Guarin has shown that the practice of team sports increases self-esteem, implements routines that involve better health habits and decreases the chances of depression and suicide.

Vanessa Shmitz [66], in turn, found that sport prevented diseases adjacent to dementia, developed physical valances, decreased muscle stiffness, recovered joint mobility, stabilized blood pressure, improved VO2, decreased depression, improved cognition and activated blood circulation (2011). Schmitz [66] carried out a survey of 17 of the most significant studies and experiences on the importance of physical exercise in the context of dementia therapy, having verified, in all of them, that simple exercises such as, walking, balance, resistance, extensions, strength, flexibility and aerobics contributed significantly to an improvement in health in general, and cognitive processes in particular.

Louis Bherer et al. [60] reached similar results by demonstrating that the increase in cardiovascular function improvement after physical exercise is associated with a significant improvement in activities that demand attention and higher executive functions. In 2015, Jens Bangsbo et al. [67] demonstrated that playing soccer, three times a week, for about 60 minutes, promotes physical and mental health and individuals over 65 years of age, preventing them from dementia. Similar results were achieved by Dening, who found that playing soccer improved the cognitive performance of adults with dementia (2016) [68].

Kristine Yaffe et al. [69] developed a study with 5925 elderly women over 65 years of age, for 6/8 years, in which they found that the elderly women who had, at the beginning, higher levels of physical activity were those who showed smaller cognitive declines, that is, for 6 or 8 years. At 8 years, more active women demonstrated greater cognitive functionality while less active women were more easily related to mild or severe cognitive declines (2001). Van Boxtel [70], in turn, had already verified that there is a relationship between cognitive improvements and aerobic exercise. In 132 individuals aged between 24 and

76 years, submitted to an acute session of submaximal exercise on a cycle ergometer, followed by an extensive neuropsychological battery where verbal memory and information processing speed were evaluated, it was concluded that there was a relationship between better physical outcomes and better cognitive outcomes. In 2010 Chiari et al. [71] found strong evidence that physical exercise had beneficial effects on memory. Several studies have also shown that countries that invest more heavily in promoting physical exercise have better rates of physical and mental health, longer life expectancy and higher levels of well-being [65].

Finally, it is easy to imagine the therapeutic effects that sport can have in terms of satisfaction, joy and inter-sociability on the people who practice it. The fact that the subject has to travel to practice a team sport involves the stimulation of social tools, which can help to prevent dementia diseases [72]. The well-being provided by social interaction, on the other hand, is also a characteristic that sport can promote through the affective bonds that are established between players. The *agon* intrinsic to sports games must also cultivate a thirst to win, a desire to overcome obstacles and a desire to transcend internal goals, whether in terms of team results or individual performances. When practicing a sport, the subject is not just competing against the opponent, he or she is also competing against his or her own expectations, demands, and own model of "I".

8. Discussion

MS has assumed a central role in contemporary times. Although some authors have tried to understand the role of MS throughout the twentieth century, the sociologist Norbert Elias is, in our view, the theorist who developed not only the most accepted thesis in academia, but also the one that seems to have been carried out with a greater epistemological depth, which deserved our attention. Norbert Elias developed the theory of the Search for Excitement in order to find answers to the problem of the centrality of sport in contemporary societies. Although Elysian thought has taken root in academia with substantial success, we believe that his thesis deserves discussion, namely the need to expand the role that sport has in contemporary times, which Elias reduces to a catalytic function and which seems reductive to us.

MS emerged in the nineteenth century in the context of a society that considered that the human species was degenerating due to obsolete hygienic behaviors inherited from the Middle Ages, so it was necessary to intervene in this process of physiological decay. MS emerges in this context as the best therapy for the disease that affected the "race", being intensely promoted by doctors, hygienists and teachers as the best way for the species to survive and become better able to face the demanding challenges of contemporary societies. MS would be vitally important in strengthening the human body, giving it vitality and, ultimately, transforming the human species to be more robust.

Using concepts from the biological sciences, namely that of sociocultural homeostasis developed by António Damásio, we suggest that MS is the result of unconscious biological mechanisms that, mediated by consciousness through emotions and feelings, act in the sociocultural space in order to create devices of homeostatic balance. During the twentieth and twenty-first centuries, several studies proved the benefits of MS in health, which helped to strengthen the effectiveness of MS in combating, preventing and treat physical and mental illnesses.

9. Conclusion

In conclusion, we argue that MS is a sociocultural embodiment of basic homeostasis. It is homeostasis that crosses the boundaries of the body to act on the outside, modifying the environment in line with is basic needs for survival and well-being. It would have been, above all, the feeling of fear before the fate of the human species, and the feeling of motivation to solve this problem, that would have driven the practice of MS in the nineteenth century.

Author details

Ricardo Serrado
Instituto de Filosofia da Faculdade de Letras da Universidade do Porto, Porto, Portugal

*Address all correspondence to: ricardoserrado@gmail.com

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Section 2

The Lens of Success

Chapter 4

Building Success: The Intersection of Emotional Intelligence, Self-Regulation, Grit and Mindset, and High Approval Teaching

Susan Polirstok

Abstract

This chapter will explore how Emotional Intelligence, Self-Regulation, Grit and Mindset, and High Approval Teaching are building blocks for later life success and what teachers and parents can do to foster development of these important skills. Success in life depends on students being able to learn how to be emotionally intelligent, how to self-regulate one's behavior, how to take on academic challenges and persevere, and how to identify resources that can facilitate success. Learning about these skills and being able to perform them leads to success, not all at once and not in isolation, but with consistency and helpful feedback. Determining how to be emotionally appropriate in a given setting can generate acceptance from peers and adults. Children need to learn how to recruit reinforcement in the environment from teachers and parents. High approval interactions between children and significant others in the environment helps to create an atmosphere where children do not feel threatened and are encouraged to try out new behaviors and take on more challenging tasks. Reciprocity of approval often does not receive the attention that is warranted, when discussing what makes classroom and home environments conducive to positive and appropriate interactions.

Keywords: emotional intelligence, self-regulation, grit, mindset, and high approval teaching

1. Introduction

This chapter will explore the how Emotional Intelligence, Self-Regulation, Grit and Mindset, and High Approval Teaching are building blocks for later life success and what teachers can do to foster development of these important elements. Success in life is everything, especially when considering the low literacy levels one might find in the prison population; prisons are filled with individuals who were not successful academically or socially in school. Helping students learn how to be successful is an important part of teaching and one that is not only based on academic achievement. One's emotional quotient (EQ) may be more important than one's intelligence

quotient (IQ) over the course of a lifetime [1]. Emotional intelligence involves not only being intelligent or aware of one's own feelings, but also being intelligent about the feelings of others.

Being able to "read" the body language, facial expressions, and voice tone of those in the immediate environment provides an opportunity to modulate or self-regulate one's behavior so that it appropriately responds to those in the immediate environment. If someone is upset and crying, entering the room, and persisting with humming a tune or maintaining a smile on one's face, would be inappropriate. Someone with good emotional intelligence would know that he/she would have to adjust or modulate their behavior so that it would convey genuine concern for the person who was crying. Being able to take on the perspective of someone else in the environment is a hugely important skill, where others in the environment would genuinely appreciate your sensitivity and kindness. Being "smart" about one's own emotions and being able to read the emotions of others provides a road map as to how to respond emotionally and behaviorally in various situations. Once someone can understand his/her own emotions and the emotions of others, he or she can then modulate or regulate responses so that they are appropriate to the context [2]. To paraphrase Maya Angelou, while you may not remember what someone said to you years ago, you will never forget how that person made you feel!

Reading the emotional context and regulating one's behavior accordingly are important first building blocks. The pursuit of success also must include tenacity and task persistence in the face of challenge, what Duckworth et al. (2007) referred to as "grit" [3]. Helping children to develop grit in the face of challenge involves the supports teachers establish in the classroom; students must learn to identify and use resources in the environment to solve problems [4]. This is best explained by Dweck's (2007) [5] notion of "mindset," a sense of one's own efficacy. Dweck discusses two kinds of mindset: fixed and growth. In a fixed mindset, students perceive their abilities as adequate for a given situation and take limited chances when engaging in academic tasks. They may see their intelligence as finite and do not wish to take chances that may show others they are not as intelligent as one may think.

For early adolescence in particular, the need to "blend in" or "not stand out for any reason" governs one's willingness to take on challenges academically or emotionally. For students in middle school, this posture defines many children who seem to do the very minimum at best. A growth mindset on the otherhand, is best illustrated by children who are willing to be challenged academically and who have confidence in themselves as learners that over time they can overcome challenges. Developing growth mindsets in children, how they feel about themselves as learners and their willingness to take on challenges, is significant in terms of later life success.

So how does a student develop self-efficacy? Believing in oneself as capable and up to the task does not develop in isolation. Developing feelings of success comes directly from one's experiences as a student both socially and academically, as a family member, and as a friend. Being able to experience oneself as successful in these different arenas requires opportunities over time that give rise to a sense of acceptance, competence, task completion, problem solving ability, and valuing oneself as a "good person." Developing self-efficacy does not happen in a specific moment or in a vacuum, but evolves over time, contingent on the amount of approval one receives in the environment from parents, teachers, siblings, and peers.

High approval teaching is one concrete way that students can develop self-efficacy. Not only is high approval teaching a way to develop a warm and supportive classroom environment, but high approval itself is reciprocal, and students in such

environments become engaged in ongoing cycles of positive outcomes [6–8]. Once a student has received approval, that student will keep engaging in whatever behaviors earned that approval initially. Reciprocal cycles of reinforcing consequences can be established and maintained; the student engages in appropriate behavior which the teacher reinforces, which then strengthens the target behavior and makes it more likely to occur, which in turn reinforces for the teacher that what he/she is doing is working and so the teacher again provides this reinforcement for the student when appropriate. Unfortunately, the same reciprocity is evident when cycles of disapproval are evident. A child engages in an inappropriate behavior, the teacher then scolds the child, which causes the child to engage in that behavior again or in another inappropriate behavior that will generate more teacher disapproval and so on. Teachers and students and parents and children often become locked in ongoing cycles of disapproval, which negatively impact one's sense of self-efficacy [8].

2. Methodology

The research studies reviewed and cited in this chapter were selected because they fall into four discrete categories: theoretical foundations (emotional intelligence, self-regulation of behavior, grit and mindset, and high approval teaching); applied behavior analysis (ABA) methodology (self- evaluation, self-talk, classroom management); behavioral intervention strategies teachers and parents can implement with typical and special needs children (principles of reinforcement and punishment, selective ignoring, peer tutoring) and the application and extension of the principle of "reciprocity of approval" (mutually pleasing cycles of positive interaction). The last category, the application and extension of "reciprocity of approval," represents the primary focus of this author's research work across an extended academic career. "Reciprocity of approval" explores how high approval interactions between teachers and parents with individual children and/or classes of children is both interactional and transactional; the teacher or parent approves of a child's behavior and he or she in turn maintains that behavior or acknowledges the praise and approval of the teacher or parent by smiling, making eye contact, following rules, and completing tasks correctly. In turn, the parent or teacher feels reinforced for their efforts and the cycle begins anew. Parents and children and teachers and children can create ongoing cycles of mutually pleasing interactions, which help to build grit and resilience in children and can prevent teachers and parents from burning out. Overall, the selection of studies reviewed in this chapter emphasize the skills children need to learn to be able to recruit reinforcement in the environment from teachers and parents, which sets the stage for success overtime.

3. Emotional intelligence/emotional quotient

EQ has been reported to be as significant a factor or even a more significant factor than IQ in predicting success in life including developing and maintaining friendships, graduating from high school and/or college, earning promotion at work, and staying married [9]. According to Goleman in his first book, *Emotional Intelligence* [10], IQ contributes only 20% to the determinants of life success. Peter Salovey and John Mayer [11] coined the term, Emotional Quotient (EQ), and defined it as the ability to understand one's own feelings and the feelings of others in the environment

as a way of regulating one's behaviors and choices. More concretely, Salovey and Mayer [11] and Goleman [10] conceptualized EQ as: (1) understanding one's own feelings and relying on them to make good decisions; (2) directing one's feelings to keep painful events and interactions from limiting one's ability to think; (3) encouraging oneself in the face of continued failure and other roadblocks; (4) delaying gratification; (5) empathizing and developing rapport with others; (6) reading non-verbal cues in the environment; and (7) monitoring one's emotions and regulating them so that they are displayed appropriately relative to setting and context.

The research offered by Goleman [10] in his book, *Emotional Intelligence*, suggests that school-age children and adolescents who have learned these skills seem to have lower rates of delinquency and substance abuse, score higher on achievement tests, and fare better in their later life careers and relationships as adults. Clearly one way to be successful is to be emotionally intelligent and be able to self-regulate one's own feelings and behaviors [12]. The extent to which a child can understand his/her own feelings, make appropriate decisions, and stay the course despite various setbacks can be seriously compromised by distractibility, problems in focusing, and low self-esteem, characteristics commonly seen in children and adults with attention deficit hyperactivity disorder (ADHD). Moreover, as children and adults spend more and more of their time engaged digitally, there are fewer opportunities to be engaged with others to be able to practice effective emotional responding. Helping a child to develop a positive sense of oneself as a competent and worthwhile individual requires less "screen time" and more opportunities for positive interactions in the environment.

Parents and teachers can help children and adolescents to better develop EQ by teaching them to: (1) distinguish differences among their feelings and to provide the correct vocabulary to describe various feelings; (2) express feelings in acceptable ways appropriate to given situational contexts; (3) read body language and other non-verbal cues in order to enhance communication; (4) treat others in the environment sensitively; and (5) try to see a situation from another's point of view. Parents and teachers must also recognize their own importance as models of emotional and behavioral responding in the environment, from which children and adolescents learn via direct observation. Discussions with children and adolescents about the emotional and behavioral responses adults in the environment elect to make provides insight into how "emotional" information is processed, responses regulated within given situational contexts, and ultimately viewed in the environment by others. Helping children and adolescents to be reflective about their own feelings and behaviors means that parents and teachers must find time after some inappropriate behavior has been displayed to process the event with the child or adolescent, pinpointing antecedents and consequences of that behavioral display and identifying more appropriate, alternative ways of responding. Understanding one's emotions and their appropriateness to a given situation is learned via observation of adults in the environment and being able to read social cues successfully.

More and more public schools are incorporating mindfulness training into their daily routines, helping students learn to feel calmer and more focused. According to the National Association of School Psychologists, "With a full repertoire of social skills, students will have the ability to make social choices that will strengthen their interpersonal relationships and facilitate success in school" [13]. Among the types of social skills that need to be trained are survival skills (listening, following directions, rewarding oneself) interpersonal skills (sharing, joining an activity, waiting one's turn), problem-solving skills (asking for help, deciding wat to do, apologizing),

and conflict resolution (peer pressure, dealing with bullies). Typical children learn these skills as a consequence of daily experiences and discussions with parents and teachers. However, for many children with disabilities, learning to read social cues in the environment and regulating one's actions so that they are appropriate requires direct instruction, either through a structured social skills group, psychotherapy, or a teacher/trainer skilled in helping students learn self-regulation.

4. Self-regulation of behavior

Self-regulation or self-evaluation training is one type of metacognitive activity that can enhance both academic and social performance [14]. In self-regulation, children or adolescents are taught by either parents or teachers to monitor specific academic or social behaviors by providing the child with feedback concerning the frequency, accuracy, appropriateness, and intensity of those target behaviors and how they were rated in the environment by a parent, teacher, or peer. When the child or adolescent has come to understand the rating criteria, (s)he then rates his/her own behaviors independently and matches those ratings to those conducted simultaneously by the parent, teacher, or peer. This matching component is extremely valuable in teaching the child or adolescent to understand the rater's perspective. Bonus points or other reinforcers can be earned for the degree of match between the child or adolescent and the rater, thereby increasing the motivation to evaluate his/her own behavior from the rater's perspective. Overtime, once the degree of match between ratings is high, the child or adolescent can then rate his/her own behavior independently and even self-reward as well, if the parent or teacher has empowered the student to self-determine reinforcers and self-consequate when goals are met. As a training package, this not only teaches behavioral control, but heightens responsibility for one's actions [6].

Another cognitive behavioral strategy that parents and teachers can employ to help children or adolescents learn to self-regulate their emotions involves the use of "verbal self-instruction" or "self-talk" [15, 16]. This technique can be effective in reducing emotional outbursts by training through active rehearsal, a series of pivotal questions that the child or adolescent can ask her/himself in the face of increased feelings of anger or other problematic emotions or behaviors. The "self-talk" can serve to diffuse the child or adolescent's anger and delay response long enough to avoid a major altercation or deliberate sabotage of oneself. The key here is to train the child or adolescent to first recognize specific feelings and the depth of those feelings in each situation and to provide the child with a strategy to stop and explore what the behavioral/emotional options related to the active display of those feelings might be. For example, when the child or adolescent recognizes that (s)he is angry and starting to "lose it," a series of self-questions might be learned including: "What am I getting so mad about?" "What should I do?" "What's the best choice of action?" and "What's the worst choice I could make?" By the time the child or adolescent recognizes the emotion and "self-talks" the behavioral choices, (s)he may have already passed the moment when the outburst would have occurred. Through "self-talk," the child or adolescent may become more deliberate in evaluating response options and ultimately make better choices about which responses might be more appropriate, given the situational context and the ensuing consequence. By engaging in this technique, we can help children and adolescents avoid "emotional melt downs," helping to increase peer acceptance, limiting rejection, and strengthening the understanding that one's

behavior is based on choices one makes. "Self-talk" helps children to understand that their responses in the environment involve making choices, and that those choices can either be 'good' or 'bad' in terms of what might follow. This can be a powerful skill to learn in that a child can literally impact what happens to him/her in the environment by making 'good' choices.

5. Teachers and parents as emotional role models

How teachers and/or parents deal with stress, anger, sadness, and fear themselves provides an emotional map for children and adolescents. The adage "do as I say, not as I do" may be problematic for adults who hide their own feelings behind a defensive posture. Challenging commonly held gender stereotypes as displayed in the media and discussing how one's responses may be different from those portrayed, can serve as a strong emotional compass for children and adolescents who constantly monitor what their parents and teachers do and say and how those responses are viewed in the community in terms of appropriateness. Simplistically, if you want a child or adolescent to show empathy for others or to demonstrate anger without being lost in it, a parent or teacher must be a responsible emotional model!

An important lesson for children and adolescents to learn is that emotional and behavioral responding is situationally governed. What might be appropriate to do or say at recess or on the block with friends may not be appropriate for the classroom or the work environment. This raises an interesting question. Who decides what makes something "appropriate for the setting?" The answer must be seen through the lens of the "significant rater" in that setting.

Helping children and adolescents to be reflective about their own feelings and behaviors means that parents and teachers must find the time after some inappropriate behavior or emotional outburst has been displayed to talk about what happened and why it happened. Alternative ways of responding more appropriately need to be explored. The best question a parent or teacher can ask a child or adolescent after an inappropriate emotion or behavioral response is "What should the child or adolescent do the next time?" Helping children and adolescents to explore what other emotional or behavioral choices might be more acceptable is where valuable learning takes place. Simply punishing a child or adolescent does not teach the correct response; punishment teaches a child what not to do. A parent or teacher's goal should be to help a child or adolescent identify better options for emotional and behavioral responding the next time a similar situation presents itself. This is where learning a vocabulary to express the "feelings" connected with emotions makes a big difference the next time the child or adolescent confronts a similar or comparable situation [17].

Students who do not have good Emotional Intelligence, behavioral self-control, and/or sustained on-task ability (characteristics often see in children with disabilities) typically do poorly in school, not only because of academic deficiencies but because they are often rejected by their peers. Not being able to "fit in" with peers and struggling academically often puts these children and adolescents in situations where they bond with other students who are seen as not successful in the environment as well. Overtime, this path can lead to dropping out of school, delinquent behavior, depression, and/or criminal activity. Breaking the cycle of failure and peer rejection from both IQ and EQ perspectives are complex challenges that teachers and parents need to be prepared to address, both academically and behaviorally [18].

EQ and self-regulation can be important factors in achieving success not only in school, but in the world of work and in the social life of individuals. Being able to "read" what is warranted in terms of being emotionally and socially appropriate to the demands of a given setting, is an important component of later life success and acceptance. Moving beyond the social/emotional, how one performs academically in school in terms of task persistence, identification of resources to assist and bolster performance and willingness to take on academic challenges are essential components to later life success. These important elements are often referred to as Grit and Mindset [3, 5].

6. Grit and mindset

Over the last number of years, concepts of Grit and Mindset have been given a lot of attention in the research literature in exploring what makes students successful. The middle school grades are an important developmental period where grit and mindset play significant roles in later life outcomes. Polirstok [4] cited the work of Balfanz et al. [19] in noting the degree of "student disengagement in high-poverty middle school grades, its impact on student achievement, and ultimately the role it plays in driving the nations' graduation rate crisis" (p.2). Young adolescents are especially interested in "fitting in" with their peer group and often work hard to "fly under the radar," so that they are not seen as different or smart or talented. Dweck [5] characterizes these students as being "closed" as learners, unwilling to take on academic challenges, and notes that they have a "fixed mindset."

Dweck's concept of fixed mindset is best explained as "an implicit theory about oneself that is defensive, not wanting anyone to see into one's real academic abilities or lack thereof" ([4] p. 2). Students with fixed mindsets view their own intelligence as finite or limited, without the ability to grow and develop. Polirstok [4] notes that "students who adopt a fixed mindset, may become trapped in a recursive pattern of low achievement, low motivation, and low effort" ([20] p. 4). The fixed mindset may result in academic avoidance of specific tasks. As Mawer [21] points out, avoiding a task can enable students to fool themselves into believing that they have not failed.

This notion of limited achievement is well supported by the 2019 U.S. reading and math achievement data for 8th grade and 12th grade students reported by the National Assessment of Educational Progress (NAEP), National Center for Educational Statistics (NCES), [22]. The data show that roughly 2/3 s of these students are not proficient in reading and math and that these gaps are chronic, persistent, and resistant to change over time. The question here would be what percent of those who are not proficient could be characterized as having a fixed mindset? While the answer to this question may be elusive, addressing the problem must begin early in students' school careers, beginning with learning to reading and engaging in mathematical thinking. The fix involves high approval teaching, lots of success in completing academic tasks, and access to high value reinforcers. One might argue that this fix seems overly simplistic but building an implicit theory of oneself as a successful learner requires consistent feedback about one's successes over time and extends across the school years all the way through college [23].

In contrast with a fixed mindset, a growth mindset is what Dweck [24] describes as a student who is willing to learn new concepts, and take on new academic challenges, even as the academic content becomes more complex. Students with growth mindsets believe that they can be successful in mastering this more challenging

content, even if it takes more time or requires them to identify resources that can help them to learn this new content. What is important to this group of students is their beliefs in themselves as learners who can be successful, even if they must struggle to achieve this result. Having a growth mindset will enable a learner to persevere; relying on his/her implicit theory of themselves as a learner gives them the impetus to keep working until mastery is achieved.

> *Duckworth, Peterson, Matthews, and Kelly (2007) call this persistence in the face of challenge "grit." Students who are successful, able to sustain their effort, and ultimately reach their targeted goal over time are gritty. According to Hochanadel and Finamore (2015), "It appears that when teachers teach students how to persist, a growth mindset develops, thus improving grit to overcome any challenges" ([4] p. 2).*

The overlap of grit and growth mindset makes it difficult to know if grit fosters mindset? or if mindset fosters grit? and/or to what degree? To date, there are no definitive answers to these questions; understanding that both theories are so integrally intertwined requires that interventions with students must address both issues [25]. According to Polirstok [4], grit and mindset intervention strategies that teach students how to persist and make choices that lead to success can include: personal student narratives about overcoming obstacles and persevering [26, 27]; biographies and adolescent literature about well-known individuals in pop culture who have made difficult choices that have propelled them to success [28]; computer programs about mindsets [29]; choices and outcomes [20, 30]; self-evaluation [14, 31, 32] and self-talk protocols [15]; and training students to serve as peer tutors in order to strengthen their own ideas about following rules and on-task behavior that help students to be successful [7, 33, 34].

7. Motivating students for success: high approval teaching and building growth mindsets

High Approval Teaching (HAT) can facilitate persistence, resilience, increased academic achievement, and foster a sense of self-efficacy. Most of the research I have conducted and explored over the mainstay of my career addresses the impact of high approval teaching. Discussions of classroom management typically highlight how high approval teaching helps to establish a warm classroom climate, an environment free of fear from answering questions incorrectly, and increased motivation to do well academically and behaviorally. My early research on reciprocity of approval between teachers and students [8] and peer tutors and tutees [7, 35] demonstrates that approval increases not only proacademic behaviors, but fosters increased appropriate social behaviors that prompt more approval from the teacher/tutor. Establishing cycles of reinforcement help students learn how to recruit reinforcement more effectively in the environment for being appropriate, a major shift from recruiting attention for inappropriate behavior. High approval teaching, coupled with high value reinforcers, can change the overall daily operation of a class and the trajectory of individual students from problematic to cooperative and on-task [36]. Once students experience themselves as successful, academically, and socially, students become *grittier* and display changes from fixed to growth mindsets.

The work of Paul Tough [27] at the University of Texas at Austin offers meaningful insight here. Tough discussed how minority freshmen felt, lacking confidence in

their ability as well as in their learning strategies, when enrolling in a rigorous science course. Tough had minority students who had completed this rigorous curriculum record digital messages for students to view. First, the minority students talked about where they came from and their experiences in high school, demonstrating that their experiences and backgrounds were similar to these new freshmen. The videos captured the students' fears about not fitting in at the University, about not feeling smart enough to succeed when they began, and then highlighted the actions and strategies they used to help them belong and succeed. The digital stories that were most effective emphasized the themes of belonging or growth mindset. Additionally, students read an article on how the brain can grow and change because of practice and new connections made. This directly challenged students who had a fixed mindset and believed intelligence was static. For the students who viewed these digital stories, they were able to complete the rigorous science curriculum and earn more credits than comparison peers. These digital stories helped to develop grit in these freshmen and an implicit theory of themselves as successful learners.

> *This article, written by Tough about the program at the University of Texas at Austin, connects with a book he authored in 2012, titled How Children Succeed: Grit, Curiosity and the Hidden Power of Character [37] and to a more recent book authored in 2016, titled Helping Children Succeed: What Works and Why? [38]. In both these texts, Tough argues that overcoming the problems associated with growing up poor requires that students learn the skills associated with character including grit, curiosity, and an embrace of challenges that are linked with opportunities ([4] p. 3).*

In essence, developing grit and mindset can lead to success and increased academic, social, and vocational opportunities. Teachers need to create classroom environments that provide children with chances to see themselves differently as learners who can be successful.

8. Conclusion

If you are reading this chapter, it is likely that you were successful in school. Try to identify what helped you to be successful and what motivated you when you were of school age? Chances are that today you have good emotional intelligence and know how to collaborate with peers and colleagues. How was this great skill set that you currently display developed? What elements did you learn in school? What elements did you learn at home or on your block when you played with other children? Can you identify some things your teachers or parents did with you that directly impacts your everyday functioning as a successful person? If you can answer some of these questions, you will get a good idea of what children in school and at home need to learn to be successful and how the topics discussed in this chapter can be useful in developing skills for success.

Emotional Intelligence, Self-Regulation, Grit and Mindset, and High Approval Teaching are building blocks for later life success. Teachers as well as parents have an important responsibility to help children grow and develop these important skills. Peer acceptance and self-efficacy as learners set successful children apart from those who struggle in school. Prisons are filled with adults for whom school was not a place of success. School success is the most important determinant of later life success. What makes someone successful in school and motivates them to do better is not only their academic ability, but their interpersonal skills as well as their desire to fit in.

As teachers and parents, we need to determine what social skills are deficient and how we go about addressing those gaps [31]. While some skills can be trained utilizing a whole class approach, other elements of self-regulation and emotional intelligence will need to be trained on an individual basis. The key here is understanding that acquiring these skills, especially for students who have disabilities, does not happen on automatic pilot. Like reading and writing, these skills require direct instruction, practice, and lots of feedback. Helping children learn to be successful is among the hardest jobs required of teachers and parents but represents the most important work we do!

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Conflict of interest

The author declares no conflict of interest with respect to this chapter.

Author details

Susan Polirstok
Professor of Special Education, Kean University, New Jersey, USA

*Address all correspondence to: polirsts@kean.edu

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Chapter 5

Individual and Contextual Determinants of (mal)adjustment in College Students who Study Abroad

Laura Di Giunta, Carolina Lunetti, Silvia Pagliarani, Giulia Gliozzo, Alessia Teresa Virzì, Clementina Comitale and Chiara Riccioni

Abstract

This study focuses on a sample of college students who study abroad and the individual and contextual factors that, interacting with each other, may affect their (mal)adjustment. Studying abroad is an immersive experience that could potentially bring great benefits for students' careers and personal growth, but at the same time, without the right tools, can lead to the risk of students' maladjustment. Self-efficacy in dealing with negative emotions and empathic self-efficacy were considered as individual factors, and an inclusive teaching environment was considered as the contextual factor necessary for promoting youths' adjustment (prosocial behavior and academic performance) and for preventing maladjustment (internalizing and externalizing problems). American college students (169 mean Age = 20.59, SD = 1.59; 78% males) participated to this study. A path analysis model showed that: internalizing problems were negatively predicted by self-efficacy beliefs in dealing with negative emotions; externalizing problems were negatively predicted by self-efficacy in dealing with negative emotions; prosocial behavior was positively predicted by empathic self-efficacy, self-efficacy beliefs in dealing with negative emotions, and inclusive teaching; scholastic performance was positively predicted by inclusive teaching.

Keywords: abroad students, self-efficacy, inclusivity, (mal)adjustment

1. Introduction

Students' adjustment and well-being are the results of the interaction between individual and environmental factors. College students' mental health is a major issue to be dealt with considering that problems such as polysubstance abuse and dependence are more common among college-aged individuals [1, 2], as well as depression and suicide attempts [3].

Studying abroad is seen as one of the most effective ways of: (a) building students' global awareness and competence; (b) empowering cross-cultural competencies, interpersonal skills in problem-solving, and intercultural awareness [4–6]. College students who study abroad must face many challenges arising from interfacing and interacting with a new culture while living by themselves and taking care of their education. For example, one issue is that college students more than double their weekly alcohol use while abroad and, even if most of them reduce their drinking upon return, those who drink the heaviest tend to return home drinking at higher levels [7]. Therefore, having the personal resources and a supportive environment is a matter of crucial relevance to promoting psychophysiological health among these students.

For the purpose of this chapter, we considered as indicators of adjustment students' academic performance and prosocial behavior; conversely, we considered as indicators of students' maladjustment and their internalizing and externalizing problems. Finally, we examined the predictive values of individual factors, such as self-efficacy beliefs, and contextual factors, such as an inclusive teaching environment.

Among the individual factors, self-efficacy represents one of the key elements to improve youths' adjustment and well-being. Self-efficacy represents an important resource as it reflects the unique capability of humans to learn from experience and to handle challenging life situations [8]. Self-efficacy is defined as a person's belief of being able to successfully reach the desired outcome [8]: self-efficacy beliefs have an impact on the feeling of accomplishment, leading to a virtuous circle, therefore, if a person experiences success, this will contribute to building up self-efficacy, enhance their motivation and capabilities, and broaden their interests [8].

Specifically, empathic self-efficacy and self-efficacy in dealing with negative emotions have been proven to be essential in promoting youths' adjustment [9, 10].

Furthermore, emotion regulation is of high importance when it comes to adapting to various situations to meet the expectations of social and cultural environments [11]. The capacity for self-regulation is one of the core features of human agency in the social cognitive theory [12]: perceived self-efficacy plays a pivotal role in this process of self-regulation because it affects actions not only directly, but also through its impact on cognitive, motivational, decisional, and affective determinants [11]. According to Bandura and colleagues [10], perceived self-efficacy to regulate negative emotions is negatively associated with depressive symptoms and delinquent conduct, and positively associated with prosocial behavior both directly and indirectly through its impact on perceived academic self-efficacy, self-regulatory efficacy, and empathic self-efficacy.

Empathy, on the other hand, could be considered one of the main predictors of interpersonal functioning, of the development of meaningful affective bonds, and of understanding others [13]. Perceived empathic self-efficacy has been found to be associated with self-esteem, psychological well-being [14], and prosocial behavior [15].

Prosocial behavior refers to voluntary actions undertaken to benefit others [16]. It includes a variety of behaviors, such as sharing, donating, caring, comforting, and helping. It is often associated with altruism because both pursue others' good and may imply common components such as empathic concern and sympathy [17, 18]. Prosocial behavior has been proven to be positively associated with well-being, for example, helping others increases overall happiness of one's own [19].

Self-efficacy beliefs are also negatively associated with internalizing (anxiety, depression, and somatic complaints) and externalizing problems (aggressive and rule-breaking behavior). In particular, self-efficacy beliefs in dealing with negative emotions reflect one's capability to deal with difficult situations and stressors that

involve the insurgence of negative feelings, such as anger, irritability, discomfort, and sadness [20]: people with low self-efficacy in dealing with negative emotions usually engage in an emotion-oriented coping strategy that could lead to an inward-oriented reaction, also resulting in a higher risk of depressive symptoms, anxiety, and self-harm behaviors [21–25]; or, the same emotion-oriented reaction could lead to an outward-oriented reaction, resulting in the expression of anger outbursts, disruptive behaviors, delinquent conductus directed toward the surrounding environment and toward other people [10, 22–24, 26].

For what concerns contextual factors, the inclusivity of the college environment that deals with different students with unlimited individual differences in terms of personality, different cultures, and principles could play a fundamental role in promoting psychological health and adjustments of students who study abroad.

Therefore, in order to improve abroad students' mental health and well-being, reflected by their enhanced prosocial behavior and academic performance, and reduced internalizing and externalizing symptoms, it is relevant to examine the role played by individual factors, such as self-efficacy beliefs in dealing with negative emotions and empathic self-efficacy, that allow the students to face difficult challenges and to deal with theirs and others' emotions, as well as contextual factors, such as an inclusive environment that welcomes students' individual, cultural, and social differences.

According to previous studies on the role of empathic self-efficacy and of self-efficacy in dealing with negative emotions in promoting youths' adjustment [10, 18], as well as those ones on the role of inclusive teaching in predicting youths' well-being [27–31], the overall aim of the present chapter consists of examining the contribution of empathic self-efficacy, self-efficacy in dealing with negative emotions, and inclusive teaching in explaining prosocial behavior, academic performance, internalizing and externalizing problems, in a sample of college students who study abroad.

2. Methods

2.1. Participants

Participants were a sample of 169 American college students (mean *Age* = 20.59, SD = 1.59; 78% males) from Temple University, in the United States, who were studying abroad in Rome, at Temple University Rome (TUR).

Years of education for mothers and fathers of those college students were 11.01 (SD = 7.74) and 10.77 (SD = 7.05), respectively.

Regarding participants' status, 82,2% of college students reported being single, 4,8% reported being married, 2,7% reported to be cohabitating, and 10,3% reported being in an exclusive relationship but not living together.

Regarding participants' ethnicity, 82% of participants were Caucasians, 7,2% were African American, 8,6% were Hispanic, and 2,2% were Asian.

2.2. Procedure

After receiving the IRB approval from the Ethics Committee of the Department of Psychology, La Sapienza University of Rome, a web link on the Qualtrics Platform was created, containing both the consent form and the online survey in English. The average time duration to complete the survey was around 20 minutes.

Data collection was conducted in May and April, and in November and December 2019. This project was advertised to all the TUR social media and with flyers at the TUR campus.

2.3. Measures

Social desirability. Participants' social desirability was measured via the 13-item Social Desirability Scale-Short Form, which has demonstrated reliability and validity across various cultures [32]. Previous cross-cultural findings with our sample support the validity of this scale [33]. Participants were asked whether each of the items (e.g., "I'm always willing to admit it when I make a mistake") described them (1 = "Yes") or did not describe them (0 = "No"). Responses were averaged, with higher scores indicating greater social desirability. Cronbach's alpha for the total score of social desirability was 0.60.

Prosocial behavior. Participants' prosocial behaviors were measured via 15 items [33], on a five-point Likert scale (from 1 = never/almost never; to 5 = almost always/always true), which assesses the frequency by which students apply behaviors of helping, sharing, and comforting (e.g., "I try to help others"). Cronbach's alpha for the total score of prosocial behavior was 0.92.

Academic performance. Participants were asked to report their grades in major university courses according to the grading system in North America (see **Figure 1**).

GRADING SCALE				
93-100 A	87-89 B+	77-79 C+	67-69 D+	0-59 F
90-92 A-	83-86 B	73-76 C	63-66 D	
	80-82 B-	70-72 C-	60-62 D-	

Figure 1.
North America grading system.

Internalizing and externalizing problems. Participants were asked to fill in the Adult Self-Report questionnaire (ASR) [34] to assess their internalizing and externalizing problems. The questionnaire used in the present contribution consists of 76 items that are designed to have useful information on the behavior and emotional reactions of participants in different areas, such as academics and social skills. Participants' responses were recorded on a Likert scale (where 0 = not true, 1 = somewhat or sometimes true, and 2 = very true or often true). For the purpose of this chapter, we considered 41 items of the internalizing composite score (e.g., "I am unhappy, sad or depressed") and 35 items of the externalizing composite score (e.g., "I steal"). Participants were asked to answer those items by thinking about their behavior in the previous 6 months (internalizing problems alpha=0.94; externalizing problems alpha=0.88).

Empathic self-efficacy [10, 14]. Participants were asked to respond to a six-item scale that encompass their personal efficacy to read and understand others' emotions, needs, and feelings (sample item e.g. "How well can you recognize when someone wants comfort and emotional support, even if he/she does not overtly exhibit it?") on a 5-point Likert scale (from 1= not well at all, to 5= very well). Cronbach's alpha reliability coefficient was 0.87.

Self-efficacy in dealing with negative emotions [10, 21]. Participants were asked to respond to a 22-item scale that encompasses their personal efficacy to manage negative emotions, such as sadness, anger, shame, and guilt, in several situations (sample

item e.g. "How well can you reduce your upset when you don't get the appreciation you feel you deserve?") on a 5-point Likert scale (from 1= not well at all, to 5= very well). Cronbach's alpha reliability coefficient was 0.94.

Inclusive teaching. We considered two sub-scales, adapted from the "Iowa Cultural Understanding Assessment – Client Form" [35], as part of a project that aimed to promote the cultural competence of staff in educational settings. Specifically, participants were asked to respond to five items relating to the perception of the role of professors in promoting an inclusive academic environment (e.g., item "On average, how easy do you think it is to ask for an individual meeting with your professors?"; "On average, how much do you think your professors are willing to listen your requests in the academic field?") on a 10-points Likert scale (1 = not at all; 10 = fully). Cronbach's alpha for the total score of an inclusive academic environment promoted by teachers was 0.71

Furthermore, participants were asked to respond to seven items related to the perception of the role of university staff in promoting an inclusive academic environment (e.g., item "TUR staff understands the ideas that I or others in my culture might have") on a 5-points Likert scale (1 = strongly disagree; 5 = strongly agree). Cronbach's alpha for the total score of an inclusive academic environment promoted by the TUR staff was 0.95.

Considering that Pearson's correlation between the two scales was equal to 0.39, $p<.01$, a single construct of inclusive teaching was created by averaging the two scores.

2.4. Statistical analyses

We preliminarily computed the descriptive statistics (mean, standard deviation, skewness, and kurtosis) of the studied variables for the total sample and the Pearson's correlations among them using SPSS 19.0 software (SPSS Inc.)

To further investigate the identified associations among the variables, a path analysis model using MPlus 8 statistical software [36] has been implemented considering empathic self-efficacy, self-efficacy in dealing with negative emotions, and inclusive teaching as predictors, participants' prosocial behavior, academic performance, internalizing problems and externalizing problems as outcomes, and participants' gender and social desirability as covariates. We also estimated the correlations among the predictors and the correlations among the outcomes. The following parameters were used to evaluate the model's goodness-of-fit: Chi-square goodness-of-fit (χ^2) with its degrees of freedom (*df),* comparative fit index (CFI), Tucker–Lewis Index (TLI), root-mean-square error of approximation (RMSEA), and standardized root-mean-square residual (SRMR). In addition to nonsignificant χ^2, we also considered CFI and TLI values > .90 [37], RMSEA < .07, and SRMR < .08 [37] as indicators of acceptable model fit.

3. Results

3.1. Descriptive statistics and correlation analyses

Table 1 shows the means, standard deviations, skewness, and kurtosis for all the examined variables for the total sample. Values less than 2 for univariate skewness and less than 5 for univariate kurtosis were used as criteria or evaluating univariate normality [38].

Table 2 shows the Pearson's correlation implemented on the full sample among the studied variables.

	Mean	Standard deviation	Skewness	Kurtosis
Prosocial behavior	3.71	0.70	−1.09	3.19
Academic performance	93.17	6.56	−0.75	−0.35
Internalizing problems	1.49	0.33	0.54	−0.71
Externalizing problems	1,40	0.25	1.34	2.23
Empathic self-efficacy	3.87	0.67	−0.74	2.72
Self-efficacy in dealing with negative emotions	3.21	0.65	0.37	0.67
Inclusive teaching	0.01	0.89	−0.17	0.18
Social desirability	1.43	0.19	0.40	−0.55

Table 1.
Descriptive statistics.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Prosocial behavior	1						
(2) Academic performance	.098	1					
(3) Internalizing problems	−.061	−.089	1				
(4) Externalizing problems	−.078	−.056	.626**	1			
(5) Empathic self-efficacy	.390**	.122	−.001	.119	1		
(6) Self-efficacy in dealing with negative emotions	.400**	−.063	−.558**	−.376**	.279**	1	
(7) Inclusive teaching	.413**	.205+	−.047	−.033	.156	.327**	1
(8) Social desirability	−.157	.128	.153	.445**	.031	−.229**	.041

Note. $^{+}$ *= p < .10; *= p < .05; **= p < .01.*

Table 2.
Correlation analyses.

The results show moderate positive significant associations between college students' prosocial behavior and empathic self-efficacy (.390**), self-efficacy in dealing with negative emotions (.400**), inclusive teaching (.413**); a marginally significant association between college students' academic performance and inclusive teaching (.205+); moderate and negative significant associations between internalizing problems and self-efficacy in dealing with negative emotions (-.558**) and between externalizing problems and self-efficacy in dealing with negative emotions (-.376**); a moderate and positive significant association between participants' social desirability and their externalizing problems (-.229**).

3.2. Path analysis

To examine the effects of participants' empathic self-efficacy, self-efficacy in dealing with negative emotions and inclusive teaching on internalizing and externalizing problems, prosocial behavior, and academic performance, we implemented a path analysis model while controlling for the effects of participants' gender and social desirability, as covariates. This model fitted very well data: $\chi^2(9) = 11.20$, $p = .26$; RMSEA = 0.04 (90% CI 0.00, 0.12), CFI = 0.98, TLI = 0.94, SRMR = 0.04).

It emerged that: self-efficacy in dealing with negative emotions negatively predicted participants' internalizing and externalizing problems and positively predicted prosocial behavior; empathic self-efficacy positively predicted participants' externalizing problems and prosocial behavior; and inclusive teaching positively predicted participants' scholastic performance and prosocial behavior. Regarding covariates it emerged that: participants' social desirability positively predicted externalizing problems, and negatively predicted self-efficacy in dealing with negative emotions; it also emerged that women reported higher academic performance and lower self-efficacy in dealing with negative emotions than men (**Figure 2**).

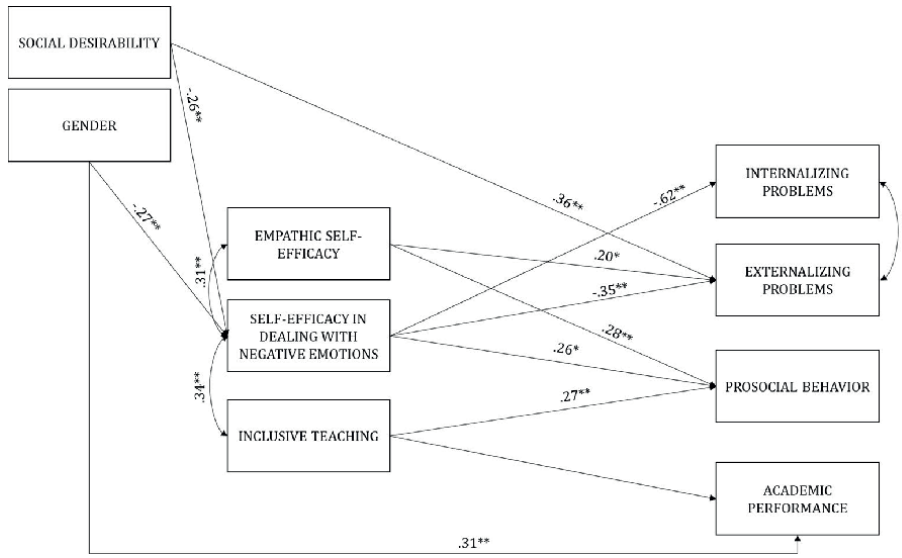

Figure 2.
Path analysis model.
Note. *= p < .05; **= p < .01. Only significant standardized coefficients are reported. Gender: 0 = women, 1 = men.

4. Discussions

The overall objective of this chapter was to examine the impact of empathic self-efficacy, self-efficacy in dealing with negative emotions, and inclusive teaching in affecting psychosocial and scholastic adjustment of college students studying abroad. Prosocial behavior, academic performance, and internalizing and externalizing problems were considered as outcomes.

Our first objective consisted of examining means, standard deviations, skewness, and kurtosis for all the studied variables for the total sample. Our second objective was to examine the associations between study variables. Consistently with the literature focused on the role of self-efficacy beliefs in affecting prosocial behavior [17, 39], results from the Pearson's correlation analyses showed moderate positive significant associations between college students' prosocial behavior and empathic self-efficacy, self-efficacy in dealing with negative emotions, and also inclusive teaching; furthermore, results showed also a marginally significant association between college students' academic performance and inclusive teaching, further confirming the beneficial role played by an inclusive educational environment in promoting students' social and academic adjustment [40].

In addition, in line with the literature suggesting that low levels of self-efficacy in dealing with negative emotions could be associated with internalizing and externalizing symptoms [10, 14, 21–24], results show moderate and negative significant associations between internalizing problems and self-efficacy in dealing with negative emotions and between externalizing problems and self-efficacy in dealing with negative emotions.

Finally, results showed a moderate and positive significant association between participants' social desirability and their externalizing problems. This could be interpreted as the participants' tendency to avoid giving responses that are not socially desirable that regard the tendencies to show aggressive and disruptive behaviors toward other people, in order to give a better image of themselves [41–43].

Our third and final objective was to further investigate the identified associations among the variables through the implementation of a path analysis model considering participants' prosocial behavior, academic performance, internalizing problems, externalizing problems as outcomes and empathic self-efficacy, self-efficacy in dealing with negative emotions, and inclusive teaching as predictors, while accounting for the correlations between the predictors, the correlations between the outcomes, and the impact of two covariates on the study variables, namely, students' gender and social desirability.

In agreement with previous studies [15, 39], it emerged the significant and positive effect of both empathic self-efficacy and self-efficacy in dealing with negative emotions on prosocial behaviors. Accordingly, an increased capability to perceive themselves as able to face challenges and difficult situations that often involve the insurgence of negative emotion, and the perceived capability to not feel overwhelmed by the others' emotions, but instead being able to feel other people while being helpful to them, could be considered important predictors of prosocial behavior [17, 39].

Furthermore, in line with our initial hypothesis about the role of inclusive teaching in promoting students' adjustment [28–30], also inclusive teaching significantly and positively predicted prosocial behavior. Therefore, it is reasonable to think that an environment that is open and welcoming to its students' needs and individual differences, promotes prosocial behavior among students.

Furthermore, according with previous studies, academic performance was positively and significantly by inclusive teaching. This is interesting considering that the literature is not still fully clear about this association [44]. For example, Fruth and Woods [45] questioned whether an inclusive environment would be beneficial also for those students who did not have any disability in a class with disabled students, and the results were not consistent: they had about the same academic performance, with a slight increase only in a few subjects and a decrease in others.

This means that these associations need more investigation, considering the heterogeneity of students and educational systems, this could be a challenging process.

In addition, consistent with previous studies [21–24] suggesting that the inability to regulate negative emotions is an important predictor of negative affect and anxiety/depression, in the present study it emerged that self-efficacy in dealing with negative emotions significantly and negatively contributes to explain internalizing problems.

Lastly, consistent with previous research which supported that self-efficacy beliefs play a key role also in preventing externalizing problems [10], it was found that self-efficacy in dealing with negative emotions significantly and negatively predicted externalizing problems.

Unexpectedly, it emerged a positive association between empathic self-efficacy and externalizing behaviors. It might be speculated that being capable of understanding others' needs can be also a tool to be used against others and, thus, connected also with externalizing and antisocial behaviors. However, this result certainly needs further analysis to be corroborated.

Regarding study's covariates, participants' social desirability positively predicted externalizing problems, and negatively predicted self-efficacy in dealing with negative emotions. Finally, women reported higher academic performance and lower self-efficacy in dealing with negative emotions than men.

5. Limitations, future directions, and implications

The present study has some limitations.

First of all, the sample is relatively small in its size, thus limiting the generalizability of the study's findings.

Also, considering that we are dealing with students who study abroad, that come from different environments and ethnicities, and that could affect self-efficacy beliefs [46]. Another important limitation of the present contribution consists of not having considered the role of students' socio-economic status that could affect the identified associations among the studied variables. Furthermore, the examined data are cross-sectional in their nature, thus preventing any causal relations among the study variables. Future research could overcome these limits by implementing longitudinal designs to examine the impact of the considered predictors on college students' psychosocial well-being. Although the study has several limitations, it is one of the few studies focused on a sample of college students' who study abroad considering both individual and contextual determinants of their psychosocial well-being.

This study's findings also provide useful information in terms of intervention programs aim at promoting well-being of college students who study abroad.

6. Conclusions

The purpose of this study was to investigate the contribution of individual and contextual factors in determining (mal)adjustment of college students who study abroad. The opportunity of studying abroad is one of the best ways to build students' global awareness and global competence, ranging from cross-cultural competencies and interpersonal skills in problem-solving, to intercultural awareness [4–6]. Despite the major benefits of this experience, studying abroad could also lead to some risks concerning students' physical and mental health [47], as they could present culture

shocks, homesickness, and separation anxiety [48]; as well as the expression of risky behaviors [7]. Therefore, it is very important that these students have the right tools to engage in this opportunity and to be ready to face all the possible risks associated with it. A crucial personality factor for the student who studies abroad that needs to be addressed is self-efficacy in the domain of both emotion regulation and interpersonal relationships [9]. Specifically, self-efficacy in dealing with negative emotions has been found to increase attitudes in prosocial behavior and decrease delinquent behaviors [11, 22]; and empathic self-efficacy contributes to prosocial behavior both cross-sectionally and longitudinally [11, 15].

As for the contextual factors, inclusive teaching has been considered important for students' well-being [29, 30].

Therefore, the present study contributed to highlight those factors that promote psychological well-being in students who study abroad and that provide them with the necessary tools (both internal and contextual) to make the most of the study abroad experience, where they can feel both up to the task of facing all the opportunities that arise, as well as protected by an environment that accepts them in their uniqueness.

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Conflict of interest

The authors declare no conflict of interest.

Author details

Laura Di Giunta*, Carolina Lunetti, Silvia Pagliarani, Giulia Gliozzo, Alessia Teresa Virzì, Clementina Comitale and Chiara Riccioni
La Sapienza University of Rome, Rome, Italy

*Address all correspondence to: laura.digiunta@uniroma1.it

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