

## REMOTE EDUCATIONAL STRATEGIES IN A MULTIPROFESSIONAL RESIDENCY PROGRAM IN THE CORONAVIRUS PANDEMIC SCENARIO: AN EXPERIENCE REPORT

ESTRATEGIAS EDUCATIVAS REMOTAS EN UN PROGRAMA DE RESIDENCIA  
MULTIPROFESIONAL EN MEDIO DE LA PANDEMIA DE CORONAVIRUS: UN INFORME  
DE EXPERIENCIA

ESTRATÉGIAS EDUCACIONAIS REMOTAS EM UM PROGRAMA DE RESIDÊNCIA  
MULTIPROFISSIONAL EM MEIO À PANDEMIA PELO CORONAVÍRUS: UM RELATO DE  
EXPERIÊNCIA

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### Abstract

This article aimed to describe the adapted pedagogical process and the gamification strategy implementation by the Multiprofessional Residency Program in Public Health Policies Management at the School of Health Sciences of the Federal District, about the adversities faced in the coronavirus pandemic scenario. This is the report of the experience of residents and tutors regarding pedagogical activities implementation, adapted for emergency synchronous remote education, from April to July 2020. These activities were carried out using the gamification method, called "May the force be with SUS!", and the tools used were Google Classroom, Google Meet and Instagram - considered digital support technologies. In the virtual meetings, various topics were addressed, such as the evaluation of public policies, competencies for manager 4.0, health information and care management. It was possible to identify potentialities and challenges with the experience of gamification - all members of the residency program got involved; residents autonomy and protagonism; adjustments in the

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activities planning and schedule. The use of gamification proved to be positive and satisfactory as an educational strategy for residents training and qualification, giving continuity to the teaching-learning process in the midst of the coronavirus pandemic.

**Key words:** Competency-Based Education; Pandemics; Educational Technology.

### Resumen

Este artículo tuvo como objetivo describir el proceso de adaptación de las actividades pedagógicas y la implementación de la estrategia de gamificación por el Programa de Residencia Multiprofesional en Gestión de Políticas de Salud Pública en la Facultad de Ciencias de la Salud del Distrito Federal, frente a las adversidades enfrentadas en el escenario pandemia por coronavirus. Este es el informe de la experiencia de los residentes y tutores con respecto a la implementación de actividades pedagógicas adaptadas para la educación remota de emergencia, en el período de abril a julio de 2020. Estas actividades se llevaron a cabo utilizando el método de gamificación, llamado "Que la fuerza esté con SUS!", y cómo las herramientas utilizadas fueron Google Classroom, Google Meet e Instagram - tecnologías de soporte digital. En reuniones virtuales, abordamos varios temas, como la evaluación de políticas públicas, habilidades para el gerente 4.0, gestión de información de salud y gestión de la atención. Fue posible identificar potenciales y desafíos con la experiencia de gamificación: compromiso de todos los miembros del programa de residencia; autonomía y protagonismo de los residentes; necesidad de ajustes en la planificación y el cronograma de actividades. El uso de la gamificación resultó ser positivo y satisfactorio como estrategia educativa para la capacitación y calificación de los residentes, proporcionando el proceso de enseñanza-aprendizaje en medio de la pandemia de coronavirus.

**Palabras-clave:** Educación Basada en Competencias; Pandemias; Tecnología Educativa.

### Resumo

Este artigo teve por objetivo descrever o processo de adaptação das atividades pedagógicas e implementação da estratégia de gamificação pelo Programa de Residência Multiprofissional em Gestão de Políticas Públicas para a Saúde da Escola Superior de Ciências da Saúde do Distrito Federal, frente às adversidades enfrentadas no cenário de pandemia pelo coronavírus. Trata-se do relato de experiência de residentes e preceptores quanto à implementação das atividades pedagógicas adaptadas para o ensino remoto síncrono emergencial, no período de abril a julho de 2020. Essas atividades foram realizadas por meio do método da gamificação, denominadas "Que a força esteja com o SUS!", e as ferramentas utilizadas foram o *Google Classroom*, *Google Meet* e o *Instagram* - consideradas tecnologias digitais de apoio. Nos encontros virtuais, abordaram-se temas diversos, como a avaliação de políticas públicas, competências para o gestor 4.0, gerenciamento de informação em saúde e gestão do cuidado. Foi possível identificar potencialidades e os desafios com a experiência da gamificação - engajamento de todos os membros do programa de residência; autonomia e protagonismo de residentes; necessidade de ajustes no planejamento e cronograma de atividades. O uso da gamificação mostrou-se positivo e satisfatório enquanto estratégia educacional para a formação e qualificação dos residentes, conferindo continuidade ao processo de ensino-aprendizagem em meio à pandemia pelo coronavírus.

**Palavras-chave:** Educação Baseada em Competências; Pandemias; Tecnologia Educativa.

## Introduction

Multiprofessional Health Residences were instituted by Law No. 11,129 of June 30, 2005, and are a modality of postgraduate education *lato sensu*. One of their guiding principles is integral and interdisciplinary formation by qualified professionals (BRAZIL, 2005). In the context of the Federal District (FD), the Superior Health Sciences School uses active teaching-learning methodologies and offers residence vacancies annually. Of the total workload of 5,760 hours, 20% are dedicated to theoretical activities (FEDERAL DISTRICT, 2015).

Health professionals training is essential for the maintenance of the public system, aiming to articulate theory and practice, bringing teaching closer to the reality of services (SOUZA; FERREIRA, 2019). The problematization of real work scenarios is powerful as a tool to transform professional practice. In this sense, emerging diseases have an impact on the resident's training process (BRAZIL, 2014; BRAZIL, 2020A; BRAZIL, 2020b).

As example, there is the new coronavirus infection (Covid-19), whose agent is SARS-CoV-2 virus, which presents high transmissibility and was characterized by the World Health Organization (WHO) as a public health emergency of international relevance (BRAZIL, 2020A; BRAZIL, 2020B). So far there is no vaccine available, the most effective measures are displacement restriction and social isolation (BRAZIL, 2020C).

Thus, all areas of society have had to adapt and think about alternatives to overcome the challenges imposed by the pandemics. One of them is distance education, through technological advance and its multiple resources (DE OLIVEIRA; DE SOUZA, 2020).

Among the various educational strategies that can be adopted, gamification emerges in a promising way, as an active learning methodology. It uses principles and techniques of games in activities not necessarily playful, creating spaces for learning mediated by challenge (FISCHER; GRIMES; VICENTINI, 2019; RIBEIRO et al., 2020). With this, one must consider, especially in the remote educational context, that tools for teaching modality must be effective for a specific target audience, as well as the

access to technologies in an egalitarian way must be considered. (AMARILLASON, 2011; ALONSO; SILVA, 2018).

Active learning methodologies are innovative tools that aim to stimulate the development of student autonomy. They are encouraged to reflect and make their own decisions to achieve the goals set, with teachers playing the role of facilitator/guide in this process (BERBEL, 2011). Another example of this type of methodology is the flipped classroom, which is a variation of teaching where the logic of activities are inverted, so that students study the contents beforehand, to later deepen in discussions with teachers and colleagues (LEÃO; SANTOS, 2019).

It is important to emphasize that the use of inverted classroom has proved to be favorable and it is necessary to prepare those involved for its use, since there must be a change in behavior and development of skills, such as teamwork, conflict resolution, collaboration, early preparation and acceptance of the new (GUIMARÃES et al, 2020).

Considering the need of the Multiprofessional Residency Program in Public Health Policies Management (MRPPHPM) to fulfill the pedagogical activities, gamification was chosen as a remote strategy due to the suspension of the educational activities by the Federal District Government due to public health emergency by the coronavirus (DISTRITO FEDERAL, 2020).

Thus, this article aimed to describe the experience of MRPPHPM in implementing remote educational activities based on the gamification methodology from April to July 2020.

## **Materials and methods**

This is an experience report on the implementation of PRMGPPS remote pedagogical activities, in which gamification and flipped classrooms were used as active learning methodologies, from April to July 2020.

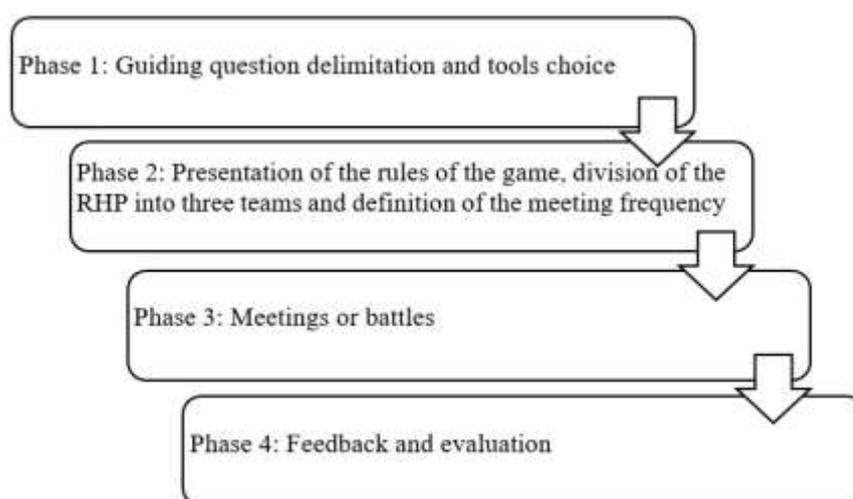
For the development of the activities, the stages of gamification proposed by Werbach and Hunter (2012) were adopted:

1. Define objectives;
2. Delimit the target behavior;
3. Describe the players;
4. Plan the cycle of activities;
5. Ensure the fun and;
6. Implement appropriate tools.

The definitions of the game pedagogical objectives were previously carried out in a collegiate meeting of the MRPPHPM. The guiding question established was: what are the strengths and challenges of the resident's training process, based on synchronous emergency remote teaching, throughout the Covid-19 pandemic in the FD?

Prior to the development of the proposed timeline, access to the Internet and computers were considered, in order to ensure the participation of all in online activities. The target behavior was the development of articulation, communication, investigation, creativity, sensitivity and objectivity skills. The players were the Resident Health Professionals (RHP) and the cycle of activities was planned in systematic stages and adapted to the reality of MRPPHPM, as can be seen in Figure 1.

**Figure 1** - Gamification stages according to the experience of MRPPHPM, 2020.



The tools used were: Google Classroom - for sending and publishing activities; Google Meet - online resource that allows video conferences with up to 250 participants without time restriction, interaction via chat, screen sharing and

meeting recording (SUPPORT GOOGLE, 2020); in addition to the Instagram platform - virtual portfolio focused on the disclosure and monitoring of activities developed.

The Game Design was inspired by the Star Wars saga, a series written and directed by George Lucas and released in 1977 (DURHAM and KELLNER, 2006). Emphasis phrases were used - like "May strength be with Brazilian's Unified Health System" - and the Jedi Order character structure was reproduced. The residents were divided into three groups, called planets, also in reference to the saga - Endor, Naboo and Tatooine - and characters choice should meet the rule that each planet would be composed by the same six characters - Princess Leia, Obi Wan, Rey, Luke, Han Solo and Chewbacca. The preceptor responsible for the guiding question orientation and discussion was called Master Yoda and the planet's work products presentation was called battle.

During the adaptation phase, established in the planning of the cycle of activities, a pre-battle was held in which the RHP received the title of Padawan. The prize of each planet, battle by battle, was symbolized by crystals (blue, green, purple or red, in reference to the lightsabers), giving the RHP the title of Jedi Knights.

Rules game definitions, as well as the topics covered and the periodicity of virtual meetings, were delimited by the preceptors of MRPPHPM. The battles were based on the flipped classroom methodology (PEREIRA and DA SILVA, 2018), in which there are three parts (preparation, research and verification of learning). Thus, a period of two weeks was followed for the previous preparation of RHP (reading and study of mandatory references) and search for complementary materials and sources, prior to the presentations and evaluation by the preceptors. In addition, each group was composed of RHP from the areas of nursing, nutrition, dentistry, collective health and social service, in order to promote interdisciplinarity.

Feedback and performance evaluation were performed from the attribution of mentions according to crystals colors, representing the following concepts: blue (very satisfactory), green (satisfactory), purple (partially satisfactory) or red (unsatisfactory). The criteria for the attribution of these mentions were the performance of each team in terms of content production (creativity and

innovation) and participation in the battles (presenter's eloquence and team involvement).

## Results

The defined schedule contemplated seven battles, with themes related to Health Management and its respective guiding issues for the debates and productions of the residents, as can be observed below (Chart 1).

**Chart 1** - Themes of the battles and their respective proposed activities, PRMGPPS, Federal District. April to July 2020.

Themes	Proposed activity
1st battle: Evaluation of Public Policies	Elaboration of a mental map of a reference article; <i>Guiding question:</i> How to guide learning using a mind map?
2nd battle: Access to health services in the context of Covid-19	Production of three publications in Instagram aiming three audiences: manager, health professionals and users of health services; <i>Guiding question:</i> How should the reception of Primary Health Care be rethought to contemplate the context of Covid-19?
3rd battle: Objectives of Sustainable Development	Choice of one of the Objectives of Sustainable Development, subsidizing reflection on solution proposals. Production of five slideshows in PowerPoint and a short video for Instagram; <i>Guiding question:</i> How can the health policy manager collaborate to solve the chosen problem in a creative and innovative way?
4th battle: e-SUS	Elaboration of eleven questions and crossword puzzle layout, with the term "Brazilian's Unit Health System Management" as the matrix. <i>Guiding question:</i> How can e-SUS contribute to improving the quality of care?
5th battle: Skills for the Manager 4.0	Choice of two critical issues that hinder quality care - one related to structure and the other to Brazilian's Unit Health System management process. Production of five PowerPoint slides containing solution proposals for the listed critical issues. <i>Guiding question:</i> How can the 4.0 management interfere in care production?
6th battle: Health Information Management	Elaboration of 10 questions in True or False format through the site <a href="https://kahoot.com/">https://kahoot.com/</a> , based on the reading of recommended bibliography. Production of PowerPoint slides in response to the guiding question. <i>Guiding question:</i> Discuss aspects related to information management, knowledge management and translation of knowledge as planning mechanisms for the public health manager.

7th battle: Care Management	Production of a PodCast called "COVIDCast" regarding the strengths and challenges of Covid-19's patient care management for hypertension and diabetes in the context of the pandemic. <i>Guiding question:</i> What are the strengths and challenges of patient care management for hypertension and diabetes in the context of the Covid-19 pandemic?
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The proposed activities for each battle were posted and followed through Google Classroom, link to participate in video calls by Google Meet was also made available. These tools provided organization and process dynamization, as well as facilitated pedagogical schedule monitoring.

For the Google Meet participation, residents and teachers have adopted the use of online chat and speech on the microphone. For the presentations, one of the members of each planet used the screen sharing resource to present the team's production. Finally, the productions were also posted on Instagram, to disclose the work portfolio. The portfolios of the three planets: Endor, Naboo and Tatooine can be checked in Appendix A, while the Google Classroom platform, called "May the force be with Brazilian's Unit Health System!" in Appendix B.

Nevertheless, potentialities and challenges identified in the MRPPHPM experience with gamification were outlined, which can be seen in Chart 2. The continuity of the teaching-learning process can be pointed out; the engagement of PRMGPPS members in its entirety, demonstrated the ease of access to the platform; autonomy and protagonism of RHP and teamwork; as well as intrinsic motivation to seek knowledge.

For the challenges, we highlight the assertiveness and noise in communication; battles planning adjustments; maintenance of most cameras turned off at the time of the virtual meeting; as well as difficulty in the active participation of all RHP in discussions.

**Chart 2** - Potential and challenges of gamification in the PRMGPPS experience, April to July 2020.

Potential	Challenges
1. Continuity of teaching and learning process; 2. Engagement of MRPPHPM members in its entirety, due to the ease of access to the virtual platform; 3. Greater interactivity and involvement in the performance of activities; 4. Autonomy and protagonism of RHP; 5. Teamwork and intrinsic motivation to seek knowledge.	1. Assertiveness and noise in communication; 2. Battles planning adjustments; 3. Maintenance of most cameras turned off at the moment of the virtual meeting; 4. Difficulty of active participation of all RHP in the discussion of proposed topics.

The evaluation of this experience by the participants themselves, at the end of the last battle, brought as central terms: motivation, integration, understanding of theme, adaptation. The central verbs were to reconfigure, to reshape and to resign - demonstrating that the learning objectives were met in a positive and satisfactory way

## Discussion

Gamification, understood as well as characteristic game design use, contributes to increase interest, motivate and fix the attention of a certain target audience. According to Da Silva and Fortunato (2020), the intention of gamification is not to create merely a game, but to use elements that motivate participants to get involved with the theme and progress towards the game objective. The use of rules, rewards systems, feedback, positive competition and mutual cooperation can be cited as crucial elements for good results. Therefore, this tool is used in the teaching and learning process with the purpose of awakening interest in the content (SILVA; SALES; CASTRO, 2019; MELLO et al, 2019; FARDO, 2013).

The methodology used, also called Digital Game-Based Learning, is configured, in this sense, as a style of learning that involves from simple activity to the resolution of complex problems. Regarding the implementation of Star Wars universe, previous studies point out that this theme constitutes a way to obtain a fun and continuously growing platform, allowing players to add new content (encouraged by competition) (CARDOSO et al, 2015).

Competition provides considerations regarding the act of having fun - when competing players seek victory; immersion is obtained through the game universe; feelings are enhanced by this experience; and involvement among players takes place towards a common goal. Some authors (SCHLEMMER, 2014; BERNARDI; DAUDT, 2014) point out that this process can be thought from three different perspectives: persuasion, collaboration, and cooperation, which depend on previous experiences and individual knowledge (JAEGER, 2018).

It is worth mentioning that different challenges involve gamification effective implementation in remote pedagogical processes. It is crucial for this implementation to understand how it is possible to maintain engagement, manage possible conflicts and apply good advance planning (OLIVEIRA; PIMENTEL, 2020). In the experience of MRPPHPM, this implementation was mainly done as a form of emergency adaptation of the teaching-learning process.

It was observed with the proposed tools that learning progress is a continuous articulation and that new technologies inclusion and tools in the teaching process is essential for the dynamics of learning (COSTA, 2019; PEREIRA, SILVA JUNIOR, DA SILVA, 2019). This fact corroborates the challenges faced by MRPPHPM, since the periodicity of delivery of the proposed activities had to be adapted in order to provide adequate time to meet the requirements of innovation and quality of content presented during the battles.

Previous studies (BOTTENTUIT JUNIOR, LISBON, COUTINHO, 2011; DA SILVA, FOSSATTI, JUNG, 2018) point out that Google For Education tools have great potential as a strategy to be explored in the pedagogical context, so that its use is very widespread among students, being a pertinent strategy both for the modernization of education and for educational actors involved motivation. Moreover, Google tools use in the teaching-learning process presents other advantages, such as: ease of access, communication, organization and online teaching; sharing of materials and knowledge; allows saving time and using active methodologies; adding to the fact that it is a free toolkit (SILVA; FOSSATTI; JUNG, 2018; LIMA et al, 2017).

Contreras (2020) cites that the process of educational management should be proposed and analyzed by the educators responsible for applying the

gamification methodology. The author says that the lack of theoretical bases validates the application of gamification and contributes to the failure of this type of teaching methodology. Aiming to contribute to the solution of this problem, she shares the experience of such methodology in the Public Accounting Program of the Military University of Nova Granada (Colombia). Some essential elements for the success of the creation of gamification design were the definition of a theme to be worked on, the incorporation of scores, ranking, missions and challenges, feedback, progress bar, avatars, deadline for activities delivery and self-expression encouragement, sense of curiosity, problem solving and autonomy. Similarly, it was found that these elements were also part of the MRPPHPM experience.

Innovative elements of this work can be pointed out the use of virtual tools for the development of synchronous and asynchronous activities, as well as the involvement of residents and preceptors with the game strategy. As limitations, communication noises, adjustments throughout activities development and the difficulty of active participation of all residents in discussions are highlighted.

### **Final Considerations**

The coronavirus pandemic triggered several implications, pointing to the need to reinvent and create itself by technology support. Thus, we can affirm that the gamification methodology used in this experience in a remote and emergency manner has proved satisfactory, giving continuity to the process of teaching and learning as recommended in the residency programs. In due time, tools were properly identified, as well as the pedagogical objectives, according to the peculiarities of MRPPHPM.

It should be noted that this work is about an innovative implementation within the Multiprofessional Residences, which can be reproduced and adapted in other residency programs. It can be pointed out that the use of the mentioned tools is useful and effective for the process, as well as for the optimization of the activity time. The development of intrinsic motivation and engagement are strong points in this experience. Thus, tools adopted demonstrate the importance of access to

technology as an educational strategy and highlight the relevant role of active learning methodologies in distance education.

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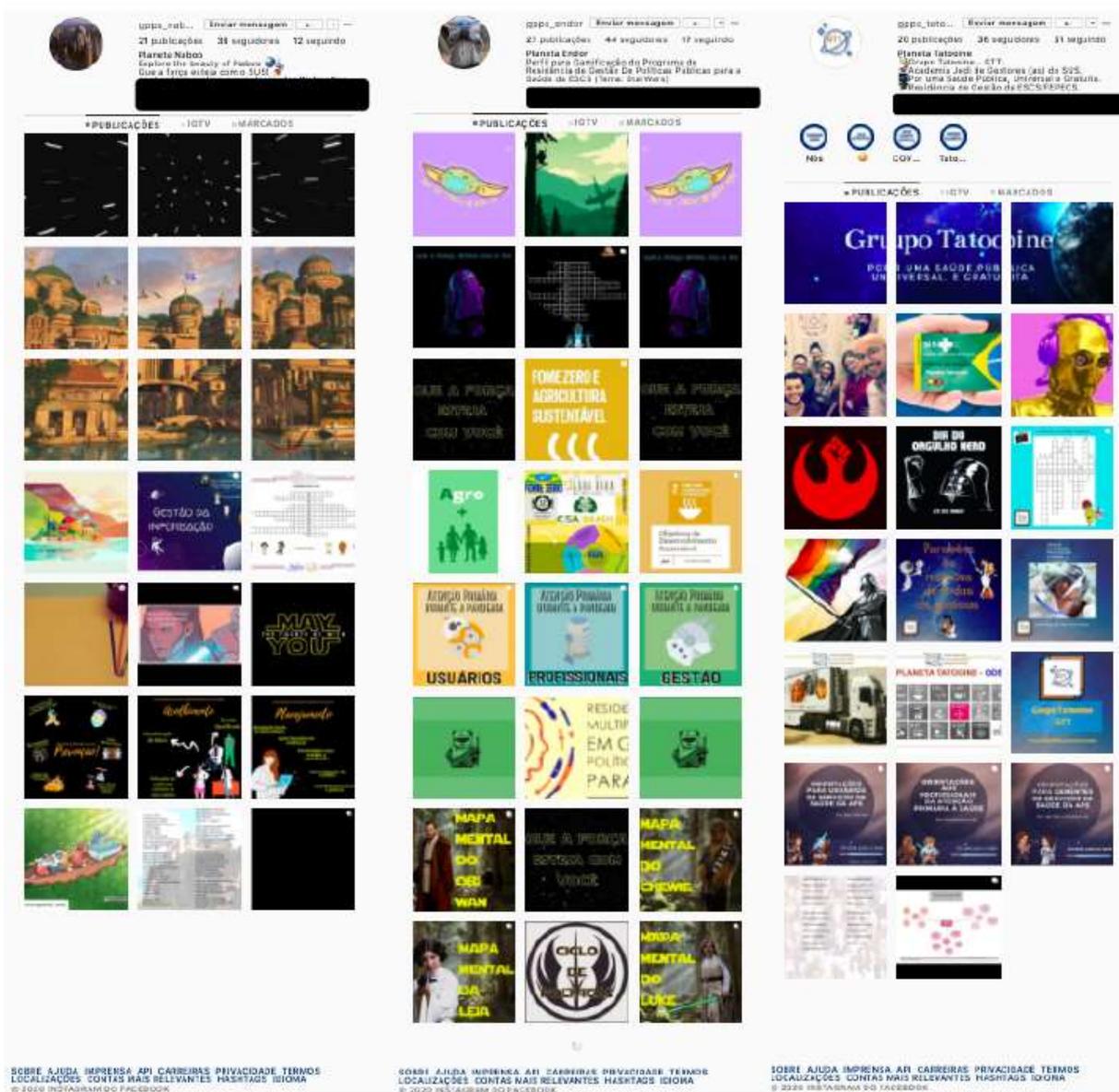
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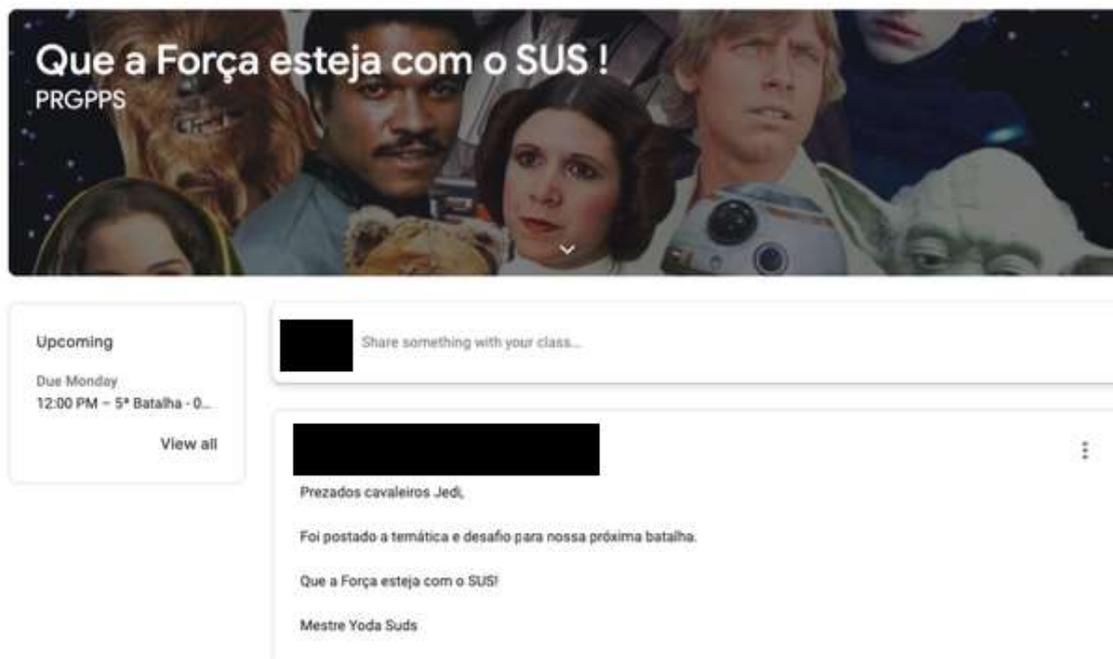
## APPENDIX A Planets Endor, Naboo and Tatooine Portfolios (Instagram)



Source: Instagram

## APPENDIX B

### Google Classroom Platform "May the force be with Brazilian's Unit Health System"



Source: Google