STIAEM

Slow Tech Innovation

AI, Ethics and New Teaching Methods

Customising accessible worksheets and sensory formats for SEN and DSE students

Co-funded by the European Union

2025-1-IT02-KA220-SCH-000365213

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them... Project reference code: 2025-1-IT02-KA220-SCH-000365213

Università di Foggia

Studi Umanistici, Lettere, Beni Culturali, Scienze della Formazione

İSTANBUL - ESENLER İLÇE MİLLİ EĞİTİM MÜDÜRLÜĞÜ

1474



STIAEM

Slow Tech Innovation AI, Ethics and New Teaching Methods



Co-funded by the European Union

2025-1-IT02-KA220-SCH-000365213

eduOpen



CC BY-NC-SA 4.0 International
This license requires that reusers give credit to the creator. It allows reusers to distribute, remix, adapt, and build upon the material in any medium or format, for noncommercial purposes only. If others modify or adapt the material, they must license the modified material under identical terms.



Università di Foggia
Studi Umanistici, Lettere, Beni Culturali, Scienze della Formazione















1474



OER 4.3.2: Customising accessible worksheets and sensory formats for SEN and DSE students
Reference Module: Module 4 - Prompt Engineering for Inclusive Education
Related Video-Pill: Video 4.3 - Applying UDL and Inclusive Personalisation
Authoring partner: Liceo "don Milani" di Acquaviva delle Fonti - sede associata "Da Vinci" di Cassano delle Murge
Topic / Thematic Focus: UDL principles integration, multimodal AI and diverse learning needs

Introduction and Learning Objectives

This resource completes, on the operational level, the path started with OER 4.3.1 and accompanies video-pill 4.3 «Applying UDL and Inclusive Personalisation». If the previous resource presented the principles of UDL and their legal framework, this one translates them into a concrete object: the accessible worksheet and the sensory formats intended for students with special educational needs (SEN) and with specific learning disorders (DSA).
The worksheet is the most widespread material in school and, at the same time, one of the most exposed to the risk of exclusion: a few dense lines, a single channel, no flexibility. Redesigning it according to accessibility criteria and using AI to produce personalised versions of it is a concrete exercise in inclusion, which does not increase the teacher's workload but transforms it. The text connects to DigComp 3.0 (Cosgrove & Cachia, 2025).
By the end of the reading, the teacher will be able to:

- apply a check-list of criteria to design an accessible worksheet;
- use AI to produce personalised versions of materials in different sensory formats, without impoverishing the content;
- verify the materials produced, while safeguarding didactic quality, privacy and professional responsibility.

1. The worksheet: the material that excludes without meaning to

Let us start from any worksheet. Compact text, small type, long instructions, information entrusted to colour, images without captions, no editable digital version. For a student without difficulties it is an exercise; for a student with dyslexia it is a struggle; for a visually impaired person it is an obstacle; for someone with an attention disorder it is a jungle of stimuli. And yet, as we have seen, nobody meant to exclude anyone: the worksheet was designed for an average user who does not exist.
Two consequences follow from this. The first is that the problem is not solved by «fixing» the student, but by rethinking the material. The second is that rethinking the material benefits everyone: a worksheet with a clear objective, short instructions and simple language is more effective also for students who have no difficulties at all, as research on the effectiveness of UDL documents (Capp, 2017). Accessibility is not a concession to a few: it is good design for many.

2. Seven criteria for an accessible worksheet

We can translate UDL into an agile check-list, to be used before distributing any material. First: a clear title and objective at the top, so that the student knows what they are learning and why. Second: numbered, short instructions, with a verb in the imperative and, where needed, a worked example. Third: simple language - short sentences, familiar words, explanation of technical terms at their first occurrence.

Fourth: a legible typeface and a size that the student can adapt by themselves, without asking permission. Fifth: sufficient contrast and no information entrusted to colour alone, so as not to exclude those with difficulties in colour perception. Sixth: every image accompanied by a caption and a textual description, so that the content is accessible even without seeing it. Seventh: an open digital format - real text, not photographs of text - alongside the paper one, to allow adaptation.

These are inexpensive measures, which do not require specialist skills: they require a check-list and the habit of using it. The same attention is found in the indicative examples of the European accessibility directive, which cites solutions such as accompanying a diagram with a textual description identifying its main elements (Directive (EU) 2019/882, Annex II). What there is a product requirement, in the classroom becomes a criterion of didactic quality.

3. Sensory formats and alternative channels

The heart of accessibility is the variety of channels. The same content can reach students by different routes: the written word, the spoken word, the image, the diagram, colour, gesture. Students with specific needs often need a privileged channel - those with dyslexia benefit from listening, those with visual impairment from voice synthesis or enlarged text, those with attention difficulties from essential diagrams - and offering more channels means not leaving anyone dependent on just one.

The European directive offers examples that translate directly into practice. Alongside screen-reader-readable files and subtitles in videos, it cites the possibility of enlarging text, zooming in on a pictogram or increasing contrast, so that people with visual disabilities can perceive the information (Directive (EU) 2019/882, Annex II). These are solutions that, applied to a worksheet, translate into versions with a larger body, high-contrast maps, accessible text files.

«Allowing users to enlarge a text, to zoom in on a particular pictogram or to increase the contrast, so that persons who are visually impaired can perceive the information.» (Directive (EU) 2019/882, Annex II, sec. II)

The regulatory principle that sustains them is that of alternative modes of use: the directive requires that products and services offer modes of use that take account of users' different conditions, from visual to cognitive limitations. For a worksheet, this translates into a simple question: if a student could not see the sheet, or could not distinguish colours, or needed more time, would the material remain usable? If the answer is no, the material must be rethought.

4. Personalising with AI without impoverishing

This is where artificial intelligence becomes a concrete assistant to inclusive design. From a single starting text, the teacher can ask for: a simplified version that preserves all the main

ideas; a glossary of difficult terms with examples; the same questions at three levels of difficulty; a worksheet with larger spaces and rewritten instructions; a textual description of every figure; a list of keywords for revision. What once required hours of work now requires a few minutes of well-built prompts.
CAST itself indicates among the goals of UDL the possibility of offering multiple means of representation and of action and expression, so that different students can access the content and demonstrate what they know in different ways (CAST, 2024). AI, guided by the teacher, rapidly multiplies those representations. The techniques of pills 4.1 and 4.2 - structured prompts, worked examples, requests to show the steps - make the process controllable and repeatable.
But personalisation has a precise risk, which must be named: simplification can impoverish. An «easy» text that eliminates the conceptual challenge betrays the purpose of accessibility, which is to open doors, not to lower the bar. The criterion is clear-cut: one simplifies the code - the lexis, the syntax, the format - not the thinking. A good accessible version preserves all the important ideas and their complexity, and changes only the way of reaching them. It is a distinction that the teacher must hold firm in every request addressed to AI.

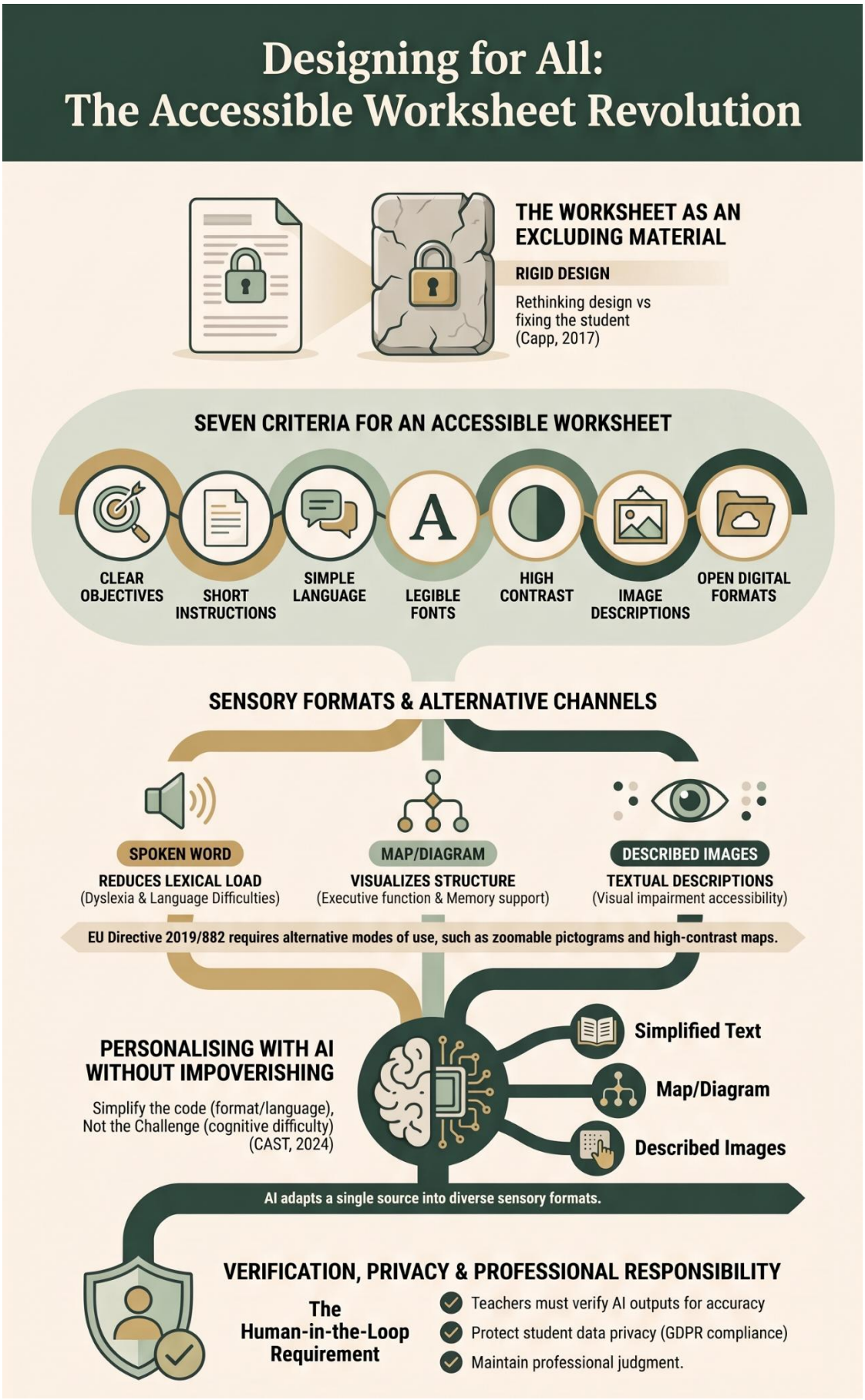
5. Verification, privacy and responsibility

The work does not end with the generation of the material: it ends with its verification. There are three indispensable safeguards. The first is the verification of content: every output must be read, checked and corrected, because a simplification may introduce inaccuracies or lose essential passages. The second is the protection of data: personal information about students is not entered into the tools, and only authorised platforms are used.
The third safeguard is professional responsibility. No judgement about the student - about their ability, their disorder, their prospects - should be delegated to the machine. For students with DSA the compensatory and dispensatory measures remain those provided by national legislation, which technology may support but not replace. AI produces materials; it is the teacher who decides what each person needs, within the framework of the school's rules.
The international framework places all this in a broader perspective. UNESCO's Global Education Monitoring Report 2020 recalls that inclusion is not a set of accommodations for special categories, but a process that concerns all students (UNESCO, 2020). An accessible worksheet, then, is not the «special» worksheet reserved for a few: it is the worksheet that the whole class uses, and that for some is simply practicable. Universal design reverses the traditional order: one does not design for the average student and then adjust for exceptions; one designs for variability, and personalises, only afterwards, what genuinely requires individual attention.

Format	Features	Use with SEN/DSA students	How AI produces it
Simplified text	Short sentences, familiar lexis, glossary	Ideal for dyslexia and language difficulties	Rewriting of the starting text at different levels

Audio/voice synthesis	Reading the text aloud	Access without depending on reading	Generation of an aloud-reading script
Map/diagram	Visual structure of the key concepts	Support for visual memory and executive functions	Summary in bullet points or concept map
High contrast/enlarged	Larger body, adjustable contrast	Access for low vision	Removal of decorative elements and increase of contrast
Described images	Caption and textual description	Access for visual impairment and beyond	Textual description of every figure

Visual Scaffolding



Conclusions and Metacognitive Reflection Prompts

This resource has translated the principles of UDL into a concrete object: the accessible worksheet. We have seen seven design criteria - objective at the top, short instructions, simple language, legible typeface, adequate contrast, described images, open digital format - and how sensory formats multiply the channels of access, with the regulatory anchoring of the examples of Directive (EU) 2019/882.

We have also seen how AI makes personalisation rapid, on one indispensable condition: simplifying access without impoverishing the content. Verification of content, protection of data and responsibility for judgement remain tasks of the teacher. And the horizon remains the one indicated by UNESCO: an accessible material is not the «special» material of a few, but the material that works for everyone, because inclusion, as the report recalls, concerns the whole school.

To transfer these core ideas to one's own practice, the following reflection prompts are proposed:

- Take a worksheet you have already prepared: how many of the seven accessibility criteria does it already meet, and which would require the smallest change?
- Which sensory format - simplified text, audio, map, image description - would benefit your class most, and not just one student?
- How do you make sure that a «simplified» version preserves all the important ideas and does not eliminate, along with the difficult code, the cognitive challenge too?

Technical Metadata Sheet

Metadata Field	Specification / Parameter Value
Identifier	OER 4.3.2
Title	Customising Accessible Worksheets and Sensory Formats for SEN and DSE Students
Creator	Liceo "don Milani" di Acquaviva delle Fonti - sede associata "Da Vinci" di Cassano delle Murge
Description	Complementing OER 4.3.1, the resource translates UDL principles into a concrete object: the accessible worksheet and sensory formats for students with special educational needs and specific learning disorders. It provides a seven-criteria check-list and shows how to use AI to produce personalised versions without impoverishing content. The practical focus is on verifying materials while safeguarding didactic quality, privacy and professional responsibility.
Keywords	accessible worksheets; sensory formats; SEN; specific learning disorders; personalisation; check-list; inclusion; verification and privacy
Language	EN (English)
Affiliation	Liceo "don Milani" di Acquaviva delle Fonti - sede associata "Da Vinci" di Cassano delle Murge
Contributor	STIAEM Transnational Scientific Board (peer review, Rhodes validation protocol)
Media Format	Text; Infographics
Genre	Training Manual; Educational Guide
URL	
Citation	Capp, M. J. (2017). The effectiveness of universal design for learning: A meta-analysis of literature between 2013 and 2016. International Journal of Inclusive Education, 21(8), 791-807. https://doi.org/10.1080/13603116.2017.1325074 CAST (2024). Universal Design for Learning Guidelines version 3.0. CAST. https://udlguidelines.cast.org/ Cosgrove, J., & Cachia, R. (2025). DigComp 3.0: European digital competence framework (Fifth edition). Publications Office of the European Union. https://data.europa.eu/doi/10.2760/0001149 European Union (2019). Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services (European Accessibility Act). Official Journal of the European Union, L 151, 70-115. https://eur-lex.europa.eu/eli/dir/2019/882/oj UNESCO (2020). Global Education Monitoring Report 2020: Inclusion and education - All means all. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000373718
Educational Level	Secondary School
Associated Module / MOOC Video Lesson	Module 4 - Prompt Engineering for Inclusive Education / Video 4.3 - Applying UDL and Inclusive Personalisation
Learning Objectives	apply a check-list of criteria to design an accessible worksheet; use AI to produce personalised versions of materials in different sensory formats, without impoverishing the content; verify the materials produced, while safeguarding didactic quality, privacy and professional responsibility.
Rights	Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0)
Date Available	14/09/2026
Date Modified	

References and Webography

Capp, M. J. (2017). The effectiveness of universal design for learning: A meta-analysis of literature between 2013 and 2016. International Journal of Inclusive Education, 21(8), 791-807. https://doi.org/10.1080/13603116.2017.1325074

CAST (2024). Universal Design for Learning Guidelines version 3.0. CAST. https://udlguidelines.cast.org/

Cosgrove, J., & Cachia, R. (2025). DigComp 3.0: European digital competence framework (Fifth edition). Publications Office of the European Union. https://data.europa.eu/doi/10.2760/0001149

European Union (2019). Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services (European Accessibility Act). Official Journal of the European Union, L 151, 70-115. https://eur-lex.europa.eu/eli/dir/2019/882/oj

UNESCO (2020). Global Education Monitoring Report 2020: Inclusion and education - All means all. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000373718