

INFORMATION TECHNOLOGY AND COMMUNICATION AND EDUCATIONAL PRACTICES

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Abstract: Information and communication technologies have opened up new possibilities of understanding reality, and transformed forms of management and construction of knowledge, to teach and to learn. The incorporation of media and high interactivity technologies, accessibility in the deployment and implementation of educational and management models, as well as the sustainability of higher distance education must be backed by investment in quality tools applied to didactic and pedagogical learning promoters procedures. The aim of this article is to present the strengths and weaknesses of the use of Information and Communication Technologies in VLE UEPG environment through the Moodle user's view in the different areas of knowledge they are part of the higher education distance of UEPG. As a result, there is a contribution to the systematization and dissemination of good practice of distance education, to enable the creation of regulations for improvement and as well as propose policies for innovation in education. In particular, this paper presents the study of the effects of the use of media and technology in distance education and its application in various areas of knowledge.

Keywords: Distance Education; Technology; Educational Practices.

1. INTRODUCTION

Books visionaries to reality established the Digital Era (NEGROPONTE, 1995) and the Network Society (CASTELLS, 2007). Technological order is widespread in the collective of humanity socially included, connected by technological devices, breaking the concepts of space and time, and experiencing the world as a great global village.

Information and Communication Technologies have opened up new possibilities for understanding the world, and transformed forms of management and construction of knowledge, teaching and learning (CASTELLS, 2003; HERRINGTON, REEVES & OLIVER, 2010; ROSENBERG, 2001). Rheingold (1996, p.17) said that digital technology does not offer its full potential by only. It is essential that "their latent capacities are conducted deliberately and intelligently, by an informed population."

The incorporation of media and high interactivity technologies, accessibility in the deployment and implementation of educational and management models, as well as the sustainability of higher distance education must be backed by investment in research, systems, internal and external policies integrated that favoring expansion and quality of supply.

Knowledge is mediated, shared and produced by the Information and Communication Technologies, which require standardization and potentiation, enabling and ensuring its use of universal and sustainable manner. The use of media and technology in education requires upgrade versions, reduce resistance, adapt to successive changes and consider the representations of the users as well as check the processing needs and suit the teaching-learning practices. Create new opportunities for actions to increase this scenario, it means innovation in the process of developing methodologies, educational practices, technological arrangements and appropriation of media and languages that are spread by technology.

In the model of distance education known as online education, the student is the center of the process. The student is a type of learning, in which information, the material for study and communication with the professor and tutor is available on the Internet. This model uses the Internet and Web resources to offer a Virtual Campus with access to course offerings, news, academic services and access to virtual learning environment.

The virtual learning environment allows you to create a virtual classroom for monitoring of students and conducting educational activities (ANDERSON, 2008). With the use of digital and network technologies, combined with other technologies, distance education now has a diverse and flexible set of possibilities. This ensures convergence of media, establish channels of interaction and exchange of information with the institution's student and academic community, as well as giving access to them.

To Bittencourt (2013), one should analyze the multiple effects produced by a project in distance education, by the look of the diversity of user profiles and correlate with the offered context. The quality of distance education depends on the experienced and learned processes. It is subject to the system users, the curriculum, the support to students, the information resources, by knowledge, by its accessibility, the institutional assessment procedures and also by the student.

In view of the above, this article presents an analysis of the results of an evaluation survey conducted about the virtual learning environment of the State University of Ponta Grossa - UEPG, analyzing the strengths and weaknesses of the use of Information and Communication Technologies, in the view of Moodle¹ users, in different areas of knowledge in which it operates the higher distance learning courses of UEPG.

2. METHODOLOGY

The applied research methodology involves the survey of primary sources of state of the art, about media and technologies applied to education; the description of distance education and the use of virtual environments of distance education in NUTEAD - Núcleo de Tecnologia e Educação Aberta à Distância (Center for Technology and Open Distance Education) in Ponta Grossa State University. The survey was conducted by team of technicians and researchers, with systematic analyzes and reviews of the context of the use of media and technologies, particularly in the use of Moodle. The development of solutions and new strategies for improving the educational service is applied.

Aiming to diagnose the potential and especially the weaknesses in UEPG virtual learning environment, opted for the use of a questionnaire drawn up with 23 questions by setting the profile of the respondents and evaluating the virtual environment on a scale of 1 to 10, where 1 meant the total dissatisfaction and 10 meant total satisfaction. This questionnaire were considered lower ratings than 7 as possible weaknesses in the environment, whereas ratings equal to or greater than 7 as possible potential.

¹The VLE used the UEPG is Moodle. Moodle - Modular Object-Oriented Dynamic Learning Environment, a platform to develop and manage online courses based on free software. According to their official website (moodle.com), it is a modular system based on plugins that are like Lego blocks which, when put together provides the flexibility to build what you want .

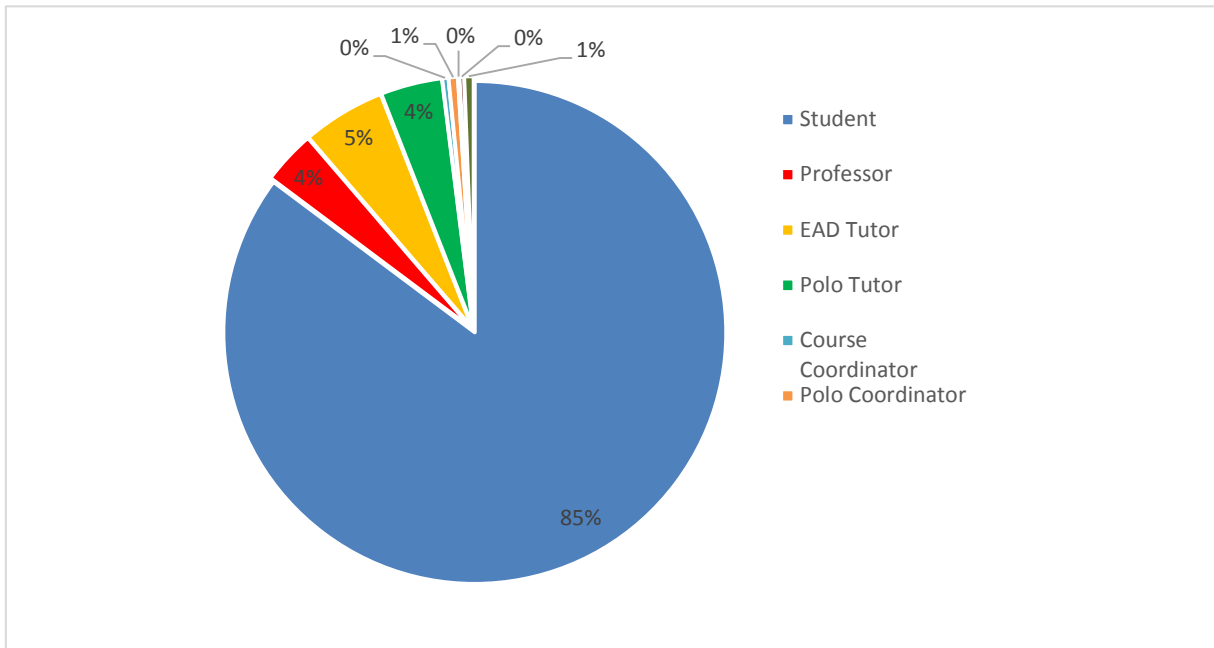


Figure 1: Survey Participants

This questionnaire was called "Questionnaire evaluation of Virtual Learning Environment of UEPG" and made available online, during 30 days through Google Forms tool, so users of the virtual environment answer the questionnaire. Was obtained in 1008 participants answering the survey (Figure 1), involving students, professors, tutors, coordinators (course, tutoring, teaching) and VLE (Virtual Learning Environment) support technicians.

In analyzing satisfaction with the reception of each component in VLE, with suggestions and comments, analysts kept the systemic look at monitoring and management needs in the responses of "one" or "many", considering its representativeness and significance. This way, developing the ability to understand the whole, seeking to identify opportunities to enhance and developing new solutions and strategies for improvement.

3. RESULTS AND DISCUSSIONS

This section presents the results, strengths and weaknesses, of the use of VLE UEPG in the questionnaire application in the year 2014. The issues assessed are related to: i) ease of access to VLE; ii) visual comfort of platform related to the colors and the environment layout; iii) viewing of teaching materials available for learning and activities proposed by the professor; iv) communication tools between professor and tutor and the student; v) tools and resources for learning and performance improvement of the VLE and unusual features can be discarded

In considering strengths, the sum of ratings equal to or greater than 7, the survey revealed a high satisfaction rate with all the variables evaluated. On the issue of ease of access to VLE, 95.4% of users said they were satisfied; in relation to the visual comfort of the platform related to the colors and the environment layout, respectively 97.4% and 94.1% of respondents were satisfied; as the display of educational materials available for learning and activities proposed by the professor, 94.2% and 95.3% were satisfied; regarding the communication tools between professor and tutor and student, 91.8% said they were satisfied; and compared the tools and resources for learning VLE, 96.7% of users are satisfied. The high

rate of satisfied respondents to the survey questions therefore confirm the powerful potential of Moodle Platform to meet the demands of development and management of distance learning courses offered by UEPG NUTEAD.

The research shows that the weaknesses, the lower ratings than 7, in all aspects had low representation, as on average representation was less than 5% of respondents. The research analysis then turns to the significance of comments and suggestions on the weaknesses, in order that they reveal the perception of the user regarding the use of the item and the look of the analyst must be alert to opportunities to enhance the VLE NUTEAD .

On the issue of access facility to VLE, as shown in Figure 2, about 4.6 % of users understood how fragile the difficulty of seeing notes of their disciplines, have performed tasks and questionnaires, noting that the interface could be simplified. The environment should have a friendly interface, easy navigation and intuitive. Users understand that access to links is confusing and difficult to locate. It is difficult to visualize the course history with the results of the disciplines and the grading. However, experienced users find that access in the previous version was difficult and that is currently outstanding. Animations and further guidance can help in better understanding by the user. Another suggestion made by the participating members of the research platform was to have a portal map to improve navigation.

Some users pointed out the difficulty of downloading books or parts thereof, whose feature is available, forcing the sending of the same by other electronic means. Due to the amount of available links inherent to the content, leaves the confused user. When there are mixed messages from students, the activities carried out bar is not updated as sent by users. In the questionnaires not appear wrong answers, when sent on the first try. Another pointed improvement aspect was referring to the impossibility or difficulty of access to the activities already undertaken historical and grades.

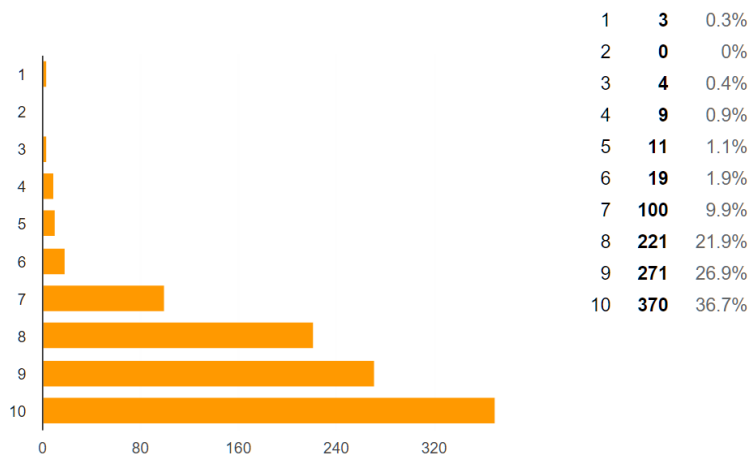


Figure 2: Access Facility to VLE

In the evaluation related to the perception of user about visual comfort of the platform, including colors, and layout setting in accordance with Figures 3 and 4, respectively, 2.5 % of respondents identified opportunities for improvement with regard to color and 6% related to layout. Some of these shortcomings suggest that could be used different colors to indicate status of activities, for example, the color red on what is urgent, or avoid using colors such as yellow for topic title to not hinder visualization. Other answers correspond to the particular opinions on neutral tones and other colors that are not relevant to the outcome of this work.

Regarding the environment layout, opportunities for improvement selected for an impact analysis on the implementation of changes are related to the accessibility and navigability of users. Issues such as reducing the number of tabs for access to certain task, icons include accounting tasks such as manual, calendar, among other things, improvements in the forum environment to facilitate communication, changes to facilitate the return to accessed pages and improvements in the texts of return messages.

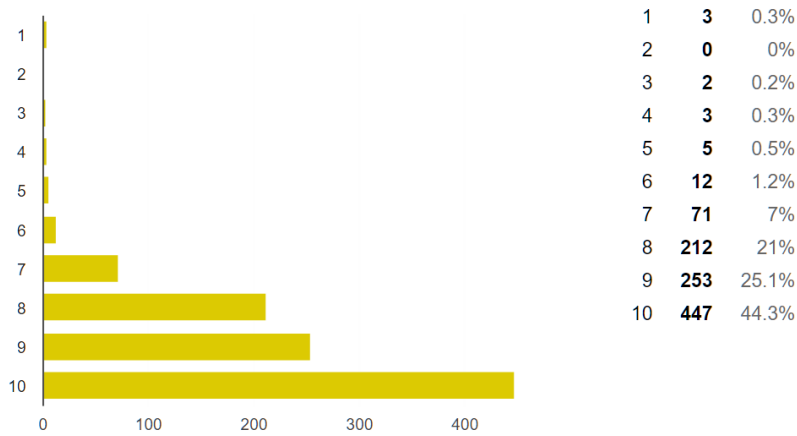


Figure 3: The colors in the VLE

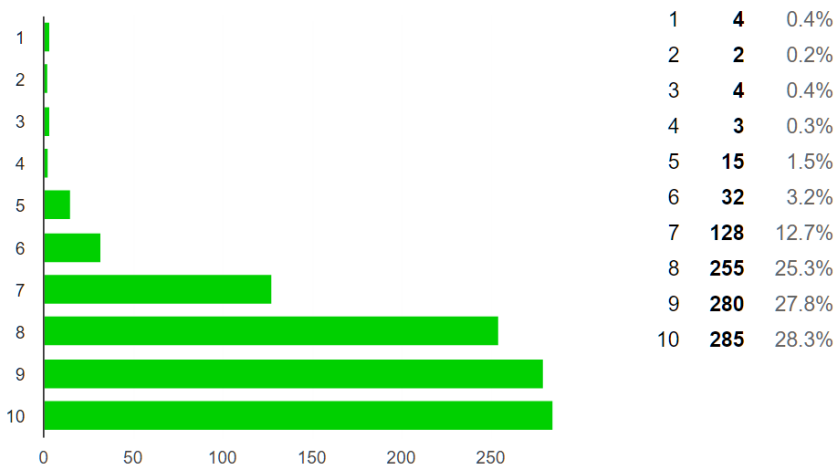


Figure 4: Layout of VLE

The evaluation results regarding the display of educational materials available for learning and activities proposed by the professor pointed out that 5.8% of respondents identified weaknesses in the process of access to learning materials and 4.8% in access to activities proposed by professors.

Among the most important suggested improvements for access to materials, they are unable to open certain videos with the use of proxies on the machines; and the need to group the materials to be used so that the student does not need to seek additions or content related to the proposed activities. The need to improve the quality of the image scanning and display of the pages has been suggested that when shown two time, generates the reading difficult.

Another point was suggested special attention to providing the supplementary material to non-use articles in full, because there is difficulty in research. And that, sometimes, the required materials are unsightly and difficult to see.

Regarding access to the proposed activities, the main weaknesses identified were related to greater clarity in statements about what you need to perform in order to facilitate student understanding. Some respondents indicate that there is need agility on feedback from tutors with respect to activities submitted for evaluation as well as the time limit for performing the same, which is sometimes short.

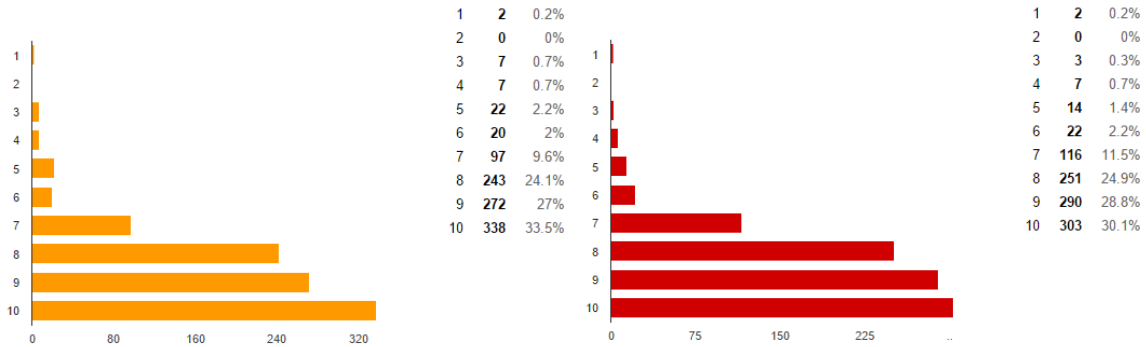


Figure 6: Access and viewing educational materials and activities

Too, would like to have the opportunity to send files via platform, as is done by email, and can be seen when they were accessed.

As for tools of communication professor and tutor and student (Figure 7), question that received highest rate as the weakness (7.6%), survey participants stated that the tools do not exist or are slow, making it impossible (sometimes) get answers. Reported missing return related to a forwarded information. Usually are unanswered questions in forum. Respondents believe that the messages are bureaucratic and could be easy as audio messages. State, yet, there is no student interaction channel and professor to perform oral activity. Also, would like to have the opportunity to send files via platform, as is done by email, and can be seen when they were accessed.

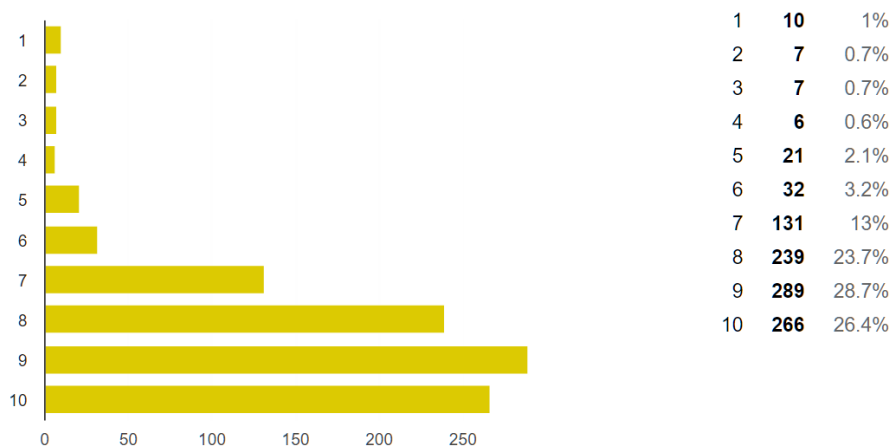


Figure 7: Regarding the Tools of Communication Professor and Student

Some perceive that the available tools although well prepared, that the problem of communication between professor and tutor is the lack of return activities. They understand that the forum tool is not enough for communication between professor and tutor and the

student. Others point out that there is a low view of the guidelines, with little access to the VLE, hindering the contact between professor and student. Also, they point out that there are few available online video lessons, like web conferencing, to answer questions. Respondents stated that the murals and media in the VLE are inefficient. Lack a tool like Messenger, facilitating communication student and tutor. The relationship between professor and student, should be more dynamic. Lack audiovisual resources, allowing greater understanding of the available contents.

Respondents suggest that it should have icons to attach direct messages with the tutor. This already happens in the field of posting of activities and in the forum. However, the forum is open and depends on the post, and this may have more exclusive character for the student or his group. Email and messages are insufficient.

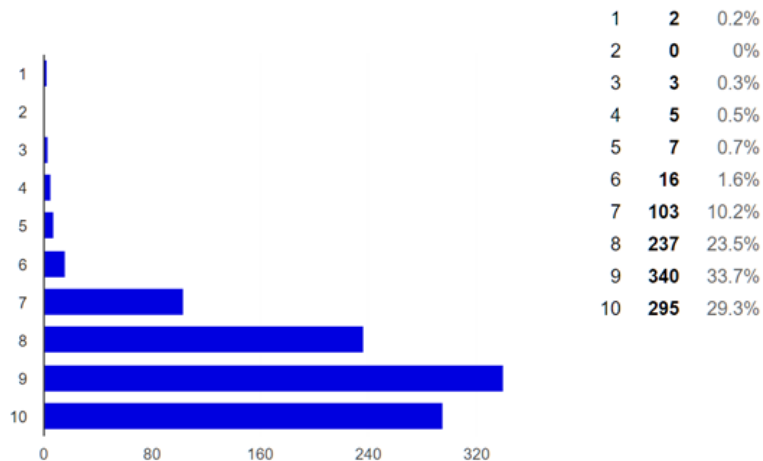


Figure 8: Tools and resources available on the VLE

As for tools and resources available (Figure 8), some respondents believe they should offer video and audio calls, with improved interface design. Lack audiovisual resources of interaction and systemic agility. It must present date and time for control purposes. The platform offers simple videos, exchange files and messages and a calendar. Lack pragmatism in the available tools. There is a lack of application for access to the VLE, via mobile. There are difficulties in locating materials made available and the lack of specific program for typing mathematical formulas.

For others, there is a need to improve the visual identity of the portal, grouping related topics, such as grades, disciplines, material and evidence. On the first page should provide access to forums and disciplines. Video lessons on web-class time should be made available. Allow direct and easy access to the professor trainer. Provide educational materials research tool related to the subjects, and chat tool, facilitating the solution of questions of the students with the tutor.

Another suggestion is to provide a inbox environment for message exchange between students and professors, like MSN, virtual map collection and updated news about UEPG and other academics. Also want greater clarity in the available texts, generating easy to understand. Should have open forum without evaluative character, where participants could talk informally with news links of posting discussion about it and related subjects. Also, enabling networking among participants.

They understand that there should be a tool for development of activities in the VLE itself, without the same had to be done in external text editor to the environment by solving problems such as the extension of the files (.rtf, .doc, .docx), of formatting (different text editor versions), potential problems with viruses, and allowing work on any operating system, including feature that records the unfinished or ongoing work.

Suggest a navigation bar for topics and a virtual room of studies with the participation of students and professor educators to answer questions from web conferencing, in addition to cash easily accessible prompts, with due dates of activities.

Having carried out a survey of the considerations made by the VLE users, in Table 1, the weaknesses percentages are represented (below the Note 7) per participant profile in research.

Table 1: The weaknesses percentages are represented, per participant profile in research

		Access Facility	Visual Comfort	Viewing of learning materials	Communication tools	Learning tools
% lower ratings than 7	Student	4,3%	7,5%	9,3%	7,2%	2,7%
	Course Coordinator		0,1%			0,1%
	Tutor Coordinator					
	Pedagogical Coordinator	0,1%				
	Polo Coordinator			0,1%		
	Professor		1,0%	0,7%	0,5%	0,1%
	Support				0,1%	
	EAD Tutor	0,1%	0,3%	0,4%	0,2%	0,3%
	Polo Tutor				0,1%	
Total		4,5%	8,8%	10,5%	8,1%	3,2%

It can be seen by this result that the percentage of respondents who indicate weaknesses is considered low, and the student user is the one with greater representation. All points highlighted improvements will be evaluated carefully, and within these, suggests an analysis of possible changes in the environment to: 1) Display of teaching materials available for learning and activities proposed by the professor, with 10.5% of notes; 2) Visual comfort of platform related to the colors and the environment layout, with 8.8% of respondents suggesting improvements; 3) Communication tools between professor and tutor and student, with 8.1% indicating weaknesses; 4) Improving the ease of access to the VLE, with 4.5 % of survey participants indicating significant changes.

4. CONCLUSIONS AND FUTURE RESEARCHS

With the survey results, there is a contribution to the systematization and dissemination of good practice of education online distance to allow the creation of regulations for improvement and propose policies for innovation in the virtual learning environment and distance education model of the UEPG. In particular, this paper presents the study of the effects of the use of media and technology in distance education and its application in various areas of knowledge.

Through Moodle, virtual teaching and learning environment that replaces the classroom platform technology is incorporated; they mediate the relationship between the professor and

the student. According to Tiffin (1997), the classroom is a communication system that allows a group of people gather for instruction, learning, comprehension of contents, diagrams, texts and finally, talk and share something common. In Moodle, the teaching-learning process takes place virtually and through him is sponsored access, availability and, above all, the process of transforming information to knowledge, by the student.

The student builds knowledge with a subjective part, related to their experience and interpretation of reality and content, and other objective part corresponding to the time it uses the features of this technology in the virtual environment effectively or limited.

Understanding how the student makes use of Moodle, the potential and technological limitations, to intervene where possible to offer better conditions for educational practices was the path taken by this research.

To follow in the pursuit of excellence, the distance education model, educational management and technological resources used in UEPG have been set, and should continue to be systematically improved, seeking dialogue with the current scenarios of distance education and the emerging needs of your target audience and the world of work. In this context, it is this that the technical and didactic and pedagogical proposed solutions need to come from an ongoing evaluation process. So, it is the result of a cyclical process of transformation and production of knowledge aimed at continuous improvement of educational services.

The sequence of the work points to the indication of the implementation of improvements and innovations considered relevant and systematic continuity of the assessments, seeking the pursuit of excellence in meeting the demands of users and the institution.

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