IMPACTO CIENTÍFICO EDITORA

DERMAPLAT® AS AN EDUCATIONAL TOOL: FEEDBACK FROM MEDICAL STUDENTS IN DERMATOLOGICAL PRACTICE

DERMAPLAT® COMO FERRAMENTA EDUCACIONAL: FEEDBACK DE ESTUDANTES DE MEDICINA NA PRÁTICA DERMATOLÓGICA

DERMAPLAT® COMO HERRAMIENTA EDUCATIVA: RETROALIMENTACIÓN DE ESTUDIANTES DE MEDICINA EN LA PRÁCTICA DERMATOLÓGICA

10.56238/edimpacto2025.060-010

Tássia Gabrielle Ponte Carneiro Soares[1], Ronan Pardo Soares[2], Lucas Melgaço da Silva[3], Sarah Roque Alves[4], Luisa Eulália Brito Oliveira Martins[5], Maria Eduarda Cruvinel de Bayma Rebouças[6], Marina Livia Portela dos Santos[7], Thais Melo Lopes[8], Melissa Soares Medeiros[9]

ABSTRACT

This study evaluated the usability and acceptability of the DermaPlat® digital platform among medical students at two Brazilian institutions, investigating whether a digital resource focused on elementary lesions supports diagnostic reasoning in dermatology and integrates with academic and primary care routines. A quantitative, cross-sectional, and experimental study was conducted using the System Usability Scale (SUS) and the Technology Acceptance Model (TAM), as well as internal consistency and correlation analyses. The results indicated a favorable user experience and high acceptance, with an intuitive interface, fluid navigation, and objective content, useful for independent study and quick reference during supervised consultations. A direct relationship was observed between perceived usability and acceptance, suggesting that ergonomics and clear flow are determinants of adoption. The

[1] Master's student in the Professional Master's in Health Education and Educational Technologies. Centro Universitário Christus (Unichristus) E-mail: tassiagab@gmail.com
Orcid: https://orcid.org/0000-0001-8238-2804
[2] Dr. in Computer Science. Universidade Federal do Ceará em co-tutela com a Université Côte d'Azur. E-mail: ronan.soares@gmail.com Orcid: https://orcid.org/0009-0002-3110-4745
[3] Dr. in Education. Universidade Estadual do Ceará (UECE). Centro Universitário Christus (Unichristus). E-mail: lucas.melgaco@uece.br Orcid: https://orcid.org/0000-0003-4145-4036
[4] Medical Student. Centro Universitário Christus (Unichristus). E-mail: sarahroque02@gmail.com
Orcid: https://orcid.org/0009-0009-2317-965X
[5] Medical Student. Centro Universitário Christus (Unichristus). E-mail: luisalebom@icloud.com
Orcid: https://orcid.org/0009-0003-5015-6185
[6] Medical Student. Centro Universitário Christus (Unichristus). E-mail: mariaeduardacruvinelbr@gmail.com
Orcid: https://orcid.org/0009-0009-3245-4342
[7] Medical Student. Centro Universitário Christus (Unichristus). E-mail: marinaliviaportela@gmail.com
Orcid: https://orcid.org/0009-0002-1474-4951
[8] Medical Student. Centro Universitário Christus (Unichristus). E-mail: thaismelolopes1@gmail.com
Orcid: https://orcid.org/0009-0006-8398-9601
[9] Dr. in Pharmacology. Universidade Federal do Ceará, Centro Universitário Christus (Unichristus). E-mail: Melissa.medeiros@unichristus.edu.br Orcid: https://orcid.org/0000-0002-5881-1485

conclusion is that DermaPlat® is promising as a complement to dermatology education, fostering continuous learning and earlier, safer decisions throughout clinical training.

Keywords: Medical Education. Dermatology. Digital Platforms.

RESUMO

Este estudo avaliou a usabilidade e a aceitabilidade da plataforma digital DermaPlat® entre estudantes de Medicina de duas instituições brasileiras, investigando se um recurso digital centrado em lesões elementares apoia o raciocínio diagnóstico em Dermatologia e se integra à rotina acadêmica e da Atenção Primária. Realizou-se investigação quantitativa, transversal e experimental com aplicação da System Usability Scale (SUS) e do Technology Acceptance Model (TAM), além de análises de consistência interna e correlação entre medidas. Os resultados indicaram experiência de uso favorável e alta aceitação, com interface intuitiva, navegação fluida e conteúdo objetivo, úteis ao estudo autônomo e à consulta rápida durante atendimentos supervisionados. Observou-se relação direta entre usabilidade percebida e aceitação, sugerindo que ergonomia e clareza de fluxo são determinantes para adoção. Conclui-se que a DermaPlat® é promissora como complemento ao ensino de Dermatologia, favorecendo aprendizado contínuo e decisões mais precoces e seguras ao longo da formação clínica.

Palavras-chave: Educação Médica. Dermatologia. Plataformas Digitais.

RESUMEN

Este estudio evaluó la usabilidad y aceptabilidad de la plataforma digital DermaPlat® entre estudiantes de medicina de dos instituciones brasileñas. Se investigó si un recurso digital centrado en lesiones elementales facilita el razonamiento diagnóstico en dermatología y se integra con las rutinas académicas y de atención primaria. Se realizó un estudio cuantitativo, transversal y experimental utilizando la Escala de Usabilidad del Sistema (SUS) y el Modelo de Aceptación de Tecnología (TAM), así como análisis de consistencia interna y correlación. Los resultados indicaron una experiencia de usuario favorable y una alta aceptación, con una interfaz intuitiva, navegación fluida y contenido objetivo, útil para el estudio independiente y la consulta rápida durante las consultas supervisadas. Se observó una relación directa entre la usabilidad percibida y la aceptación, lo que sugiere que la ergonomía y la fluidez del proceso son determinantes para su adopción. La conclusión es que DermaPlat® es prometedor como complemento a la formación en dermatología, fomentando el aprendizaje continuo y la toma de decisiones más tempranas y seguras durante la formación clínica.

Palabras clave: Educación Médica. Dermatología. Plataformas Digitales.

1 INTRODUCTION

Primary Health Care (PHC) is the gateway to the Unified Health System and has the mission of solving most of the population's demands. At this level, dermatological complaints represent a significant portion of the demand, but they remain underserved by gaps in the training of general practitioners and the scarcity of dermatologists, especially in remote regions, which favors late diagnoses and inadequate conduct. The COVID-19 pandemic has highlighted these weaknesses, while accelerating the adoption of digital educational technologies and expanding the use of remote strategies for teaching and clinical practice. (Barszcz et al., 2023; Furtado Fialho Cândido; Pires Feitosa, 2025; Janeczko et al., 2021) (Cordato et al., 2023; Garcia-Jr et al., 2022; Pears et al., 2020; Silva et al., 2021)

In this context, DermaPlat® was designed to support PHC students and physicians in the identification of elementary lesions and guided diagnostic reasoning, through clinical flowcharts, real images, and objective content, seeking greater autonomy and problem-solving capacity in care. However, the effective incorporation of digital tools depends on evidence on usability and acceptability, usually measured by consolidated instruments such as the System Usability Scale (SUS) and the Technology Acceptance Model (TAM). (Cavalcante Bernardino; Vilarouca Filho, 2022; Silva et al., 2024; Soares et al., 2025) (Bangor; Kortum; Miller, 2009; Braga et al., 2024; Salloum et al., 2019)

Therefore, this study aims to evaluate the usability and acceptability of DermaPlat® among medical students at two higher education institutions (HEIs), INTA University Center (UNINTA) and Christus University Center (UNICHRISTUS), examining its functionality, clarity and potential for integration into daily care, with the perspective of strengthening continuing medical education and the clinical problem-solving capacity of Dermatology in primary care.

2 METHODS

This is a quantitative, cross-sectional, descriptive and experimental study, developed with the objective of evaluating the usability and acceptability of the DermaPlat® digital platform among medical students. The research followed the ethical precepts established by Resolution No. 466/12 of the National Health Council, and was approved by the Research Ethics Committee under opinion No. 6,857,437 and CAAE 79531024.4.0000.5049. All participants signed the Informed Consent Form (ICF) before the start of the study.

The sample consisted of 71 students, of both sexes, selected by convenience, who voluntarily agreed to participate in the research and committed to using the platform during the intervention period. DermaPlat® was made available to participants for a period of 60

days, with access via browser, in responsive web format, without the need for login or authentication.

The platform was structured to support clinical reasoning in Dermatology, with two main approaches: (1) the use of flashcards containing illustrative flowcharts and diagnostic summaries of the most prevalent dermatoses in PHC and (2) a navigation guided by the dermatological elemental lesion, leading the user to a probable diagnosis through progressive selection of clinical criteria. Each condition is accompanied by real images, characteristic clinical signs, differential diagnoses and therapeutic proposals.

After the period of use of the platform, the participants answered two validated instruments to measure the user experience. The first was the System Usability Scale (SUS), composed of 10 items with positive and negative statements, evaluated by a 5-point Likert scale. The final scores are converted into a score from 0 to 100, with values above 68 being considered indicative of good usability. The second instrument was the Technology Acceptance Model (TAM), applied through four items aimed at the perception of usefulness and ease of use of technology, also measured by a 5-point Likert scale.

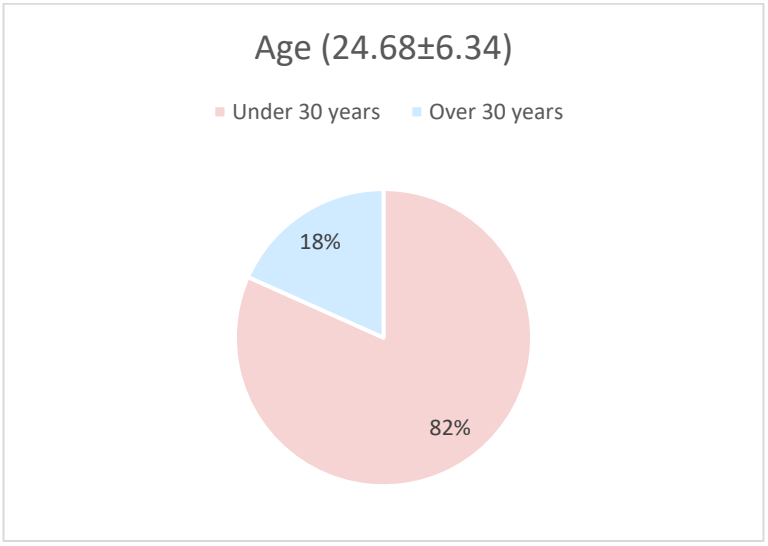
The data obtained were tabulated and analyzed using the SPSS® software, version 20.0 for Windows. Descriptive analyses were performed with calculation of mean, standard deviation, absolute and relative frequencies. The internal consistency of the SUS and TAM instruments was assessed using Cronbach's alpha coefficient, considering values ≥ 0.70 as indicative of acceptable statistical reliability. To compare the mean usability and acceptability scores, the Wilcoxon test was used. The association between the scores of the two scales was verified using Spearman's correlation, adopting a significance level of 5% ($p < 0.05$).

3 RESULTS

The sample consisted of 71 academics. The mean age found was 24.68 years. Most of the students (n=58), corresponding to a percentage of 81.7%, were under 30 years old, while only 13 of these students, equivalent to 18.3%, were over 30 years old (Figure 1).

Figure 1

Age of the participating students



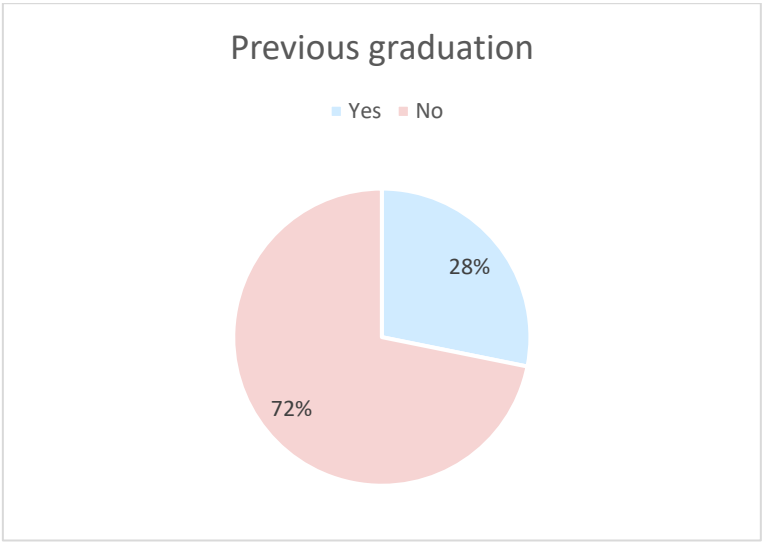
Source: Prepared by the Author.

Regarding the gender of the students, most of the participants (n=52), corresponding to 73.2%, were female, while 19 were male, which would be equivalent to 26.8%.

In this sample, participants with a previous undergraduate degree (n=20) are equivalent to 28.2%, while 51 of these, corresponding to 71.8%, had no other previous education (Figure 2).

Figure 2

Participants with previous graduation among the students



Source: Prepared by the Author.

The usability scale (SUS) among medical students showed an average of 89.05%, which reflects excellent usability. Of the positive items on the usability scale (SUS), item 3 had the highest performance with an average of 4.75, and the one with the worst performance

was item 9 with an average of 4.45, but both are still above 4. Regarding the negative items, the one with the worst result was item 10 with a mean of 1.66 and the one with the best performance was item 8 with a mean of 1.35, both on a scale of 1 among the acceptable metrics (Table 1).

An astonishing value was also observed in the acceptability (TAM) by medical students with an average of 93.45%, and all items presented a high score (above 4), revealing excellent acceptability. From the point of view of the medical students who evaluated the DermaPlat®, it proved to be easy to use and acceptable for the daily routine (Table 1).

To attest to the reliability of the data obtained in the studies with medical students, Cronbach's alpha coefficient was used. The highest possible value for this coefficient is 1.00, with 0.70 being considered the lower limit for acceptable internal reliability. The Cronbach's alpha coefficient obtained in the SUS scale was 0.776, and when analyzing the Cronbach's alpha coefficient obtained in acceptability (TAM), there were very high values with a mean of 0.842, and all items with equally high scores (Table 1). (Bujang; Omar; Baharum, 2018)

Table 1

Evaluation of the usability and acceptability of the DermaPlat® by medical students

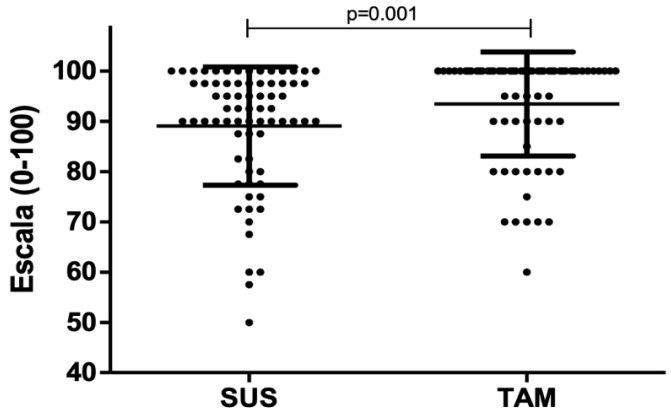
		Cronbach's	Likert scale				
		Alpha	1	2	3	4	5
SUS	89.05±11.77	0,776					
1	4.55±0.71	0,764	0 (0.0%)	0 (0.0%)	9 (12.7%)	14 (19.7%)	48 (67.6%)
2	1.61±1.02	0,769	45 (63.4%)	17 (23.9%)	4 (5.6%)	2 (2.8%)	3 (4.2%)
3	4.75±0.55	0,734	0 (0.0%)	1 (1.4%)	1 (1.4%)	13 (18.3%)	56 (78.9%)
4	1.37±0.83	0,723	54 (76.1%)	13 (18.3%)	1 (1.4%)	1 (1.4%)	2 (2.8%)
5	4.58±0.65	0,675		1 (1.4%)	3 (4.2%)	21 (29.6%)	46 (64.8%)
6	1.39±0.82	0,779	52 (73.2%)	14 (19.7%)	3 (4.2%)	0 (0.0%)	2 (2.8%)
7	4.68±0.58	0,740	0 (0.0%)	0 (0.0%)	4 (5.6%)	15 (21.1%)	52 (73.2%)
8	1.35±0.90	0,753	58 (81.7%)	7 (9.9%)	2 (2.8%)	2 (2.8%)	2 (2.8%)
9	4.45±0.77	0,627	0 (0.0%)	1 (1.4%)	9 (12.7%)	18 (25.4%)	43 (60.6%)
10	1.66±1.05	0,753	43 (60.6%)	17 (23.9%)	7 (9.9%)	0 (0.0%)	4 (5.6%)
TAM	93.45±10.37	0,842					
1	4.76±0.49	0,755	0 (0.0%)	0 (0.0%)	2 (2.8%)	13 (18.3%)	56 (78.9%)
2	4.72±0.57	0,726	0 (0.0%)	0 (0.0%)	4 (5.6%)	12 (16.9%)	55 (77.5%)
3	4.80±0.50	0,792	0 (0.0%)	0 (0.0%)	3 (4.2%)	8 (11.3%)	60 (84.5%)
4	4.47±0.85	0,943	1 (1.4%)	0 (0.0%)	10 (14.3%)	13 (18.6%)	46 (65.7%)

Source: Prepared by the Author.

When placing the data in Figures to evaluate whether acceptance would be greater than usability, it can be observed that the values of acceptance were statistically higher compared to those of usability (Figure 3).

Figure 3

Comparison between acceptability and usability of the DermaPlat® in the group of medical students

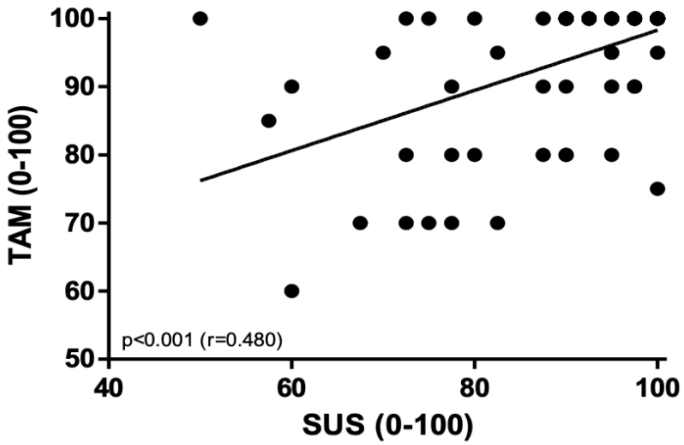


*p<0.05, Wilcoxon test (mean±SD)
Source: Prepared by the Author.

There is a close relationship between acceptability and usability, marked by a p<0.01, showing that the greater the usability of the DermaPlat®, the greater its acceptability, both being directly proportional (Figure 4).

Figure 4

Relationship of proportionality between usability and acceptability of DermaPlat® in the group of medical students



*p<0.05, Spearman's correlation
Source: Prepared by the Author

4 DISCUSSION

The use of the System Usability Scale (SUS) resulted in an overall average of 89.05%, an index that is classified within the category of excellence, according to the internationally accepted parameters for this evaluation tool. Such performance shows a largely favorable

perception by users with regard to the interface, ease of navigation and functionality of the platform. These findings indicate that the tool was successful in meeting fundamental usability criteria, such as clarity, practicality, and satisfaction in the user experience. (Bangor; Kortum; Miller, 2009; Vermeeren et al., 2007; Zbick et al., 2015)

In the scope of the usability evaluation, the item that obtained the highest score was number 3, corresponding to the statement: "I found the system easy to use". This result unequivocally highlights the success in achieving one of the main purposes that guided the development of the Dermapret® platform. Since its conceptual phase, the project has been structured with a focus on user experience, aiming to serve both medical students and active doctors, especially those inserted in the context of Primary Health Care. The central proposal of the tool consisted of offering an intuitive, agile, objective and transparent interface, capable of minimizing technological barriers and promoting fluid navigation, favoring direct access to the content offered.

Ease of use emerges, in this scenario, as a fundamental element for initial adherence and continuous engagement with digital resources applied to the health area. Considering clinical practice environments marked by intense demands and time constraints — recurrent characteristics of Primary Care — Dermaplat®'s operational simplicity is a strategic differential, allowing professionals to review or deepen knowledge in dermatology in an agile and efficient way. At the same time, for medical students, the user-friendly structure of the platform contributes significantly to the assimilation and review of content, easily integrating into the academic routine. Thus, the high score attributed to the item related to ease of use not only validates the proposal of a functionally effective interface, but also highlights the value of user-centered digital solutions, both for educational and clinical purposes.

In contrast to the positive results observed in general, the item with the lowest score on the SUS Usability Scale was number 9, which states: "I felt confident using the system". Although this result represents an isolated point in a predominantly favorable evaluation, it may signal the presence of a certain hesitation or insecurity on the part of users, especially among those who do not have specialized training in Dermatology. Confidence in the use of digital platforms aimed at diagnostic support and health learning is closely linked to the user's level of familiarity with the contents covered.

In this scenario, it is understandable that general practitioners and medical students, when faced with a specific area of knowledge — and often little deepened throughout traditional medical training — such as Dermatology, have less confidence when using the tool, even recognizing its functionality and ease of use. Thus, the lower performance observed in this item does not compromise the perceived quality of the platform, but highlights

the importance of promoting greater familiarity with the specialty, in order to strengthen users' confidence in its use. (Caldas Campos et al., 2022; Furtado Fialho Cândido; Pires Feitosa, 2025)

With regard to the items with negative formulation present in the SUS Usability Scale, there is a relevant contrast between the results obtained. The item that presented the worst performance in this group was number 10, which states: "I had to learn several new things before I could use the system". Although the value attributed to this item was relatively higher compared to the other negative ones, the result suggests that a portion of users encountered a certain initial learning curve when interacting with the platform.

On the other hand, item number 8, which states: "I found the system confusing to use", had the best performance among the negative items, indicating that most users considered the navigation simple and the structure of the platform well organized. This response reinforces the effectiveness of the tool's functional design. The comparison between the two items shows that, although some users need some time to adapt initially, the overall usability of the system was well evaluated, reflecting a positive balance between functionality and user experience.

The evaluation of the acceptability of the DermaPlat® platform by medical students, measured using the Technology Acceptance Model (TAM), revealed a remarkably high performance. The average obtained was 93.45%, with all items presenting scores higher than 4 on a scale of 1 to 5, which shows a largely positive acceptance of the tool by this public. This expressive result demonstrates not only the effectiveness of the platform in terms of functionality and usability, but also its ability to integrate satisfactorily into the students' study routine. (Alves; Lopes, 2015; Cruz et al., 2022)

In order to verify the internal consistency and reliability of the data obtained in the application of the evaluation instruments with medical students, Cronbach's alpha coefficient was used as a statistical metric. This coefficient, whose maximum value is 1.00, is widely recognized in the literature as a reliable parameter for measuring the homogeneity of responses on psychometric scales. Values equal to or greater than 0.70 are considered satisfactory to indicate acceptable internal reliability. In the present study, Cronbach's alpha coefficient for the SUS Usability Scale reached 0.776, demonstrating an adequate internal consistency of the items evaluated. (Bujang; Omar; Baharum, 2018)

In addition, when analyzing the same coefficient applied to the TAM acceptability scale, an even higher performance was observed, with a mean of 0.842. This result reinforces the robustness and coherence of the answers provided by the participants, reflecting that the items of the scale were understood uniformly and that the assigned scores maintained

statistical stability. The high values obtained in both scales attest, therefore, to the reliability of the instruments used and the validity of the data collected in the context of the evaluation of the DermaPlat® digital platform.

By Figureically representing the data obtained in the evaluations of the usability and acceptability of the DermaPlat® platform, it was possible to observe a statistically significant difference between the two measurements. The values attributed to acceptability, measured using the TAM scale, were higher than those verified on the SUS scale, which evaluates the usability of the system. This result suggests that, although the platform was well evaluated in terms of ease of use, functionality and efficiency, its level of acceptance by users was even higher. This finding may indicate that users, in addition to considering the system technically effective, also perceived it as useful, relevant and integrated with their academic and clinical needs, which reinforces the positive adherence to the tool in the context of medical education and practice in Primary Health Care.

In addition to the descriptive data, the statistical analysis showed a significant correlation between the scores of the SUS and TAM scales, with $p<0.01$, indicating a direct and robust association between the concepts of usability and acceptability. This finding reinforces the premise that, as users perceive greater ease, efficiency, and fluidity in the use of the Dermapret® platform, the higher their willingness to accept it and incorporate it into their academic or professional routines tends to be. This positive and proportional relationship shows that adherence to educational technologies in the health area is strongly conditioned by the quality of the experience offered, both in terms of interface and functionality. In the case of Dermaplat®, this synergy between usability and acceptability was evident, suggesting that the development of digital tools aimed at medical education should prioritize not only content, but also ergonomics and user experience as fundamental elements for its success.

5 CONCLUSION

The results indicate that DermaPlat® brings together usability and pedagogical relevance capable of enhancing learning in Dermatology, an area historically underrepresented in undergraduate studies. By organizing content into clear flows, objective language, and clinical images, the platform favors guided diagnostic reasoning, structured review, and consolidation of concepts both in autonomous study and in outpatient use.

From a formative point of view, the tool increases the student's confidence to propose diagnostic hypotheses with greater precision, without replacing clinical judgment. The lean interface and quick navigation allow consultations during the consultation without

compromising the fluidity of the consultation, serving as practical support for the examination of lesions and the interpretation of morphological findings.

Finally, DermaPlat® proves to be a useful complement to the teaching of Dermatology, favoring continuous learning through frequent access and directed study. Its integration into learning paths and active methodologies tends to expand the student's autonomy and qualify decision-making at the point of care, contributing to safer training aligned with the contemporary demands of medical education.

REFERENCES

Alves, C. A., & Lopes, E. L. (2015). O papel do gênero na intenção de uso de novas tecnologias por meio do modelo TAM adaptado. Base - Revista de Administração e Contabilidade da Unisinos, 12(4), 297–308.

Bangor, A., Kortum, P., & Miller, J. (2009). Determining what individual SUS scores mean: Adding an adjective rating scale. Journal of Usability Studies, 4(3), 114–123.

Barszcz, K., Ferreira, M. C., Costa, A. B., & Silva, R. S. (2023). Qualidade dos encaminhamentos da atenção primária a um serviço de dermatologia. Cadernos Saúde Coletiva, 31(3), e230301.

Braga, D., Souza, M., Lima, R., & Oliveira, P. (2024). Testes on-line em cursos da área da saúde: Opinião dos estudantes e perspectivas sobre desempenho e segurança. Revista de Educação em Saúde, (126), 116–119.

Bujang, M. A., Omar, E. D., & Baharum, N. A. (2018). A review on sample size determination for Cronbach's alpha test: A simple guide for researchers. Malaysian Journal of Medical Sciences, 25(6), 85–99. https://doi.org/10.21315/mjms2018.25.6.9

Caldas Campos, B., Santos, J. R., Almeida, L. M., & Ribeiro, F. S. (2022). Dermatologia na atenção primária à saúde: Uma revisão de literatura. Revista Interdisciplinar em Saúde, 9, 113–119. https://doi.org/10.35621/23587490.v9.n1.p113-119

Cavalcante Bernardino, W., & Vilarouca Filho, E. (2022). Ensino remoto durante a pandemia do COVID-19. Cadernos ESP, 16(3), 52–61. https://doi.org/10.5752/P.1984-6983.2022v16n3p52-61

Cordato, D. J., Furlong, T., Harris, J., & Smith, M. (2023). Health research and education during and after the COVID-19 pandemic: An Australian clinician and researcher perspective. Diagnostics, 13(1), 123. https://doi.org/10.3390/diagnostics13010123

Cruz, M., Silva, L., Santos, R., & Pereira, A. (n.d.). Uso do TAM — Technology Acceptance Model — no ciclo de design de aplicações computacionais. Unpublished manuscript.

Furtado Fialho Cândido, D., & Pires Feitosa, C. (2025). Desafios da dermatologia na atenção primária: Formação médica e prática clínica. Revista Interdisciplinar em Saúde, 12, 103–115. https://doi.org/10.35621/23587490.v12.n1.p103-115

Garcia-Jr, C. A. S., Lima, F. A., Souza, R. M., & Almeida, J. P. (2022). O ensino remoto na formação médica durante a pandemia da Covid-19. Revista Brasileira de Educação Médica, 46(4), e104. https://doi.org/10.1590/1981-5271v46.4-20210104

Janeczko, P., Silva, A. C., Ferreira, L. M., & Costa, R. (2021). Reconhecimento de lesões de pele suspeitas de malignidade por médicos da atenção primária de Curitiba-PR. Revista de Saúde Pública do Paraná, 4(1), 32–47. https://doi.org/10.32811/25954482.2021v4n1

Pears, M., Henderson, J., Wilson, A., & Smith, J. (2020). Role of immersive technologies in healthcare education during the COVID-19 epidemic. Scottish Medical Journal, 65(4), 112–119. https://doi.org/10.1177/0036933020956317

Salloum, S. A., Al-Emran, M., Shaalan, K., & Tarhini, A. (2019). Exploring students' acceptance of e-learning through the development of a comprehensive technology acceptance model. IEEE Access, 7, 128445–128462. https://doi.org/10.1109/ACCESS.2019.2939467

Silva, E. G., Santos, M. A., Lima, R. S., & Oliveira, J. P. (2024). Desenvolvimento e validação de aplicativo para o ensino da dermatologia na graduação em medicina. Revista Brasileira de Educação Médica, 48(4), e056. https://doi.org/10.1590/1981-5271v48.4-20230056

Silva, J. D. A., Oliveira, M. C., Santos, R. A., & Costa, L. F. (2021). Principais dificuldades do ensino remoto e uso de tecnologias no ensino-aprendizagem de estudantes de educação física durante a pandemia da COVID-19. Educación Física y Ciencia, 23(4), e194. https://doi.org/10.34096/efc.v23i4.10194

Soares, T. G. P. C., Lima, A. B., Santos, J. R., & Ferreira, M. C. (2025). Construção de uma plataforma digital móvel de ensino em dermatologia para acadêmicos de medicina e médicos atuantes na atenção primária em saúde. Cuadernos de Educación y Desarrollo, 17(6), e8656. https://doi.org/10.35621/21796666.v17.n6.e8656

Vermeeren, A., Vermeulen, J., & Kort, J. (2007). Experiences with structured interviewing of children during usability tests. In Proceedings of the 21st British HCI Group Annual Conference on People and Computers (pp. 139–146). British Computer Society.

Zbick, J., Jansen, M., & Müller, H. (2015). A web-based framework to design and deploy mobile learning activities: Evaluating its usability, learnability and acceptance. In 2015 IEEE 15th International Conference on Advanced Learning Technologies (pp. 88–92). IEEE. https://doi.org/10.1109/ICALT.2015.132