Scholé

Rivista di educazione e studi culturali

1/2024 - Anno LXII

Abstracts

Chiara Panciroli, Pier Cesare Rivoltella, *Collaborating with machines. AI, Literacies, School*

The emergence of data and algorithms presents new challenges, with the proposal that critical thinking can be applied through conversation, especially in interactions with AI. The significance of cultural references in AI interactions is stressed, suggesting that integrating classical rhetoric and contemporary linguistics can enhance effective communication, marking a potential evolution in Media Literacy methods. This evolution allows to talk about AI Literacy as an important part of Artificial Intelligence and Education (AIED) research. The article emphasizes the challenge of fostering understanding among teachers and students regarding the utility of AI applications. It advocates for a socially situated approach in education, promoting creativity, contextualization, and plural thinking. AI culture integration into school curricula is based on four dimensions: literacy, critical awareness, ethics, and expression. The article proposes the ESLAI Framework for AI curriculum design, aligning with Situated Learning Episodes.

Keywords: Artificial Intelligence in Education, Episodes of Situated Learning, Media Literacy, Curriculum Design, Explainability.

Alessandro Soriani, Paolo Bonafede**,** *Tra logos e artigianalità: (ri)pensare il ruolo dell'Intelligenza artificiale nella didattica e in educazione*

In the past years, the debate about new challenges introduced by artificial intelligence in education (AIED) has been enriched by authoritative contributions from different international institutions such as European Commission

and the Council of Europe, leaving, however, a sense of uncertainty in practitioners. While AI tools (generative, translation, search, etc...) are already in the hands of users, they are still at an early stage of development, hinting the profile of potential opportunities and issues that will soon be knocking at the school's door.

The theoretical-critical contribution frames the issue of AI in relation to the debate between "apocalyptic" and "integrated", highlighting the connection between AI technologies and the post-capitalist economic model. The aim is to propose a reflection in two main directions: 1) the promotion of an education for critical, responsible and ethical thinking, by emphasizing the priority of "logos" over "techne"; 2) the activation of educational practices capable of valuing processes over products, competence over knowledge, artisanship over awarenessless automation.

Keywords: Artificial Intelligence, Education, School, Technology, Digital Citizenship.

Maila Pentucci, Pier Giuseppe Rossi, Lorenza Capolla, Francesca Gratani, Lorella Giannandrea, *Analizzare dataset ampi e non strutturati nella ricerca educativa con il supporto dell'Intelligenza Artificiale. Sfide e problematiche.*

In the educational field, there is a need to make sustainable the analysis of large datasets, which often contain unstructured texts and materials. In this research, we investigate the designs of 560 students in the third year of SdFP. The study aims to capture how the unexpected impacts action and validate the "design for the unexpected" proposal. For the analysis, we implemented three approaches. The first one involves two researchers reading and using the phenomenological method, the second implies an automatic term search method, and the third the use of ChatGPT. The paper will analyze the pros and cons of each mode and grasp how the different device impacts sustainability, research purposes, and the evidence gathered. Some issues that emerged from the work and some guidelines will be shared.

Keywords: Artificial Intelligence, Analysis methodologies, Data Science, Learning Design, Unexpected.

Abstracts

Salvatore Messina, Anita Macauda, Veronica Russo, Maria Chiara Sghinolfi, *Trasformazioni Educative con l'Intelligenza Artificiale: un'esplorazione critica degli impatti nei processi di insegnamento-apprendimento*

Artificial intelligence (AI) is catalyzing a profound transformation in the education sector, stimulating the emergence of innovative teaching practices and personalized learning strategies (U.S. Department of Education, 2023). This work is based on two fundamental objectives: mapping AI-based digital resources, in order to develop and carry out teaching-learning activities in schools and universities; investigating the most significant elements related to the use of AI applications as a support for teachers and students in the teaching-learning process. These aims converge towards the development of an AI-oriented education by emphasizing the importance of a critical analysis of scientific literature to interpret and effectively manage such advancements.

Keywords: Artificial Intelligence, APP, Education, School, Higher education.

Salvatore Perna, Mario Allegra, Manuel Gentile, Simona Ottaviano, Vanessa Pitrella, Anna Re, Crispino Tosto, Giuseppe Città, *Analysing the Impact of Artificial Intelligence on Teacher-Student Interaction in the Light of Actor-Network Theory*

The relationship between teacher and learners is one of the most critical elements in the educational context. Technological developments and, specifically, artificial intelligence have deeply challenged the classical teacher-student-teacher interaction models. Moreover, recent developments related to large language models and generative AI already represent a significant shift in the dynamics of teacher-student interaction. AI technologies foster the creation of autonomous systems that can initiate interactions between actors and create content. In the Actor-Network Theory (ANT) perspective, technological actants are transformed from passive mediators to active players. In this changing landscape, this contribution analyses the state of the art of the changes introduced by AI in teacher-student-teacher interaction models in light of the theoretical framework provided by ANT.

Keywords: Teacher-student interaction, AI4Edu, AIEd, Actor-Network-Theory, Smart-classroom.

Abstracts

Manuel Gentile, Giuseppe Città, Dario La Guardia, Salvatore Perna, Mario Allegra, *Training teachers towards an aware and competent use of AI in Education.*

The recent advances in Artificial Intelligence (AI) are producing significant changes in various spheres of society. A field where the force of this change is particularly disruptive is education. In this context, teachers face the challenge of adopting and implementing new interventions within a tight timeframe, often lacking adequate training. To address this issue, in the context of the European project "Artificial Intelligence for and by Teachers (AI4T)", a training path was developed to foster the teachers' awareness of the impact of AI in education and to promote the competent, ethical, and critical use of these new technological solutions. In this paper, the main objective we pursued was to qualitatively assess the effects of the training path on the teachers' ability to design teaching units on the topic. After briefly describing the training path and its adaptation in the Italian context, we present the results of the training activities, which involved about 200 secondary school teachers and led to a shared and participatory definition of new teaching units centred on AI.

Keywords: Teacher training, teacher awareness, AI4T, AI4Edu, AIEd.

Giuseppina Rita Jose Mangione, Francesca De Santis, *Intelligenza Artificiale nei contesti educativi non standard. I risultati di una "riflessione parlata" sulle piccole scuole*

Educational research focuses on the theme of Artificial Intelligence (AI) to foster the personalization of learning, democratic access to resources and the creation of inclusive and adaptive learning environments. Thinking of a non-standard educational context such as small schools and rural schools is it possible to imagine uses of AI to support social and cultural inclusion, improve opportunities for enhancement and personalization in multi-classrooms and ensure educational continuity even in cases of isolation? Through a process of "spoken reflection" with experts, we will try to identify the opportunities for small schools by connecting the stimulus questions to the dimensions under study of *current scoping review* on AI and rural schools to reach a convergence on the challenges that can guide reasoned interventions in the context of italian small schools.

Keywords: Small and rural schools, AI, Scoping review, Spoken reflection, Educational equity.

Abstracts

Andrea Garavaglia, Livia Petti, *Integrazione della Data Literacy nella Media Literacy come framework per l'intervento media-educativo nella società degli algoritmi*

The contribution builds on Boyd and Crawford's (2012) instances of the need to integrate Data Literacy into Media Literacy, an idea developed in part by the proposal to promote Critical Data Literacy. Considering media literacy, and the media education movement in general, as a point of reference for the analysis of media production, an investigation is proposed into the possibilities of analysing media productions generated by intelligent agents through the adaptation of media education approaches used to implement educational interventions in traditional and new and social media integrated with a data literacy framework. The aim is to examine whether it is appropriate to consider dimensions that data literacy-oriented frameworks do not seem to focus on: one of them, the Personal Data Literacy Framework (PDL Framework), pays attention to the issue of transparency, less to critical use and responsible media production. It considers the analysis of media production and communication, no longer generated only by editorial staff, specialists, influencers and prosumers, but also by Artificial Intelligence (AI) applications for automated media production.

Keywords: Media education, Artificial Intelligence, Media education approaches, Digital citizenship.

Elisa Farinacci, *Towards A Renewed Understanding of Screen and Audiovisual Education: a Mapping of the Relationship between AI and the Film Industry*

Since its first breakthroughs with the software MASSIVE used in the 2000s in *The Lord of the Rings* trilogy to simulate crowd battles, the film industry has made great strides in applying AI throughout its production system. Scriptwriting, location scouting, set design, casting, visual effects, audience analysis, and box-office predictions, have all been affected on some scale. The introduction of AI does not simply question the role of humans in the filmmaking industry (the introduction of any new technology throughout history has raised such worries), but it sets new frontiers for creativity, and it challenges the ways we understand and teach about audiovisual media. Starting from a mapping of the ways in which the film industry has been incorporating AI in

its production practices, this paper aims to reflect on how such technology is both changing our understanding of moving images and forcing us to rethink some of the theoretical approaches that have thus far guided screen and audiovisual education.

Keywords: Film Industry, Artificial Intelligence, Film Production Practices, Screen Education, Audiovisual Education.

Luna Lembo, Elisabetta Tombolini, Maria Vittoria Battaglia, Francesco Peluso Cassese, *Artificial Intelligence and Specific Learning Disorders: Google Lens as a compensatory tool for students with dysgraphia*

In the fields of education and didactics, permeated by digital innovation, there is a need to utilise evolutionary frontiers to better respond to Specific Learning Disorders, among which dysgraphia is taken into account. It represents a difficulty in linguistic processes of orthographic transcoding, namely in phoneme-to-grapheme translation. The paper aims to propose the use of Google Lens, an application that utilises artificial intelligence to recognise and analyse images captured by the smartphone's camera in a didactic environment. The goal is to take advantage of the voice-reading functionality to propose the app as a compensatory tool for students with dysgraphia, offering immediate auditory feedback of what they write and focusing on mistakes they may have made. The potential direct and indirect benefits of AI on the student's writing ability and self-esteem are therefore investigated.

Keywords: SLD, Digital Innovation, Didactics, Learning, Mobile App.

Greta Persico, Martina Rosola, Simona Frenda, *Artificial intelligence and gender-fair language in school books: pedagogical insights on the potentialities of using an autocorrect in education*

This paper reflects the application in education of an autocorrect for Italian designed to make it easier to adopt gender-fair language consistently in administrative documents. Sexism in Italian produces important effects in educational contexts as confirmed, for example, by research analyzing school texts. The

literature highlights how certain gendered expressions influence our cognition, and how masculine terms evoke masculine images with the effect of excluding, depowering and make invisible women, non-binary and trans people. The analysis of sexism in Italian is thorough and several national and international bodies issued gender-fair language guidelines, that constitute a vast know-that on the subject. However, there is a lack of operational tools to facilitate their implementation, bridging the gap between the know-that and the know-how. This contribution aims to explore, from an interdisciplinary perspective, the pedagogical and training potentialities arising from the use of a gender-fair autocorrect in education. In particular, we argue that the benefit of such a tool is twofold: on the one hand, it produces fair texts and, on the other, it helps its users to develop the ability to recognize and replace sexist expressions.

Keywords: Gender-fair language, Education, Artificial Intelligence, Automatic corrector.

Stefano Pasta, *Hate Studies tra logica computazionale e classificazione umana. Un caso studio sull'antisemitismo in Twitter*

Hate Studies is one of the interdisciplinary fields where Artificial Intelligence is applied to search for algorithms for detecting online hate speech. The essay aims to highlight the role of human classification techniques in researching online hate speech through machine learning and computational logic. In the first part of the article, the definitional issues related to the boundaries of what to include in the category of hate speech and, consequently, in its detection are addressed. Subsequently, it is presented a review of articles which, on one hand use only machine learning methods and, on the other hand combine automatic research with human classification. Finally, a case study based on antisemitism on Twitter during the pandemic period (2019-2021) is presented. The tweets are selected in Italian and they are analyzed using social network analysis (SNA) techniques. The results are then subjected to a confusion matrix, a tool used for analyzing errors made by a machine learning model, in order to draw methodological considerations on the relationship between algorithmic-computational logic and human classification.

Keywords: Hate speech, Antisemitism, Hate Studies, Artificial Intelligence, Algorithmic logic.

Valeria Caggiano, Ema Di Petrillo, *EDtech to improve Higher Education Curriculum Design*

Intelligent Education Technologies, also known as "EdTech," is a rapidly growing field that utilizes digital tools and software to support and enhance educational experiences for students and educators alike. With the emergence of Artificial Intelligence (AI), Natural Language Processing (NLP), and Machine Learning (ML), EdTech has the potential to transform the way we learn and teach. AI has the potential to revolutionize education by providing personalized learning experiences and automating administrative tasks, but it also raises ethical and social implications. Some examples of EdTech are explored, include adaptive learning software, which uses machine learning algorithms to personalize learning experiences for each individual student. An applied case of curriculum innovation in a business school is highlighted, and the pedagogical implications and dialogue with stakeholders are emphasized. Looking to the future, the potential for EdTech is immense. With the continued development of AI, NLP, and ML, we can expect to see even more personalized, engaging, and effective educational experiences.

Keywords: *Ed tech education technology, Artificial Intelligence, Higher education, Curriculum design, Personalize-learning.*