





ARTICLE

Recommendations of good practices for mediating the structuring of academic works: a case study*

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ABSTRACT

The theme of this work is good practices for mediating the structuring of academic works through Virtual Teaching and Learning Environments. In this case, this research aims to use the tools of the Moodle educational platform to mediate the structuring of the academic work, through the good practices identified in a literature review. For this purpose, a case study was performed in the scientific research methodology class of the graduate program in Information and Communication Technologies, from the Universidade Federal de Santa Catarina. The data analysis used Cronbach's Alpha to identify the efficiency of the resources employed. Based on the results, the contribution of good practices for mediating the structuring of academic work was confirmed, emphasizing the effective use of the tools and resources of the Moodle platform and the importance of integrating methods from other areas of knowledge to the developed model.

KEYWORDS

mediation; interaction; virtual teaching and learning environments; good habits; academic works.

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RECOMENDAÇÕES DE BOAS PRÁTICAS PARA MEDIAÇÃO DA ESTRUTURAÇÃO DE TRABALHOS ACADÊMICOS: UM ESTUDO DE CASO

RESUMO

Este trabalho tem como tema boas práticas para a mediação da estruturação de trabalhos acadêmicos por meio de ambientes virtuais de ensino e de aprendizagem. Nesse viés, a presente pesquisa teve como objetivo utilizar as ferramentas da plataforma educacional Moodle para mediar a estruturação de trabalhos acadêmicos, por intermédio das boas práticas identificadas na revisão de literatura. Para tal, realizou-se um estudo de caso na turma de Metodologia da Pesquisa Científica do programa de pós-graduação em Tecnologias da Informação e Comunicação, da Universidade Federal de Santa Catarina. Na análise dos dados, utilizou-se o alfa de Cronbach para identificar a eficiência dos recursos utilizados. Com os resultados, constatou-se a contribuição de boas práticas para a mediação da estruturação do trabalho acadêmico, enfatizando-se o uso efetivo das ferramentas e dos recursos da plataforma Moodle e a importância da integração de métodos de outras áreas de conhecimento ao modelo elaborado.

PALAVRAS-CHAVE

mediação; interação; ambientes virtuais de ensino e de aprendizagem; boas práticas; trabalhos acadêmicos.

RECOMENDACIONES DE BUENAS PRÁCTICAS PARA MEDIAR LA ESTRUCTURACIÓN DE TRABAJOS ACADÉMICOS: UN ESTUDIO DE CASO

RESUMEN

Este trabajo tiene como tema las buenas prácticas para mediar la estructuración de trabajos académicos a través de entornos virtuales de enseñanza y aprendizaje. En este caso, la presente investigación tiene como objetivo utilizar las herramientas de la plataforma educativa *Moodle* para mediar la estructuración del trabajo académico, a través de las buenas prácticas identificadas en la revisión de literatura. Para esto, se realizó un estudio de caso en la clase de metodología de la investigación científica del programa de posgrado en Tecnologías de la Información y la Comunicación, de la Universidad Federal de Santa Catarina. El análisis de datos utilizó o *Alfa* de *Cronbach*, para identificar la eficiencia de los recursos utilizados. A partir de los resultados, se confirmó la contribución de las buenas prácticas para mediar la estructuración del trabajo académico, enfatizando si el uso efectivo de las herramientas y recursos de la plataforma *Moodle* y la importancia de la integración de métodos de otras áreas del conocimiento y el modelo elaborado.

PALABRAS CLAVE

mediación; interacción; entornos virtuales de enseñanza y aprendizaje; buenas prácticas; trabajos académicos.

INTRODUCTION

From the omnipresence of technological resources and their interference, modifying and expanding the forms of teaching and learning, higher education institutions, both in person and distance learning, are integrating the use of digital technologies into the educational context. According to Educause (2019), *Horizon Report — NMC¹ 2019* —, the insertion of Information and Communication Technologies (ICTs) in higher education leads to the flexibility of educational environments, encouraging the adoption of active learning models, reflecting in greater student autonomy and boosting a new culture of innovation in academic institutions.

In this context, a digital technology has been progressively conquering space in higher education institutions, the Virtual Teaching and Learning Environment (VLE). According to Dahlstrom, Brooks and Bichsel (2014), this digital platform has become a ubiquitous resource in the daily routine of academics, enabling the construction of knowledge through its digital tools. Such resources can provide teaching and learning through interaction with teaching materials in different media (digital formats) and virtual communication with colleagues and teachers, among other possibilities.

However, even with the incorporation of technology into the educational scenario, Dahlstrom, Brooks and Bichsel (2014) point out the low rate of use of ICT tools and highlight, in addition to the lack of planning, the lack of knowledge regarding the method of application of such resources for teaching and for learning and digital inequality. According to Echalar and Peixoto (2017, p. 396), access to digital educational resources is still a major problem resulting from the “prolongation of pre-existing economic and social inequalities”. In surveys conducted by CETIC (2020) between October 2019 and March 2020, approximately 20 million households do not have internet access (equivalent to 28%), and one in four Brazilians do not use the internet.

Thus, such obstacles, resulting from digital inequality, low technological mastery and the lack of prior planning for the inclusion of ICTs in the classroom, can lead to several barriers regarding the use of educational platforms to mediate the process of knowledge construction, a phase in which, according to Bakar *et al.* (2015) and Bortolato (2016), ICTs can contribute to mediating the teaching and learning process and the preparation of course completion papers.

The course completion work, the last step to be performed by the student, is an extremely important step, as it requires the articulation of knowledge developed throughout the course, the understanding and realization of scientific research and the written preparation of this experience, which deserves more attention from the professor (advisor). For Bakar *et al.* (2015) and Santos and Cechinel (2017), such

1 NMC – presents annual studies referring to technological trends in higher education. These surveys are considered to have a great impact on technological planning, and guide strategies in higher education. (Becker *et al.*, 2017).

a moment demands constant mediation from the teacher regarding organization, structuring, time management and dedication.

From the above context, using ICTs effectively becomes inevitable to contribute, guide and monitor (mediate) the structuring of the main items of an academic work, namely: theme, theme delimitation, research problem, objectives, justification, methodology, main authors of the theme addressed, analysis and discussion of results, among others. According to Santos and Cechinel (2017), few studies report the use of VLEs in the mediation of final works, and further investigation into their contribution to such process is essential.

In this sense, based on the importance of academic works and the potential of ICTs, the following research question was asked: “How to effectively use VLE resources and tools to contribute to the process of mediating the structuring of academic works?”. The search for an answer to this question continued the studies by Pereira *et al.* (2019), which analyzed the contribution of good practices listed by Pereira *et al.* (2019) in the process of mediating the structuring of academic papers, through the tools and resources of the VLE Moodle.

The importance of such a study is justified since, from the exposed context, it can be seen that, even commonly used by most educational institutions, the use of virtual environments in the mediation process of academic work is still inefficient. Therefore, the relevance of this research is evidenced, which aims to contribute to the identification of good practices for the effective use of resources and tools of the VLEs in mediating the structuring of final works.

It is noteworthy that the focus of this study is not to present teaching and learning results, but rather to present the effectiveness of a set of actions applied in the Moodle platform for mediation in the preparation of course completion papers. For this, a theoretical framework on VLEs in higher education institutions and the good practices adhered to by them was used, as described in the next item of this article. The research also presents the model developed, based on the good practices of Pereira *et al.* (2019), to carry out the case study. As a result of the proposed investigation, in addition to the application of Cronbach's Alpha to the assertions made, the data collected on the applied actions is described through qualitative analysis, proposing recommendations for good practices.

GOOD PRACTICES IN VIRTUAL TEACHING AND LEARNING ENVIRONMENTS

In higher education, didactic practices integrate ICTs and lead to innovations in the teaching and learning process. From the importance of such resources in the educational field and according to Dahlstrom, Brooks and Bichsel (2014) and Kuhn (2017), a gap is evidenced regarding the mediation of the teaching and learning process through technological tools. This obstacle is related to digital inequality, the low domain regarding the use of ICTs and (or) the lack of guidance/instruction regarding their use in the knowledge construction process.

Thus, considering the context of strong technological intervention in education, the need for constant innovation and development of technologies that help the processes of interaction and mediation is emphasized (Freitas, 2009). In this sense, a new approach to the use of technological resources is essential in order to explore their potential in the mediation process of teaching and learning. Research by Bortolato (2016) shows the use of Virtual Teaching and Learning Environments as a strategy for innovation in face-to-face and distance education. Such environments, through their various resources and communication and interaction tools, when used in a systemic, organized and planned way, enable academic innovation from the elaboration of teaching practices (Bortolato, 2016; Simon, 2017).

Initially used for technological mediation in Distance Education, VLEs have gradually been integrated to in-person teaching, becoming an important tool for higher education institutions. According to Dahlstrom, Brooks and Bichsel (2014), approximately 99% of academic institutions use such environments as potential resources for managing the teaching and learning process and academic management. Szabo and Flesher (2002 *apud* Laffen and Smith, 2017) characterize this platform for supporting an infrastructure capable of managing instructional content, identifying and evaluating individual student performance, organizing learning or training objectives and presenting data to supervise the teaching process as a whole.

In addition to contributing to the management of student performance, Bortolato (2016) and Catapan, Mallmann and Roncarelli (2006) characterize the VLEs as drivers of new dynamics in the transposition of content and information, in the provision of digital resources and in the construction of knowledge in a collaborative way. Thus, based on the importance of VLEs, the need to make the use of their various resources and tools effective in the teaching and learning process, through the application of good practices, becomes imminent.

According to Asian Productivity Organization (APO, 2009), a good practice is to perform a certain task in the best way possible, to contribute in a given situation. Thus, aiming at the effective use of the various resources and tools of virtual platforms in the process of mediating the construction of knowledge by higher education institutions, Pereira *et al.* (2019) identify in their bibliographical research good practices for the use of VLEs, as illustrated in Chart 1.

According to Pereira *et al.* (2019), higher education institutions integrate the above listed good practices as strategies to improve the process of building student knowledge. They encompass different views, but with similar goals, linked to the effective use of such virtual environments to mediate the teaching and learning process. In this context, Pereira *et al.* (2019) highlight the relevance of collaborative practices and interdisciplinarity, which enable innovation in the mediation process, through the integration of different areas of knowledge.

Thus, Stockleben *et al.* (2017) and Palangana (2001) highlight the importance of the method (instrument) for technological mediation and the relevance of the interaction between the student and the social environment for cognitive development. Through VLEs, instructors must adapt strategies to provide greater interaction between student, teacher and study groups, encouraging collaboration and, consequently, creativity (Laffen and Smith, 2017).

Chart 1 – Good practices in Virtual Teaching and Learning Environment.

Good practices	Authors
The VLE must provide structured and prompt feedback.	Robb and Fisher (2015), Tuffley and Antonio (2015), Lafen and Smith (2017).
The proposed activities should influence learning collaboratively.	Peachey, Jones and Jones (2006), Logan (2012), Stockleben <i>et al.</i> (2017).
Organization of resources in order to encourage interaction between the actors involved with the VLE.	Pavey and Garland (2004), Uys (2010), Merillat and Scheibmeir (2016), Stockleben <i>et al.</i> (2017).
Redesign of the structure of the VLE, encouraging innovation regarding its method of organization.	Lai and Savage (2013), Power and Kannara (2016), Linder, Bruenjes and Smith (2017).
Optimization of the elaboration and application of activities through VLE tools based on time management.	Richardson (2005), Lai and Savage (2013), Robb and Fisher (2015), Tuffley and Antonio (2015), Lafen and Smith (2017).
Advance planning, good organizational skills, greater attention to detail and better written communication skills.	Lopez and Eldridge (2010), Logan (2012), Merillat and Scheibmeir (2016).

VLE: Virtual Teaching and Learning Environment.
 Source: Pereira *et al.* (2019, p. 19).

METHODOLOGY

This research, with an inductive method, is characterized as applied in nature since it aims to solve a problem through the application of knowledge generated in basic research (Freire, 2013). To this end, based on the qualitative approach, it proposes, from exploratory purposes, the construction of hypotheses to solve the research question (Gil, 2010).

To carry out such investigation, bibliographical research and case study were used. The bibliographical research, carried out through reading and analysis of periodicals and books, according to Gil (2010), is developed through material already prepared, mainly books, scientific articles, magazines, theses, among others. The case study was used to identify the applicability of the created hypothesis, its limitations and differences (Freire, 2013) (Figure 1).

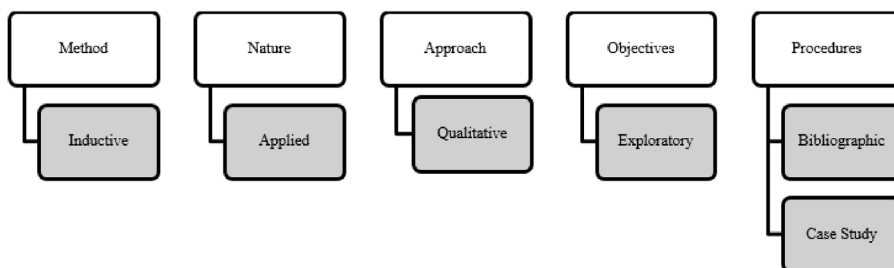


Figure 1 – Methodological classification.

CASE STUDY: MODEL DEVELOPMENT AND APPLICATION

The model proposed in this research was built based on good practices evidenced by Pereira *et al.* (2019). The elaborated structure aimed to contribute to the process of mediating the structuring of academic papers through VLEs. Thus, a case study was carried out in the first quarter of 2018, in the discipline of Scientific Research Methodology, of the Graduate Program in Information and Communication Technologies at the Universidade Federal de Santa Catarina.

The elaborated structure was applied on the Moodle platform, with some actions being carried out based on the good practices shown in Chart 2.

Chart 2 – Actions carried out in Virtual Teaching and Learning Environment.

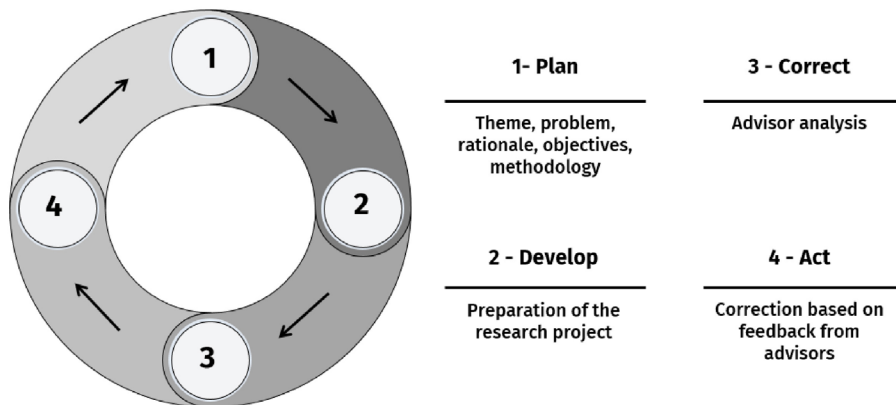
Good practices	Actions performed in the VLE
The AVEA must provide structured and prompt feedback (Robb and Fisher, 2015; Tuffley and Antonio, 2015; Laffen and Smith, 2017).	Use of Moodle feedback mechanisms; Structured feedback, performed by colleagues in collaborative activities.
The proposed activities should influence learning collaboratively (Peachey, Jones and Jones, 2006; Logan, 2012; Stockleben et al., 2017).	Collaborative activities proposed through the tools: Forum, evaluation laboratory, glossary.
Organization of resources in order to encourage interaction between the actors involved with the AVEA (Pavey and Garland, 2004; Uys, 2010; Merillat and Scheibmeir, 2016; Stockleben et al., 2017).	Integration of different VLE technologies in collaborative and individual practices; Provision of teaching material in different formats (videos, images, podcasts, texts,...).
Redesign of the structure of the AVEA, encouraging innovation in its method of organization (Lai and Savage, 2013; Power and Kannara, 2016; Linder, Bruenjes and Smith, 2017).	SECI Model Approach (socialization, externalization, combination and internalization).
Optimization of the elaboration and application of activities through AVEA tools based on time management (Richardson, 2005; Lai and Savage, 2013; Robb and Fisher, 2015; Tuffley and Antonio, 2015; Laffen and Smith, 2017).	Optimization through pre-defined feedback.
Advance planning, good organizational skills, greater attention to detail and better written communication skills (Logan, 2012; Lopez and Eldridge, 2010; Merillat and Scheibmeir, 2016)	Use of VLE resources.

VLE: Virtual Teaching and Learning Environment.

Source: adapted from Pereira (2019).

The first good practice used was the advance planning of the discipline, which addressed the organization of content, technologies employed, assessment and teaching and learning method through the PDCA continuous improvement model (Lopez and Eldridge, 2010; Logan, 2012; Merillat and Scheibmeir, 2016).

In addition to its use for the organization of the discipline, the PDCA² method was applied to structure, in stages, the preparation of the students' academic work, through the performance of four steps (Plan, Develop, Correct and Act) described in Figure 2.



Source: adapted from Pereira (2019).

Figure 2 – Subject planning.

From this organization, the contents were taught in face-to-face and online meetings through the Moodle platform. Its various digital resources and tools enabled the use of feedback mechanisms, which is considered a good practice by Robb and Fisher (2015), Tuffley and Antonio (2015) and Lafen and Smith (2017). Thus, some tools that make it possible to send feedback online were integrated into the developed model, highlighting the evaluation laboratory resource.

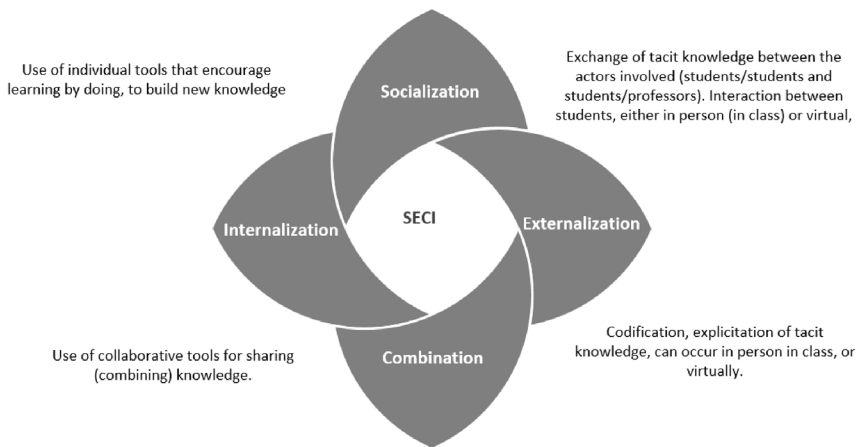
The evaluation laboratory tool consists of a peer evaluation mechanism, enabling, in addition to sending open feedback, through suggestions, the elaboration of parameters for work evaluation (structured feedback). This resource can also contribute to issues related to interpretation skills, critical analysis and the writing process, influencing the student's interaction with the digital environment in a collaborative way.

In the proposed model, this resource was applied in the research question elaboration phase. This practice aimed to contribute to aspects related to clarity, objectivity and interpretation of the research problem, since these parameters were examined by colleagues. In the evaluation phase, the research question was analyzed, firstly, online and, secondly, in person, to assess the veracity of the initial interpretation carried out through digital writing.

2 It is a management methodology that can be used in any situation and by anyone, to control and continuously improve processes and products. Steps: Plan, Develop, Control and Act. Available from: <http://www.sebrae.com.br/sites/PortalSebrae/artigos/4-etapas-do-pdca>. Accessed on Feb 28, 2019.

In order to influence learning collaboratively, activities were carried out through the discussion forum (Peachey, Jones and Jones, 2006; Logan, 2012; Lai and Savage, 2013; Stockleben *et al.*, 2017). The proposed dynamics aimed to encourage research in the repository of the Universidade Federal de Santa Catarina, familiarize students with the structure of scientific works and encourage the sharing and combination of such information. In addition to the forum, another resource used collaboratively was the glossary. The practice applied in such technology consisted in the shared elaboration of a “dictionary” for the methodology discipline.

Aiming to innovate in the organization and structuring of the virtual platform, the continuous improvement model SECI elaborated by Nonaka and Takeuchi (1997) was used, which allowed the redesign of the VLE structure, and was also a good practice identified by Lai and Savage (2013), Power and Kannara (2016), Linder, Bruenjes and Smith (2017). The didactic sequence elaborated based on the researches by Pereira, Spanhol and Lunardi (2018) aimed at greater interaction between students and the digital platform. To this end, in addition to various resources and tools (e-activities), content in different formats (videos, text files, web pages, images, animations...) were used (Pavey and Garland, 2004; Uys, 2010; Merillat and Scheibmeir, 2016; Stockleben *et al.*, 2017) (Figure 3).



SECI: socialization, externalization, combination and internalization.

Source: adapted from Pereira, Spanhol and Lunardi (2018).

Figure 3 – Didactic sequence based on the socialization, externalization, combination and internalization model.

Thus, the use of VLE tools and resources for the development of activities provided the optimization and time management of students and teachers (Lai and Savage, 2013; Robb and Fisher, 2015; Tuffley and Antonio, 2015; Richardson and Watts, 2005; Lafen and Smith, 2017). In addition to such practices, other actions were implemented, such as the development of a discipline guide (Logan, 2012). This manual was prepared using the “Book” resource, with all the

information on the subject being made available: schedule; teaching plan; discipline methodology; assessments; Moodle organization and tools. In addition to these items, tutorials on the use of the platform's tools were prepared in the same resource.

From the model developed, it can be seen, as illustrated in Figure 4, the interdisciplinary, cyclical and continuous relationship established between the main constructs of the research. The good practices identified in the literature aimed to assist in the process of interaction with the VLE and, consequently, in the mediation of such works. Among the practices, the ways of knowledge creation stand out, which enabled the elaboration of sequences, activity routines and the PDCA model, which contributed to the planning and improvement of the process of developing academic papers.

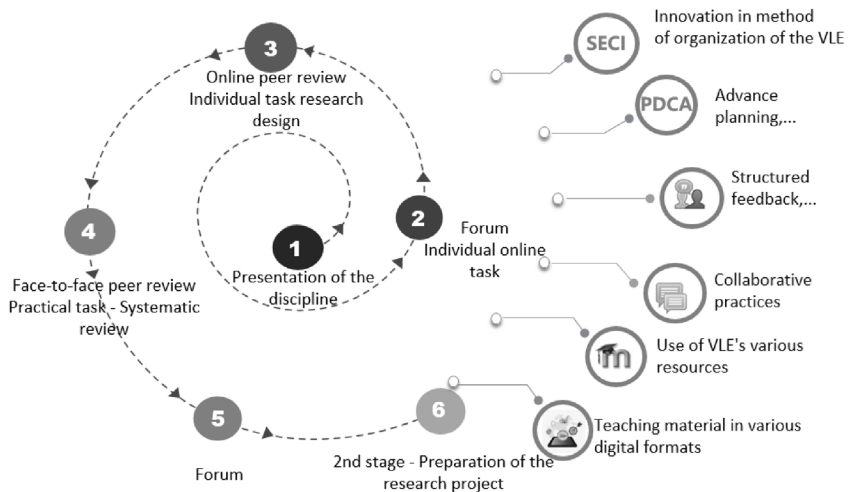


Figure 4 – Spiral of good practices for mediation of academic papers.

DATA COLLECTION

For data collection, an online instrument (Google Forms) was used, consisting of 20 statements (in which the participant informs the degree of disagreement or agreement with them) and three (3) objective questions, applied to the actors involved in the period from May 4 to 19, 2018. The statements were separated into six groups (P6) corresponding to the good practices applied in the VLE, being structured based on the Likert scale of five (5) levels:

1. Totally Agree (TA);
2. Partially Agree (PA);
3. Neither Agree nor Disagree (N);

4. Partially Disagree (PD);
5. Strongly Disagree (SD).

The purpose of this investigation was to verify whether good practices contributed to mediating academic work in the VLE.

ANALYSIS OF RESULTS

To analyze the collected data, a qualitative approach was adopted. According to Gerhardt and Silveira (2009, p. 31), this method “is not concerned with numerical representation, but rather with deepening the understanding of a social group, an organization etc.”

In addition to the qualitative research, Cronbach’s Alpha was applied to estimate the reliability of the assertions made, according to Cortina (1993). This method was developed by Lee J. Cronbach in 1951, and aims to measure the degree of reliability of the responses obtained. Thus, for its application, Equation 1 was used:

$$\alpha = \frac{k}{k-1} \left[1 - \frac{\sum Vi}{Vt} \right] \quad (1)$$

Where:

α : Cronbach’s Alpha;

K: Number of questions in the data collection instrument;

Vi: Variance of each assertion;

Vt: Total variance of assertions.

According to Hora, Monteiro and Arica (2010), Cronbach’s Alpha values should be in the range from 0 to 1, but there is no consensus among several researchers to interpret the reliability of the questionnaires based on the coefficient value. In their research, the authors show the minimum value considered acceptable for the instrument’s reliability of 0.70, and the maximum value cannot exceed 1.00.

RESULTS AND DISCUSSION

CRONBACH’S ALPHA

As already mentioned, Cronbach’s Alpha “aims at greater precision in measurements, consequently, greater reliability in the instrument used for data collection” (Hora, Monteiro and Arica, 2010, p. 3). In this sense, the formula described in the previous section was applied to measure the Cronbach’s alpha coefficient of the statements corresponding to the six good practices (P6) applied in the Moodle platform, obtaining the values presented in Table 1.

The results ranged between $\alpha=0.74$ and $\alpha=0.90$, being correlated to the range of values shown by Hora, Monteiro and Arica (2010), as acceptable for the reli-

Table 1 – Cronbach’s Alpha Result.

Practice	Cronbach’s Alpha (α)
P1 The AVEA must provide adequate feedback mechanisms.	0.80
P2 The proposed activities must influence the construction of knowledge in a collaborative way.	0.86
P3 Organization of resources in order to encourage interaction between the actors involved with the VLE.	0.88
P4 Redesign of the structure of the VLE, encouraging innovation regarding its method of organization.	0.74
P5 Optimization of the elaboration and application of activities through the VLE tools based on time management.	0.84
P6 Advance planning, good organizational skills, greater attention to detail and better written communication skills.	0.90

VLE: Virtual Teaching and Learning Environment.

ability of the questionnaire developed. Thus, the validity of the responses obtained, explained in the course of this research, is highlighted.

QUALITATIVE ANALYSIS

Good practices are considered, in this research, as the most effective way to carry out a specific activity (APO, 2009; Lopez and Eldridge, 2010). Thus, with a view to making the use of VLEs resources and tools effective to mediate the structuring of academic papers, some good practices evidenced by Pereira *et al.* (2019) on the Moodle educational platform were adopted. To verify the contribution of these best practices in the mediation process of the course completion papers, an electronic data collection instrument was applied to the 29 students of the Scientific Research Methodology discipline (2018/2001 class), obtaining feedback from 23 participants in the period from May 4 to 19, 2018.

The first good practice analyzed encompassed the use of adequate feedback mechanisms. According to Laffen and Smith (2017), with the integration of ICTs into the academic scenario, online communication in written form has become increasingly constant. In this sense, it is essential to use feedback resources effectively. From this context, peer review dynamics were integrated into the proposed model. This collaborative activity model enables colleagues to provide feedback on the analyzed work, through online writing or in person.

Thus, according to the tabulated data, approximately 78.3% of those involved (43.5% CP and 34.8% CT) reported that the feedback received (in person or through the peer review resource) was relevant and contributed to the structuring process of their research. In this same statement, 4.3% neither agreed nor disagreed (N) and 8.6% (4.3% DT, 4.3% DP) disagreed, stating that the feedback received was irrelevant, not contributing to this stage.

In addition to this assertion, the research aimed to investigate the use of the assessment laboratory tool as a mechanism to enhance feedback. According to the data, 87% of the students (43.5% TC, 43.5% CP) indicated that, based on the

Table 2 – Data on the practice of feedback mechanisms.

P1 The VLE must provide adequate feedback mechanisms					
Practices	SD (%)	PD (%)	N (%)	PA (%)	TA (%)
P1.1 The feedback received both through the resources and tools of Moodle (peer review) and in person were relevant and contributed to the structuring of my research.	4.3	4.3	4.3	43.5	34.8
P1.2 The Assessment Laboratory tool (research question activity) was used efficiently for peer review activities and encouraged the submission of feedback.	4.3	4.3	4.3	43.5	43.5

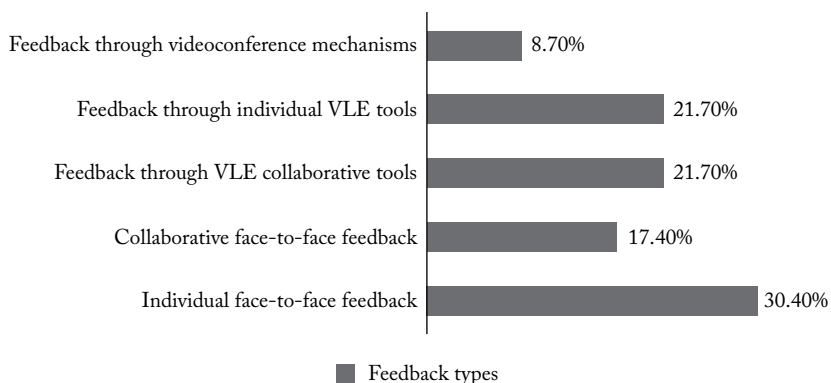
VLE: Virtual Teaching and Learning Environment; SD: strongly disagree; PD: partially disagree; N: neither agree nor disagree; PA: partially agree; TA: totally agree.

proposed activity (peer review of the research question), this resource was used effectively. 4.3% neither agreed nor disagreed, and 8.6% (4.3% DT, 4.3% DP) considered that this resource was not used efficiently in the course (Table 2).

These data demonstrate the effective use of feedback mechanisms in the applied model, emphasizing the use of assessment laboratory technology in the peer review dynamics. According to Tuffley and Antonio (2015), the use of technologies to send such feedback enables: clarity, simplicity and greater objectivity of the items to be analyzed; legibility of the return; orientation of deficient aspects; and identification of items in which the student performed well and which ones need improvement. In this sense, it is inferred that the actions taken contributed to the technological mediation of the scientific research structuring by academics (specifically in the research question), through feedback mechanisms.

In addition to the effective use and contribution of feedback, the research aimed to identify which types of these mechanisms the students considered of greater importance. The highest percentage was the individual face-to-face feedback (30.4%). In addition to this, there are also feedbacks sent through individual and collaborative tools of the VLE (both with 21.7%). Collaborative face-to-face feedback obtained 17.4%, and only 8.7% reported using the mechanisms through videoconferences (Graph 1).

From these data, it is noteworthy that, despite the ubiquity of ICTs and their integration in the academia, it can be seen that face-to-face feedback is still considered of greater relevance by students. Even with the effective use of digital technologies, the difficulty in obtaining a digital writing process as effective as face-to-face interaction is evident. However, it was found that the use of these Moodle mechanisms either through individual or collaborative tools obtained good student acceptance (21.7% in both). According to Tuffley and Antonio (2015), the feedback



Graph 1 – Feedback mechanisms indicated by students.

mediated by ICTs has been gradually applied in higher education (face-to-face and mixed) since, in addition to being flexible when it comes to sending and reading it, it can also be stored online for reference or future assessments.

In addition to feedback through digital writing, another good practice applied in the exposed script included the use of collaborative digital tools. Stockleben *et al.* (2017) emphasize that collaborative learning ensures quality in teaching and learning processes through shared knowledge construction. For this purpose, it is necessary to further study the digital tools and structures that enable such models (Stockleben *et al.*, 2017).

Thus, the applied practices addressed the use of collaborative tools, discussion forum, assessment laboratory, glossary, among others. According to 78.2% of the students (47.8% TA and 30.4% PA), the activities carried out through such resources encouraged the construction of knowledge in a collaborative way, enabling the discussion of ideas and externalization, exchange of experiences. On the other hand, 13% did not opine (N) and 8.7% of the participants totally disagreed with such information.

Another action analyzed guided the use of the discussion forum tool. According to 60.8% of the academics (39.1% TA and 21.7% PA), this resource made it possible to share information and encourage consultations in the databases of the Universidade Federal de Santa Catarina, contributing to research planning. In this same statement, 17.4% had no opinion (N), and 21.7% (13% PD and 8.7% SD) reported that the proposed practices, through this tool did not help in the research planning process.

Regarding the use of the glossary resource as a collaborative tool, 52.2% of the students (26.1% TA and 26.1% PA) reported that it was used effectively and contributed to the construction of knowledge in a collaborative way. However, 34.8% did not opine (N), and 13% did not agree with the statement (4.3% PD and 8.7%

Table 3 – Practices to influence the construction of knowledge in a collaborative way.**P2 The proposed activities must influence the construction of knowledge in a collaborative way**

Practices	SD (%)	PD (%)	N (%)	PA (%)	TA (%)
P2.1 The activities applied through the VLE collaborative tools, such as the forum, evaluation laboratory, glossary, among others, encouraged the construction of knowledge in a collaborative way through the sharing of knowledge and the encouragement of research through consultation with external sources.	8.7	0	13	30.4	47.8
P2.2 The information shared (forum resource), through the search for external sources, contributed as an initial basis for planning my research.	8.7	13	17.4	21.7	39.1
P2.3 The use of the collaborative glossary resource efficiently encouraged the dissemination and construction of knowledge in a collaborative way.	8.7	4.3	34.8	26.1	26.1

VLE: Virtual Teaching and Learning Environment; SD: strongly disagree; PD: partially disagree; N: neither agree nor disagree; PA: partially agree; TA: totally agree.

SD). It is worth highlighting the high percentage of academics who were neutral regarding the use of the glossary tool in action P2.3 (Table 3).

From such data, it is possible to evidence the effective use of the VLE collaborative tools. However, a significant percentage of neutral (neither agree nor disagree) and negative (partially disagree, totally disagree) evaluations regarding the use of the forum and the glossary was identified. The need to use new collaborative tools is evident, providing several opportunities for knowledge construction and enabling the involvement of students according to their learning style (Pavey and Garland, 2004).

Another practice considered relevant by Lai and Savage (2013) refers to the organization of the VLE to encourage interaction between students and the virtual environment. In this sense, according to the quadrants of the SECI model, the resources and tools of the Moodle platform were organized. Pavey and Garland (2004) argue that, for greater interaction between students and the virtual environment, it is essential to make teaching material available in different media and to use the various VLE tools and resources in teaching practices (e-activities).

Thus, according to 82.6% of the participants (56.5% TA and 26.1% PA), the structure organized in Moodle (didactic content and digital activities) encouraged interaction between the student and the object of study. 13% (N) did not give their opinion, and 4.3% informed that such organization did not encourage greater contact with the digital platform. Regarding the provision of educational content in various formats (digital media), according to 78.3% of those involved (69.6% TA and 8.7% PA), such media contributed to the interaction between the student

and the content available in the digital platform. In this same statement, 21.7% of those involved did not have any opinion.

In addition to the strategy for student interaction with the environment and content, some actions aimed at greater contact, exchange of information between student/student through the VLE collaborative tools. According to Pavey and Garland (2004), collaborative activities encourage creativity and enable different opportunities for knowledge construction. As per the tabulation of the data collected, 69.6% of the students reported that the use of collaborative tools provided greater interaction with colleagues (34.8% TA and 3.8% PA). 13% did not opine, and 17.3% did not agree with the assertion (13% PD and 4.3% SD).

The elaborated practices (proposed activities) also aimed to encourage greater interaction between the advisers. In the process of scientific research, monitoring and constant guidance by advisors is essential. The participants reported (47.8% TA and 30.4% PA) that the actions taken in the discipline contributed to greater contact with the advisor, once that, in order to carry out the activities, it was necessary to consult with the advisors. 13% (N) neither agreed nor disagreed, and 8.7% partially disagreed, stating that such practices did not encourage greater contact with teachers.

Another practice that aimed to encourage greater interaction between the student and the object of study for technological mediation was the preparation and availability of a discipline guide (explanation of activities, use of tools and resources and methodology of the discipline). This manual was developed in order to provide greater autonomy for students in the use of Moodle resources, also

Table 4 – Practical organization of Virtual Teaching and Learning Environment resources.

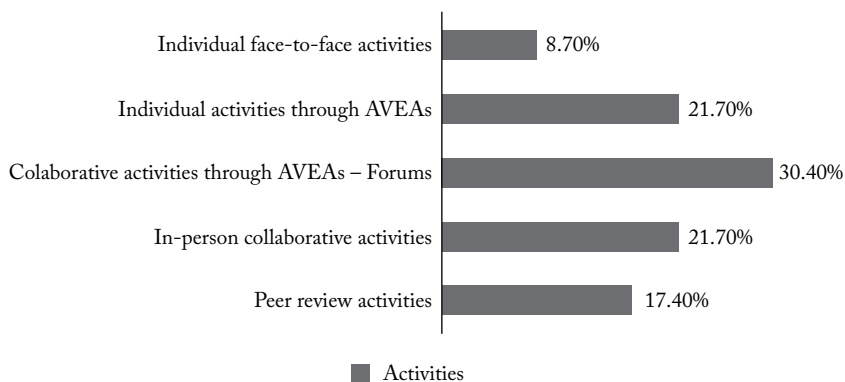
P3 Organization of resources in order to encourage interaction between the actors involved with the VLE					
Practices	SD (%)	PD (%)	N (%)	PA (%)	TA (%)
P3.1 The organization of the Moodle platform encouraged greater interaction between student and object of study.	0	4.3	13	26.1	56.5
P3.2 The available digital resources (pdf, .doc files, power point presentations, videos, images and links to external sources) contributed to greater interaction between student and content.	0	0	21.7	8.7	69.6
P3.3 The activities proposed through the collaborative tools provided greater interaction between student/student.	4.3	13	13	34.8	34.8
P3.4 The proposed activities encouraged greater interaction between student/teacher (advisor).	0	8.7	13	30.4	47.8
P3.5 The course guide provided instructions on the use of the Moodle tools and resources.	4.3	13	13	17.4	52.2

VLE: Virtual Teaching and Learning Environment; SD: strongly disagree; PD: partially disagree; N: neither agree nor disagree; PA: partially agree; TA: totally agree.

encouraging the improvement of digital skills (Salmon, 2000; Pavey and Garland, 2004). According to the measured data, 69.6% reported that this resource (book) contributed to the use of digital technologies applied in the discipline (52.2% TA and 17.4% PA). 13% did not opine, and 17.3% did not agree with the statement (13% PD and 4.3% SD) (Table 4).

From the illustrated data, it was evident that the organization of the Moodle resources and tools collaborated to mediation and greater interaction between student/student, student/teacher and student/object. The different digital resources and the practices that encouraged greater contact with the advisor (activities aimed at student research) are highlighted as enhancers. However, further study is needed on the use of collaborative tools and the development of digital manuals (guides) to encourage the employment of such digital technologies. These guides can be built and shared by the students, also encouraging the study of the technology used, thus improving their digital skills.

Another item identified in this research refers, in the students' opinion, to the activities that stimulated greater interaction between the student and the object of study. According to the participants, collaborative activities, through discussion forums, had the highest percentage (30.4%), followed by individual online and face-to-face collaborative activities, both with 21.7% of the students' preference. In addition to such technologies, 17.4% of the students also indicated peer review activities and 8.7% indicated face-to-face individual tasks (Graph 2). From such data, there is an evident need to integrate peer assessment practices into the culture of educational institutions, as a creative method for knowledge creation (Pavey and Garland, 2004).



Graph 2 – Activities that encourage greater interaction with the VLE.

In addition to actions to encourage interaction between the student and the virtual educational platform, another good practice, according to Power and Kanara (2016), covers the constant redesign and innovation of the structure of VLEs to mediate the construction of knowledge. Thus, taking such good practice as a

reference, some strategies were carried out to redesign the virtual environment and systematize routines and activities from the SECI quadrants, presenting the Moodle virtual platform as a space for knowledge conversion.

To this end, the digital platform was structured, combining educational content in different formats of digital media, face-to-face meetings (socialization and externalization), collaborative (combination) and individual (internalization) activities in person and online (Pereira, Spanhol and Lunardi, 2018). It is noteworthy that this sequence was applied to each topic covered in the discipline. According to 78.2% of students (56.6% TA and 21.7% PA), such sequences of actions contributed to improving knowledge of the items covered in class. On the other hand, 8.7% did not opine (N), and 13% disagreed with the assertion (4.3% SD and 8.7% PD).

Another procedure performed from such good practice was the systematiza-

Table 5 – Practice for designing the Virtual Teaching and Learning Environment structure.

P4 Redesign of the structure of the VLEs, encouraging innovation regarding the method of organization thereof					
Practices	SD (%)	PD (%)	N (%)	PA (%)	TA (%)
P4.1 The organization of the Moodle platform, combining the educational material through different digital media, tools for carrying out collaborative and individual activities for online and in-person classes contributed to improving my knowledge of scientific research methodology.	4.3	8.7	8.7	21.7	56.5
P4.2 The systematization of routines and activities contributed to deepening the scientific knowledge about my subject of study and to the planning of the scientific research process.	4.3	4.3	13	30.4	47.8

VLE: Virtual Teaching and Learning Environment; SD: strongly disagree; PD: partially disagree; N: neither agree nor disagree; PA: partially agree; TA: totally agree.

tion of routines and activities for planning the students’ scientific research process. According to 78.2% of academics (47.8% TA and 30.4% PA), this model contributed to deepening scientific knowledge on the subject of study. However, 8.6% did not agree with this statement (4.3% PD and 4.3% SD), and 13% neither agreed nor disagreed (Table 5).

Thus, one can see the importance of integrating different areas to the composite model, helping to innovate and redesign the virtual platform used. In addition to such information and based on the analyzed data, the need for further study and new proposals to systematize routines and activities is highlighted, with new research on the processes of socialization, externalization, combination and internalization in VLEs.

In addition to the redesign and innovation regarding the use of virtual educational platforms, according to Robb and Fisher (2015), it is essential to master their resources and tools, collaborating in time management. This theme was initially addressed by Chickering and Gamson (1987), in face-to-face teaching. After the technological advent and its integration into the academic scenario, Robb and Fisher (2015) address the principle of time management as a good practice in VLEs, aiming at the effective use of such technology to assist in academic performance.

Based on this good practice, the aim was to analyze whether the resources and tools were used effectively and whether they contributed to the students' scientific research planning process. From the data analysis, positive feedback was identified by 82.6% of the students (52.2% TA and 30.4% PA), confirming the effective use of the Moodle resources and tools during the course, also helping to plan their research. In this same item, 8.7% did not opine and 8.6% did not agree with the statement.

The discussion forum, according to approximately 73.9% of the participants (30.4% TA and 43.5% PA), contributed to information sharing, optimizing time in the proposed activities. They disagreed with this statement and did not opine 13%. The evaluation laboratory and book resources are also noteworthy. According to the academics, the evaluation laboratory tool contributes to the objectivity and clarity of the research question (82.6% agreed with the assertion), with only 8.6% not agreeing with the statement and 8.7% not having any opinion.

According to the data, the resource book was used efficiently to detail the planning and methodology of the discipline (78.2% agreed with the statement). It also contributed to guidance on the methodology of the discipline, assessment, explanations of the Moodle structure, and guidance on the use of VLE resources and tools (73.9% agreed and 26.1% neither agreed nor disagreed with the statement).

In addition to the book resource, the glossary, according to 60.9% of the participants (17.4% TA, 43.5% PA), was also used effectively in its purpose of unifying and encouraging research on items directly related to the scientific methodology. 26.1% neither agreed nor disagreed and 13% disagreed with the statement (Table 6).

Such data prove the effective use of some technologies integrated to the Moodle platform. However, it is also highlighted that the method of use and application thereof can still be improved, especially the use of the glossary resource. It becomes necessary to carry out new strategies for its use, in order to optimize student time and encourage the search for items relevant to the subject of the discipline.

In addition to time management activities, another best practice encompassed actions for advance planning, good organizational skills, greater attention to detail, and better written communication skills. To this end, one of the strategies addressed the use of tools that encourage the writing of the main items of a research project. Such activities were proposed through individual and collaborative tools.

Linder, Bruenjes and Smith (2017) emphasize the importance of planning, organizational skills, and improving communication skills through digital writing. Thus, according to 82.6% of the students (56.5% TA and 26.1% PA), the activities carried out in the VLE contributed to the writing process of the main items of the

Table 6 – Practice for time management through Virtual Teaching and Learning Environments.**P5 Optimization of the elaboration and application of activities through VLE tools based on time management.**

Practices	SD (%)	PD (%)	N (%)	PA (%)	TA (%)
P5.1 The Moodle tools and resources were used efficiently and effectively, contributing to the planning of my research (preparation of the main research items).	4.3	4.3	8.7	30.4	52.2
P5.2 The application (use) of the forum tool occurred efficiently, optimizing time in activities for sharing information.	8.7	4.3	13	43.5	30.4
P5.3 The activity on the research question used by the Evaluation Laboratory resource contributed to the objectivity and clarity of my research question.	4.3	4.3	8.7	26.1	56.5
P5.4 The resource Book (Discipline Guide) was used efficiently to detail the planning and methodology of the discipline.	0	4.3	17.4	21.7	56.5
P5.5 The guide implemented through the book resource contributed to instructions on the discipline methodology, assessment, explanations of the Moodle structure, and guidance on the use of VLE resources and tools.	0	0	26.1	17.4	56.5
P5.6 The activity proposed through the glossary resource was effective in its purpose of unifying in one resource the meaning of items directly related to the scientific methodology.	8.7	4.3	26.1	43.5	17.4

VLE: Virtual Teaching and Learning Environment; SD: strongly disagree; PD: partially disagree; N: neither agree nor disagree; PA: partially agree; TA: totally agree.

final work of the course (objectives, research question, thematic and delimitation, justification and interdisciplinarity). Only 4.3% did not agree and 13% neither agreed nor disagreed (N).

In addition to such practices, another action carried out based on the continuous improvement model (PDCA) was the division of the discipline into two (2) stages. The first phase encompassed the dissemination and sharing of content and various activities related to the planning of the students' research (P). The second stage corresponded to the development (D) of the students' final work. At this stage, students learn by doing, developing their own work.

After the end of the course, the work prepared by the student was sent to their respective advisor for corrections (C). After revisions, the considerations made by the advisors were made available to their respective mentees for changes and adjustments (A).

In this sense, in the opinion of 87% of those involved (60.9% TA and 26.1% PA), the stage for guidance and preparation of the final work also contributed to

Table 7 – Practices for advance planning in Virtual Teaching and Learning Environments.

P6 Advance planning, good organizational skills, greater attention to detail and better written communication skills.

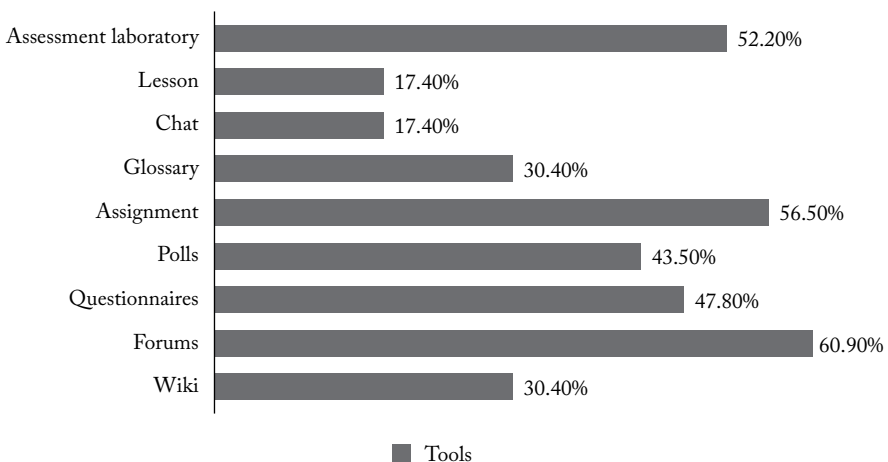
Practices	SD (%)	PD (%)	N (%)	PA (%)	TA (%)
P6.1 The tools proposed for writing activities (individual and collaborative) contributed to the writing process of the structure of the main items of the final work of the course (objectives, research question, theme and delimitation, justification and interdisciplinarity).	4.3	0	13	26.1	56.5
P6.2 The step referring to the orientation and preparation (writing) of the final work (step 02) contributed to the delimitation and scope of the study.	4.3	0	8.7	26.1	60.9

VLE: Virtual Teaching and Learning Environment; SD: strongly disagree; PD: partially disagree; N: neither agree nor disagree; PA: partially agree; TA: totally agree.

the delimitation and scope of the study. Only 4.3% disagreed with the statement and 8.7% neither agree nor disagree (N) (Table 7).

Once again, the integration of other areas of knowledge to innovate in the use of VLEs is noted as a good practice, thus contributing to mediating the structuring of academic papers. According to Merillat and Scheibmeir (2016), the PDCA method is a potential tool for application in the most diverse scenarios for educational purposes, contributing to the process of knowledge construction.

In addition to the six good practices (P6) and actions carried out, the research aimed to identify, in the students’ opinion, which VLE tools can contribute to



Graph 3 – Suggested tools to improve writing skills in VLEs.

improving communication and writing skills. The tools with the highest percentage were the discussion forum (60.90%), online task (56.5%), and the evaluation laboratory (52.2%). In addition to these, the questionnaires (47.8%) stand out with considerable percentage, as well as surveys (43.5%), wiki and glossary (30.4%). Lesson and chat tools only got 17.4% (Graph 3).

This question highlights the importance of the effective use of collaborative tools: discussion forum and evaluation laboratory. According to the participants, such instruments can contribute to the process of communication and digital writing. Individual tools such as the survey, questionnaire, online task, glossary and wiki were also found to be relevant in this process.

The indication of such resources confirms the applicability of some good practices addressed in this study, such as the organization of VLE resources for greater student interaction with the environment and the use of various platform technologies for better time management. Another issue that deserves greater attention is the low percentage of lesson and chat resources, making further studies on these tools necessary to contribute to the digital writing process.

In addition to these tools, another essential item identified that contributed to the positive results of the implemented research is linked to interdisciplinary issues. The prior planning of activities and routines, as well as their systematization (PDCA and SECI), enabled the effective use of the VLE's digital resources to mediate the structuring of academic papers.

However, the research also identified gaps in some of the best practices addressed. One of them was the divergence between the Learning Analytics results, referring to the number of accesses to the digital content available and the assertions about the contribution of such media for greater interaction with the virtual platform. The logs registered low interaction of students with the teaching material in different formats, a number less than one access per student. However, according to the academics, the availability of the subject's content in various media encouraged greater interaction with the VLE.

It is worth studying this practice in detail since its application did not promote greater interaction with the platform. This gap may be related to changes in the way knowledge is built, as mentioned above. Another possibility addresses issues related to digital skills. It is inferred that only the availability of content in other media does not meet the new student profile. It is necessary to integrate mechanisms such as blogs, websites, wikis, among other collaborative networks to make such content available.

Another item highlighted as pertinent was the difficulty in the communication process through digital writing. According to the data, academics prefer face-to-face communication. An alternative indicated in the survey, through good practices, is the encouragement of peer review activities through digital technology. Such dynamic enables the improvement of the process of reading, interpreting and digital writing.

Thus, in general terms, one can see the contribution of good practices to mediate the structuring of academic works, through the VLEs and the effective use of the tools applied in the discipline. Collaborative practices are emphasized, through the use of discussion forum and evaluation laboratory resources. Such technologies

enabled the peer review process, contributed to mediating the development of work and encouraged the sharing of knowledge, enabling “learning by doing”.

Based on the applied practices that obtained positive results and as a result of this study, good practices are recommended for the effective use of VLE resources and tools to mediate the structuring of Academic Works, as described below.

BEST PRACTICE RECOMMENDATIONS

Based on the results of this research, the importance of the study regarding the method of use and application of ICTs in academia can be seen, since such resources can foster the process of mediation for the construction of knowledge (Pavey and Garland, 2004; Becker *et al.*, 2017). The effective use of VLEs is still a major obstacle to be faced by educational institutions, given that the digital skills of those involved (professors/instructors/tutors) are often not sufficient for mastery and knowledge of the resources and tools available.

Technological convergence enables different teaching and learning models, but the mediation of more complex processes that demand greater interaction between the actors involved, such as the preparation of academic papers, is an issue that needs innovation and proper monitoring (Álvarez, Beltrán and Valdehíta, 2017). Thus, aiming to contribute to the effective use of ICTs available in the VLEs to mediate the structuring of final works, the research presents the following good practice recommendations (Chart 3).

Chart 3 – Best practices recommended.

Good practices	Recommendations
P1 - Provide adequate feedback mechanisms in the VLE.	P1. 1 - The feedback received both through the resources and tools of Moodle (peer review) and in person must be related to items in the structuring of the final work.
P2 - Influence the construction of knowledge in a collaborative way, through digital technologies.	P1. 2 – Suggestion of a tool that encourages the submission of feedback for peer review - Assessment Laboratory.
P3 – Organize the resources in order to encourage interaction between the actors involved with the VLE.	P2. 1 – Use collaborative tools of the VLE, such as the forum, assessment laboratory, glossary, among others.
P4 - Redesign the structure of the VLEs, encouraging innovation in terms of its method of organization.	P2. 2 – Encourage information sharing, research on external sources (combination), on items relevant to research planning.
P5 - Optimize the preparation and application of activities through VLE tools based on time management.	P3. 1 – Organize the platform combining educational content, use of collaborative tools and tools for individual practices.
P6 - Plan the actions in VLEs, aiming to enable good organizational skills, greater attention to detail and better written communication skills.	P3. 5 – Develop and make available a guide with instructions for use of the technologies addressed and other issues related to the discipline.

VLE: Virtual Teaching and Learning Environment.

It emphasizes the importance of combining interdisciplinary methods, such as the systematization of routines and activities, based on the SECI model, from the space for conversion of knowledge in digital environments and the prior planning of the discipline from the PDCA continuous improvement model. It is also noteworthy that such integration, in addition to encouraging students' interaction with the VLE, enabled innovation in terms of organization and structuring.

Another issue that deserves to be highlighted is the domain of the technologies used, contributing to the effective use and management of academic processes, optimizing the time of the actors involved. To this end, digital teaching competence is eminent for the application of technological resources and guidance to students regarding the use of technology according to the dynamics developed.

In this sense, in addition to planning and technological mastery, best practices address the use of collaborative tools for knowledge construction. Such action is essential, as it encourages the development of the students' critical view, making them independent in the teaching and learning process, also contributing to communication skills through digital writing. Thus, the importance of planning, innovation, organization, collaboration, optimization and interaction for the effective use of VLEs in the process of mediating the structuring of academic papers is emphasized.

FINAL CONSIDERATIONS

This research aimed to investigate whether the good practices listed by Pereira *et al.* (2019) related to the use of resources and tools from the Moodle platform contribute to mediating the structuring of academic papers, since Bakar *et al.* (2015) and Santos and Cechinel (2017) point out the need to effectively use the resources and tools of the VLEs in such processes. To this end, a model was developed based on the good practices identified, and a case study was carried out in the Scientific Research Methodology discipline of the Postgraduate Program in Information and Communication Technologies at the Universidade Federal de Santa Catarina.

Thus, to analyze the impact and possible contributions of the proposed good practice model, an online data collection instrument was developed, applied to the case study participants. For greater reliability of the data collected, in addition to the qualitative analysis, the Crobach's Alpha formula was applied and its results ranged from $\alpha=0.74$ to $\alpha=0.90$, being considered acceptable for the reliability of the responses obtained.

Based on the analysis of the collected data, the contribution of good practices applied in the VLE is highlighted. Among them, the integration of tools that make it possible to send feedback, both in an automated and manual way, stands out. Such mechanisms contribute to improving the work, providing greater flexibility for correction and suggestions, since the student can access them at any time and place.

Even with the resistance of students to the use of ICTs in written (digital) communication processes, the encouragement of a new culture of collaborative practices has been gradually interfering in a positive way for the acceptance of

such technologies. Collaborative practices contribute to the development and improvement of writing and also to issues related to interpretation and critical thinking. In addition to the discussion forum, the technology used for peer review (assessment laboratory) stands out.

In addition to the use of such technologies to mediate student production, the research identified the contribution of the platform organization, based on the systematization of routines and activities proposed by Pereira, Spanhol and Lunardi (2018). Such model was elaborated based on the SECI mode, considering the VLE as a potentiating space for knowledge construction. The positive data resulting from the previous planning of the dynamics and resources of the educational platform Moodle, used in the execution of the discipline, is also evident. This practice was developed based on the PDCA continuous improvement model, which enabled actions to plan, direct, control and change student production. These items highlight the importance of interdisciplinarity for conducting the research, which enabled innovation in the process of mediating the structuring of academic papers in VLEs.

Based on the above results, good practices in VLEs for mediation of academic work can be recommended. The data demonstrate the contribution of the integration of best practices for virtual environments selected in the literature and adapted to meet the research objective of contributing to the mediation process of academic works. Another item of relevance to the survey results addressed the use of collaborative tools (encouraging collaborative practices). Such practices are essential and increasingly frequent in the knowledge construction process, being one of the trends evidenced in the NMC 2019.

As a continuity in future work, it is essential to reapply the proposed model, aiming at its constant updating and improvement in the mediation process of academic work, through virtual environments for teaching and learning. In addition to the continuous improvement of the presented script, it is worth pointing out the need for further investigation into the teaching domain in the use of virtual platforms in higher education for the development of good practices, for teacher training in the use of VLEs resources and tools.

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