PAR Digital: Tecnologia em Prol do Ensino Inclusivo

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ABSTRACT

Este artigo apresenta uma descrição dos objetivos e funcionalidades do PAR Digital, demonstrando como o software pode transformar a prática educacional inclusiva.

KEYWORDS

software, tecnologia, educação, plano educacional individualizado, inclusão

1 INTRODUÇÃO

O PAR Digital é uma ferramenta tecnológica desenvolvida com base em anos de estudo e pesquisa pela Faculdade de Educação da Universidade Federal de Minas Gerais, PAR significa Planejar, Aplicar, Rever, ações necessárias para que o ensino seja eficaz para os alunos com deficiência.

2 OBJETIVO

O objetivo do PAR Digital é proporcionar uma ferramenta acessível e intuitiva que facilite o preenchimento e a gestão do Plano Educacional Individualizado (PEI), essencial para o desenvolvimento educacional dos alunos com deficiência. Desenvolvido a partir de princípios do Desenho Universal de Aprendizagem (DUA) e de uma parceria com o Atendimento Educacional Especializado (AEE), o sistema visa integrar-se de maneira eficiente na rotina diária dos educadores, promovendo um ensino inclusivo e personalizado.

3 ARQUITETURA

A estrutura do projeto é organizada de maneira a facilitar a manutenção e a expansão do mesmo.

As principais tecnologias utilizadas no projeto incluem React.js, uma biblioteca JavaScript para construção de interfaces de usuário, escolhida por sua eficiência na criação de componentes reutilizáveis e desempenho otimizado. O TypeScript é usado para adicionar tipagem estática ao código JavaScript, aumentando a robustez e facilitando a manutenção. O Redux é empregado para o gerenciamento de estado da aplicação, ideal para aplicações de médio e grande porte que necessitam de um controle mais sofisticado do estado. A biblioteca Material-UI é utilizada para implementar o design system do Google Material Design, enquanto o Axios serve como cliente HTTP para realizar requisições a APIs. Ferramentas como Jest e React Testing Library são utilizadas para testes automatizados, garantindo a qualidade e a funcionalidade do código.

O fluxo de dados na aplicação é gerenciado pelo Redux, que centraliza o estado da aplicação em um único store. As ações são despachadas a partir dos componentes, que são tratadas pelos 'reducers' para atualizar o estado global. Essa abordagem facilita a depuração e o desenvolvimento de novas funcionalidades, uma vez que o estado da aplicação se torna previsível e controlado.

A estilização da aplicação é feita utilizando CSS-in-JS com a biblioteca Material-UI, permitindo uma aplicação consistente do design system através dos componentes. A utilização de temas facilita a customização e a manutenção do estilo visual da aplicação.

Para a integração e entrega contínua (CI/CD), o projeto utiliza ferramentas como o GitHub Actions, configurado para executar testes automatizados e builds a cada commit, garantindo que a aplicação se mantenha estável e pronta para deployment. O deploy é realizado em um servidor localizado na UFMG, permitindo uma escalabilidade fácil e eficiente.

Your document will be returned to you for revision if modifications are discovered.

4 FUNCIONALIDADES

The "`webmedia`" document class requires the use of the "Libertine" typeface family. Your TEX installation should include this set of packages. Please do not substitute other typefaces. The "`lmodern`" and "`ltimes`" packages should not be used, as they will override the built-in typeface families.

5 LICENÇA

The title of your work should use capital letters appropriately - https://capitalizemytitle.com/ has useful rules for capitalization. Use the `title` command to define the title of your work. If your work has a subtitle, define it with the `subtitle` command. Do not insert line breaks in your title.

If your title is lengthy, you must define a short version to be used in the page headers, to prevent overlapping text. The `title` command has a "short title" parameter:

```
\title[short title]{full title}
```

6 PERSPECTIVAS

The title of your work should use capital letters appropriately - https://capitalizemytitle.com/ has useful rules for capitalization. Use the `title` command to define the title of your work. If your work has a subtitle, define it with the `subtitle` command. Do not insert line breaks in your title.

If your title is lengthy, you must define a short version to be used in the page headers, to prevent overlapping text. The `title` command has a "short title" parameter:

```
\title[short title]{full title}
```

7 AUTHORS AND AFFILIATIONS

Each author must be defined separately for accurate metadata identification. Multiple authors may share one affiliation. Authors' names should not be abbreviated; use full first names wherever possible. Include authors' e-mail addresses whenever possible.

Grouping authors' names or e-mail addresses, or providing an "e-mail alias," as shown below, is not acceptable:

```
\author{Brooke Aster, David Mehldau}
\email{dave,judy,steve@university.edu}
\email{firstname.lastname@phillips.org}
```

The `authornote` and `authornotemark` commands allow a note to apply to multiple authors — for example, if the first two authors of an article contributed equally to the work.

If your author list is lengthy, you must define a shortened version of the list of authors to be used in the page headers, to prevent overlapping text. The following command should be placed just after the last `\author{}` definition:

```
\renewcommand{\shortauthors}{McCartney, et al.}
```

Omitting this command will force the use of a concatenated list of all of the authors' names, which may result in overlapping text in the page headers.

The article template's documentation, available at https://www.acm.org/publications/proceedings-template, has a complete explanation of these commands and tips for their effective use.

8 SECTIONING COMMANDS

Your work should use standard LaTeX sectioning commands: `section`, `subsection`, `subsubsection`, and `paragraph`. They should be numbered; do not remove the numbering from the commands.

Simulating a sectioning command by setting the first word or words of a paragraph in boldface or italicized text is **not allowed.**

9 TABLES

The "`acmart`" document class includes the "`booktabs`" package — https://ctan.org/pkg/booktabs — for preparing high-quality tables.

Table captions are placed *above* the table.

Because tables cannot be split across pages, the best placement for them is typically the top of the page nearest their initial cite. To ensure this proper "floating" placement of tables, use the environment **table** to enclose the table's contents and the table caption. The contents of the table itself must go in the **tabular** environment, to be aligned properly in rows and columns, with the desired horizontal and vertical rules. Again, detailed instructions on **tabular** material are found in the *LaTeX User's Guide.*

Immediately following this sentence is the point at which Table 1 is included in the input file; compare the placement of the table here with the table in the printed output of this document.

To set a wider table, which takes up the whole width of the page's live area, use the environment **table*** to enclose the table's contents and the table caption. As with a single-column table, this wide table will "float" to a location deemed more desirable. Immediately following this sentence is the point at which Table 2 is included in the input file; again, it is instructive to compare the placement of the table here with the table in the printed output of this document.

Table 1: Frequency of Special Characters

Non-English or Math	Frequency	Comments
Ø	1 in 1,000	For Swedish names
π	1 in 5	Common in math
$	4 in 5	Used in business
Ψ_1^2	1 in 40,000	Unexplained usage

10 MATH EQUATIONS

You may want to display math equations in three distinct styles: inline, numbered or non-numbered display. Each of the three are discussed in the next sections.

10.1 Inline (In-text) Equations

A formula that appears in the running text is called an inline or in-text formula. It is produced by the **math** environment, which can be invoked with the usual \begin . . . \end construction or with the short form $ . . . $. You can use any of the symbols and structures, from α to ω, available in LaTeX [19]; this section will simply show a few examples of in-text equations in context. Notice how this equation: $\lim_{n\to\infty} x = 0$, set here in in-line math style, looks slightly different when set in display style. (See next section).

10.2 Display Equations

A numbered display equation—one set off by vertical space from the text and centered horizontally—is produced by the **equation** environment. An unnumbered display equation is produced by the **displaymath** environment.

Again, in either environment, you can use any of the symbols and structures available in LaTeX; this section will just give a couple of examples of display equations in context. First, consider the equation, shown as an inline equation above:

$$\lim_{n\to\infty} x = 0 \tag{1}$$

Notice how it is formatted somewhat differently in the **displaymath** environment. Now, we'll enter an unnumbered equation:

$$\sum_{i=0}^{\infty} x + 1$$

and follow it with another numbered equation:

$$\sum_{i=0}^{\infty} x_i = \int_0^{\pi+2} f \tag{2}$$

just to demonstrate LaTeX's able handling of numbering.

11 FIGURES

The "`figure`" environment should be used for figures. One or more images can be placed within a figure. If your figure contains third-party material, you must clearly identify it as such, as shown in the example below.

Your figures should contain a caption which describes the figure to the reader. Figure captions go below the figure. Your figures should **also** include a description suitable for screen readers, to assist the visually-challenged to better understand your work.

Table 2: Some Typical Commands

Command	A Number	Comments
\author	100	Author
\table	300	For tables
\table*	400	For wider tables

Figure 1: 1907 Franklin Model D roadster. Photograph by Harris & Ewing, Inc. [Public domain], via Wikimedia Commons. (https://goo.gl/VLCRBB).

Figure captions are placed *below* the figure.

11.1 The "Teaser Figure"

A "teaser figure" is an image, or set of images in one figure, that are placed after all author and affiliation information, and before the body of the article, spanning the page. If you wish to have such a figure in your article, place the command immediately before the \maketitle command:

```
\begin{teaserfigure}
  \includegraphics[width=\textwidth]{sampleteaser}
  \caption{figure caption}
  \Description{figure description}
\end{teaserfigure}
```

12 CITATIONS AND BIBLIOGRAPHIES

The use of TeX for the preparation and formatting of one's references is strongly recommended. Authors' names should be complete — use full first names ("Donald E. Knuth") not initials ("D. E. Knuth") — and the salient identifying features of a reference should be included: title, year, volume, number, pages, article DOI, etc.

The bibliography is included in your source document with these two commands, placed just before the \end{document} command:

```
\bibliographystyle{ACM-Reference-Format}
\bibliography{bibfile}
```

where "bibfile" is the name, without the ".bib" suffix, of the TeX file.

Citations and references are numbered by default. A small number of ACM publications have citations and references formatted in the "author year" style; for these exceptions, please include this command in the **preamble** (before "\begin{document}") of your LaTeX source:

```
\citestyle{acmauthoryear}
```

Some examples. A paginated journal article [1], an enumerated journal article [6], a reference to an entire issue [5], a monograph (whole book) [18], a monograph/whole book in a series (see 2a in spec. document) [12], a divisible-book such as an anthology or compilation [8] followed by the same example, however we only output the series if the volume number is given [9] (so Editor00a's series should NOT be present since it has no vol. no.), a chapter in a divisible book [29], a chapter in a divisible book in a series [7], a multi-volume work as book [17], an article in a proceedings (of a conference, symposium, workshop for example) (paginated proceedings article) [2], a proceedings article with all possible elements [28], an example of an enumerated proceedings article [10], an informally published work [11], a doctoral dissertation [4], a master's thesis: [3], an online document / world wide web resource [23, 30], a video game (Case 1) [22] and (Case 2) [21] and [20] and (Case 3) a patent [27], work accepted for publication [24], 'YYYYb'-test for prolific author [25] and [26]. Other cites might contain 'duplicate' DOI and URLs (some SIAM articles) [16]. Boris / Barbara Beeton: multi-volume works as books [14] and [13]. A couple of citations with DOIs: [15, 16]. Online citations: [30–32].

13 ACKNOWLEDGMENTS

Identification of funding sources and other support, and thanks to individuals and groups that assisted in the research and the preparation of the work should be included in an acknowledgment section, which is placed just before the reference section in your document.

This section has a special environment:

```
\begin{acks}
...
\end{acks}
```

so that the information contained therein can be more easily collected during the article metadata extraction phase, and to ensure consistency in the spelling of the section heading.

Authors should not prepare this section as a numbered or unnumbered \section; please use the "acks" environment.

14 APPENDICES

If your work needs an appendix, add it before the "\end{document}" command at the conclusion of your source document.

Start the appendix with the "appendix" command:

```
\appendix
```

and note that in the appendix, sections are lettered, not numbered. This document has two appendices, demonstrating the section and subsection identification method.

ACKNOWLEDGMENTS

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A RESEARCH METHODS

A.1 Part One

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A.2 Part Two

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B ONLINE RESOURCES

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