The Process of Collaboratively Creating a Global Computing Education Terminology Resource with GenAI-in-the-Loop

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Abstract

Educational terminology in computing remains fragmented across geographic regions and educational traditions. Identical terms may refer to different concepts in different regions, while equivalent concepts are often termed differently in different traditions, creating barriers to the exchange of pedagogical practices. A globally shared terminology resource will help bridge this inconsistency in usage. This working group will explore the use of generative AI (GenAI) to support the aggregation, validation, and curation of terminology from diverse sources. Generative AI will serve in a directed co-development role while domain experts will still retain responsibility for the final product. The working group will evaluate the benefits and limitations of this GenAI-in-the-loop approach with particular attention to accuracy, bias, and coverage.

CCS Concepts

• **Social and professional topics** → **Computing education**.

Keywords

Computing Terminology, Globalization, Nomenclature

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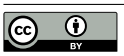

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1 Background and Related Work

Computing education is being standardized (e.g., [1, 2]), yet educational terms often remain localized by geographic region (e.g., North America, Latin America) or educational heritage (e.g., Anglophone, Francophone, Lusophone). As a consequence, the same term may refer to different concepts across nations, or different terms may mean equivalent educational concepts. This fragmentation creates barriers to student mobility, complicates accreditation

harmonization, and impedes the exchange of effective pedagogical practices and research results.

Simon *et. al.*'s study [3] surveyed academic literature internationally to determine the scale of the nomenclature problem, establishing a taxonomy of principal computing education terms and their meanings. The emergence of generative AI provides an opportunity to improve upon this effort: AI can assist in synthesizing information from multiple sources, recognizing patterns, and generating candidate definitions, while human domain experts ensure accuracy, appropriateness, and cultural sensitivity. This directed co-development model will preserve human authority and judgment while leveraging AI's capacity for large-scale information synthesis.

2 Goals of the Working Group

The goals of this working group are to:

(1) Design and document the process of identifying computing education terminology across multiple regions and educational systems, capturing both common terms and region-specific variations.
(2) Establish methodological principles for directed co-development with GenAI, wherein human expertise complements and directs GenAI's prodigious capacity to synthesize information.
(3) Create a proof-of-concept computing education terminology resource that will enable educators and researchers to understand how computing terms are used in diverse contexts and facilitate communication and exchange of ideas and practices.
(4) Document best practices for similar collaborative knowledge-building efforts in education, taking into account the responsiveness, accuracy, and bias of GenAI.

3 Research Questions

The research questions to be addressed by the working group are:

RQ1 What methodological principles enable effective directed co-development of a global terminology resource for computing education?

RQ2 How can directed co-development mitigate the accuracy and regional biases of GenAI when used to generate and validate descriptions of computing education terms?

4 Methodology

The process of creating a terminology resource involves three steps:

- **Aggregation** of computing education terms from diverse regions, along with their definitions;
- **Validation** of the correctness and equivalence of terms used in different geographic regions and educational heritages through two mechanisms: by identifying and documenting sources that illustrate the use of each term and its regional variations; and by inviting the computing community to suggest additions and changes to the terminology from their educational perspective.
- **Curation** of terminology in a format that facilitates easy comparison and use by computing educators and researchers.

The process will be iterative, incremental, and responsive to community feedback.

The resulting Global Computing Education Terminology Resource will contain a list of terms related to computing education, organized as chapters and sub-chapters. The entry for each term will contain a definition, a list of alternative terms used for the same concept, and a list of regional variations for the same term. For example, a credit hour in the US represents approximately 50 minutes of instruction per week plus two hours of independent study over a semester. The equivalent measure in Europe is an ECTS credit, but one ECTS credit represents 25–30 hours of total student workload. Similarly, the term 'credit' is used in Brazil, Turkey, South Korea, and across Latin America, but with different workload values in each system. Other such terms used differently in different parts of the world include *Informatics*, *Software Engineering*, and *Computer Science*.

The working group includes representation from multiple continents and educational traditions. This helps ensure diverse perspectives that inform the resource's development. The resource is not intended to be a prescriptive standard that imposes uniformity, but rather a translation and reference aid. Computing education communities will have an ongoing ability to contribute information about regional variations that reflect legitimate pedagogical, cultural, or systemic differences.

5 Expected Deliverables

The deliverables of the working group will include:

(1) A working group report that 1) documents the methodology and process of directed co-development of knowledge with GenAI in the loop, including lessons learned and recommendations for future efforts; and 2) presents findings on the benefits and limitations of using GenAI-in-the-loop approach for knowledge aggregation and validation, with implications for educational resource development more broadly.
(2) A prototype Global Computing Education Terminology Resource containing curated definitions and regional variations for a core set of computing education terms, structured to enable easy comparison and use.

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