Future of Education

GenAI4ED

# D2.1: Analysis of the psychological factors of GenAI-Human interaction



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Future of Education GenAI4ED

## Vision of the project

GenAI4ED is here to empower students, teachers, parents, and guardians with the knowledge and skills to navigate the world of generative AI in education. We want to foster a digital-literate society that can make smart, informed decisions about the role of AI in education.



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## Disclaimer





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| **Authors** | Alba Paz-Lopez, Mallari Shroff, Pinelopi Troullinou |
| **Contributors** | Dimitra Dimitrakopoulou, Arja Krauchenberg, Persia Xenopoulou |
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## Executive Summary

This deliverable explores the **psychological factors** involved in GenAI (Generative Artificial Intelligence) adoption in education by teachers, students and parents or guardians. To gather this information, we interviewed **41 stakeholders** (18 teachers, 15 students and 11 parents or guardians) **from European countries**. We drafter the interview protocol with the objective of drawing information from participants regarding: (1) stakeholders' **expectations** of GenAI, (2) their **experiences** with GenAI, and (3) their **perceptions** after GenAI interaction. To this end, we availed of concepts from **educational, social, moral and affective psychology** to help us build a comprehensive framework of analysis for the GenAI4ED platform.

We employed a template analysis **methodology** that is, a qualitative system of thematic coding where we identify topics of relevance for participants and noting patterns of repetition among cohorts (or groups) and cross-cohorts. This analysis produced the following findings:

Regarding **purposes** for engaging with GenAI and **expectations**, parents use GenAI tools for a variety of purposes, while teachers engage with GenAI mainly for work, and students for academic support. The most common **expected benefits** when engaging with GenAI tools are improvements in learning or in task efficiency. Stakeholders **learn about these tools** from their places of work (parents and teachers), formal training events (teachers), peers or friends (students), social media (students), or self-exploration (students and teachers). ChatGPT continues to lead as the preferred, due to its popularity, easy access and perceived functionality.

Regarding their **perceptions and experiences**, all groups perceived several **benefits and barriers** to GenAI adoption. Leading the list of **perceived benefits** are GenAI' capabilities to improve learning, ease tasks and enhance efficiency. Stakeholders perceive GenAI tools as fast and accessible, indicating promising uptake. **Perceived barriers** highlight stakeholders concerns regarding the accuracy of GenAI tools and their outputs, and their understanding of commands, among others. Stakeholders report potential issues with uptake regarding limited literacy and practical difficulties. Additionally, stakeholders find salient **ethical issues** in cheating and the importance of rule following. Consequently, there is a significant level of **mistrust** still present among all groups, but particularly among parents. After interaction with GenAI tools, we note positive changes in **confidence** in students and teachers, but increase in scepticism in parents, and in dependence in students. We find a similar distribution in **emotions** towards GenAI, with students and teachers reporting mainly positive emotions, while parents remain more regularly transitional and negative arenas.

Regarding **skills development**, we find a correlation between those participants who learn about GenAI tools through social media or the internet and decreased levels of GenAI knowledge. Upon reflecting on their GenAI experiences, teachers and parents indicate an interest in adopting new approaches of interaction with GenAI tools, while students do not demonstrate such proclivity, indicating limited self-reflection or contentment from this group. Regarding their **identity** towards GenAI acceptance, students present the most accepting profiles, parents the most resistant, and teachers show more balanced identity profiles. Students' reflection on how their **roles** might change due to GenAI is minimal. Teachers and



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parents, however, reflect on their roles supporting student uptake and the need for collaboration and critical thinking, while teachers also assume changes in work habits and responsibilities.

These findings highlight how expectations, perceptions and experiences might shape different patterns of identity, role change and, ultimately, GenAI uptake in education. Findings also point at specific **stakeholders' needs**, such as teachers' need for subject specific training and systemic support, parents' need for communication and training, or students' need for safe and critical AI training, which allow us to make **policy recommendations**.



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## Acronyms

| | |
|---|---|
| AI | Artificial Intelligence |
| AI Act | Artificial Intelligence Act |
| D | Deliverable |
| EA | Ellinogermaniki Agogi |
| EPA | European Parent's Association |
| GenAI | Generative Artificial Intelligence |
| GenAI4ED | Generative Artificial Intelligence for Education |
| PGMS | Private Grammar and Modern Schools |
| T | Task |
| TRI | Trilateral Research |

# 1 Introduction

**Deliverable 2.1** presents the research work conducted in **T2.2 Analysis of the psychological factors of GenAI-Human Interaction**, a qualitative enquiry through interviews to parents, teachers and students, informed by the results from previous tasks in the GenAI4Ed project. In this section we introduce D2.1 by providing the context and **motivation** behind the research work here reported, the **objectives** of the task (T2.2) leading this deliverable, **how this research task relates to** other tasks and sections of **this project**, and a detailed explanation of the **structure** that the document follows.

## 1.1 Background and motivation

The adoption of new technologies in educational environments is always to some extent a disruption of classroom procedures and learning processes. GenAI tools, that is, AI systems capable of producing text, images, video, or other content, are not an exception to this rule (Lin & Tan, 2025): their adoption in education has consequences for all stakeholders involved, namely, students, teachers and parents.

The use of GenAI tools involves the deployment of linguistic and critical thinking skills necessary to build effective prompts or instructions, while, at the same time, they may also facilitate or simplify texts or other content. Therefore, the way users of GenAI tools learn, will undoubtably undergo changes. Users approach GenAI for a multitude of reasons and a set of expectations depending on their expertise, literacy, and even age. As such, expectations and impact experienced by stakeholders may vary considerably. Moreover, GenAI tools are adopted unevenly, that is, adoption may be happening a home or in the classroom, by one or several stakeholders in each environment. This fact is bound to have consequences to how stakeholders relate to each other and the machine, and how their roles and responsibilities, in the classroom and outside, may be altered.

Behind these processes there are psychological underpinnings at play that require examination. Thus, the goal of Task 2.2 is understanding the psychological factors behind GenAI-human interactions in education, to help us grasp the needs of stakeholders in relation to these tools. Understanding of this topic is necessary to build a comprehensive GenAI4ED platform that can support responsible students', teachers' and parents' interactions with GenAI tools for educational purposes.

The inclusion of parents' and guardians' voices in this research work, and indeed in the GenAI4ED project in general, has been crucial in ensuring a well-rounded representation of all key players in education. While parents and guardians remain an underrepresented group in research in relation to GenAI, they constitute students' first, and perhaps most influential, educators, and their role in responsible GenAI adoption cannot be overlooked.

## 1.2 Objectives and scope of Task 2.2

Task 2.2 aims to:

- Investigate the **expectations, experiences** and **perceptions** of students, teachers and parents in relation to GenAI in education.
- Uncover the **psychological factors** involved in GenAI-human interaction such as pedagogical factors, like the development of skills and learning processes; social factors like how roles in education may change due to GenAI's influence; or moral factors, like the ethical concerns and new responsibilities resulting from GenAI use.
- Produce a paradigm of factors that can support the **evaluation criteria** of the GenAI4Ed platform.
- Complement the findings of other research tasks in the GenAI4ED project to develop policy recommendations that address students' parents' and teachers' needs and concerns.

## 1.3 Relation to other tasks

**Task 2.2** is closely related to other research tasks in the GenAI4ED project, as they helped inform our research design. From **T1.1 Systematic review of GenAI in education** and **T2.1 Systematic review of current policies and guidelines on GenAI in education**, we mapped general perceptions and ethical concerns in GenAI use, mostly focused on students and teachers, as literature and policy addressing parents is limited. From **T2.3 Systematic review of current policies and guidelines on GenAI in education**, we drew general opportunities and challenges, and ethical concerns in AI adoption at a systemic level.

Beyond learning from previous work, T2.2 aims to contribute actively and passively to other tasks within the project. T2.2's main contribution is to **T2.4 GenAI4ED evaluation framework**, by providing a set of terms or items that can be translated into an evaluation criterion that will guide recommendations in the GenAI4ED platform. Contributing to T2.4 will, in turn, mean passive contribution to other later tasks which are nurtured by T2.4. Additionally, T2.2 will also inform **T3.5 Training Resource Hub**, allowing us to refine content and resources which align with stakeholders' needs.

## 1.4 Structure of the document

This deliverable is organised into eight main sections. The **introduction** is the first section, preceded by an **executive summary** of the deliverable. *Section 2*, the **theoretical framework**, is a literature revision of the theoretical concepts intervening in the design of this task: on the one hand, a revision of current literature on stakeholders' perceptions; on the other hand, a glimpse at the psychological concepts that sustain the interview protocol. *Section 3* details the **methodology** employed in this research work, including data collection, participants' profiles and analysis. *Section 4* presents the **findings** resulting from the research, divided by expectations and experiences, roles and

relationships, and trust and responsibilities, in line with the psychological factors explored. *Section 5* pinpoints how these findings reflect stakeholders' **needs** and formulates possible **policy and guidance recommendations**. *Section 6* **concludes** the deliverable by summarising the main findings and relating them to prior findings in academic literature. Finally, *Section 7* lists the **sources** consulted in developing this deliverable, followed by *Section 8*, which **annexes** additional materials.

# 2 Theoretical framework

This section aims to, first, provide an overview of existing academic literature regarding stakeholders' perceptions towards GenAI in education. Second, it introduces the foundations in psychology upon which we built the framework that sustains the protocol and analysis of interviews.

## 2.1 Perceptions of GenAI in education

Understanding perceptions towards GenAI in education is a critical task, as **perceptions shape adoption, policy attitudes and ethical debates**. In the context of this task, perceptions would encompass the **beliefs, attitudes and emotional responses** that members of educational contexts (i.e., teachers, students and parents) form when encountering GenAI tools. **Perceptions are shaped by underlying psychological factors**. For the purposes of the GenAI4ED project, **the study of psychological factors** behind perceptions provides us with valuable information about **end-users' needs**. For example, teachers who exhibit low *self-efficacy* (a key factor in pedagogical psychology) regarding technology use, may *perceive* GenAI as a threat. Therefore, we can infer from the previous sentence that teachers *need* training in order to feel self-assured in their GenAI interactions.

**Deliverable 1.1 Comprehensive Review of GenAI Integration in Education**, explored teacher and student perceptions, in its systematic review of GenAI in Education. This review analysed the main benefits and concerns perceived by the two cohorts in academic literature. **Deliverable 2.1**, on the other hand, **complements and expands** on D1.1 by **addressing parents' and guardians'** perceptions, and by delving into the **psychological factors** behind their **perceptions, expectations and experiences**.

In this section, we will present an overview of perceptions by teachers, students and parents on the impact of GenAI in educational contexts, identified in academic literature, emphasising similarities and differences among these groups.

### 2.1.1 Teachers' perceptions

Teachers generally frame GenAI as a lever for pedagogical enhancement. It is perceived as conducive to *classroom engagement and motivation* (Adeyele & Ramnarain, 2024; Mulyani et al., 2025; Williyan et al., 2024), it is attractive due to its *ease of learning and*

*use, straightforward integration* into daily practice and *speed* in processing information (Garcia Castro et al.).

#### *2.1.1.1 Perceived benefits*

In teaching practice, GenAI is valued for its capacity to *personalise instruction* and *improve teaching practices* as well as to deliver timely, tailored *feedback* (Williyan et al., 2024; Zimotti et al., 2024) and to *support student autonomy* and *access to information* (Mabuan, 2024; Ogurlu & Mossholder, 2023). Teachers frequently describe GenAI as an *assistant to the teacher* that *aids content creation* and *adaptation*, *strengthens instruction*, enhances *assessment*, and supports *pedagogical planning* (Cetin et al., 2024). These functions are associated with *time saving* and *workload reduction* (Cetin et al., 2024; Ogurlu & Mossholder, 2023). In addition, GenAI is seen as *stimulating for creativity and reflective practice* (Ogurlu & Mossholder, 2023), all conductive to an enhanced quality of education.

#### *2.1.1.2 Perceived challenges and risks*

Perceived benefits are met with significant reservations. Perceived risks include *potential degradation of educational quality* and barriers such as *limited technical skills* (Mulyani et al., 2025). Teachers highlight psychological-cognitive risks, including *erosion of critical thinking*, reduced *originality*, and *dependency* as well as a potential loss of *social-emotional connection* in teaching (Cetin et al., 2024; Taktak et al., 2024).

Teachers also express perceived ethical concerns towards GenAI adoption, which include *academic integrity*, threats to the *teacher role*, *data protection*, the *digital gap*, *algorithmic bias*, and *accountability gaps* linked to the commercial nature of tools (Taktak et al., 2024). Technical and functional limitations also temper enthusiasm, *notably inaccuracies* (Yildirim & Akcan, 2024) and a perceived *lack of authenticity* (Zimotti et al., 2024).

### 2.1.2 Students' perceptions

Student perceptions can also be divided between their perceived benefits regarding GenAI and adoption, and challenges that may interfere with its implementation in teaching and learning.

#### *2.1.2.1 Perceived benefits*

Students depict GenAI as engaging and supportive of learning. It is described as making study *more enjoyable or less monotonous* (Higgs & Stornaiuolo, 2024; Utami et al., 2023), fostering *increased interest* in the subject, and offering notable *convenience* (Yang, 2025). Pedagogically, students perceive GenAI as *enhancing their education* overall (Waltzer et al., 2023) through *personalised support*, *timely feedback* and *assistance* with concrete tasks such as revision, writing practice, and working from examples (Lee &

Maeng, 2023). They also highlight *efficiency gains* (Bitzenbauer, 2023; Lee & Maeng, 2023).

#### *2.1.2.2 Perceived challenges and risks*

Students caution that GenAI could undermine educational quality if *misused* or *overused* (Waltzer et al., 2023). Their concerns mirror those of teachers, including risks to *cognitive development*, *creativity*, and the potential for *dependency* or *reduced effort* (Lee & Maeng, 2023). Ethical concerns focus on *academic integrity* and cheating and on *fairness in assessment* (Famaye et al., 2024). Students also identify system-level constraints, including *technical limitations, inaccuracies* or *unreliable outputs* (Lee & Maeng, 2023), and the perception that GenAI cannot fully replace human instruction (Utami et al., 2023; Yang, 2025).

### 2.1.3 Parents' perceptions

Parental perceptions on GenAI for education emerges as an unresearched area, with very little literature dedicated to exploring this topic. The limited existing literature points at parents and guardians presenting moderately positive attitudes towards AI (Feser, 2024; Otermans et al., 2024), with some *scepticism*. Parents' knowledge of GenAI appears to be limited, which translates into *apprehension* (Otermans et al., 2024). Others, highlight ethical issues and concerns regarding *academic integrity* (Feser, 2024). These findings, while echoing findings on teachers' and students' perceptions highlight the need for research into parents' perceptions. These insights can be translated into actionable guidance on the safe leveraging of GenAI for educational purposes, for both students, and parents as the primary supporters of students.

### 2.1.4 Synthesis and gaps

There is strong convergence across groups on core advantages to the adoption of GenAI, such as improved personalisation, feedback, efficiency and time saving, engagement or motivation, and general usability and accessibility. Similarly, all groups coincide on perceived core risks, including potential harm to educational quality, technical barriers, cognitive off-loading, academic integrity, privacy and bias, and output limitations such as inaccuracy and technical constraints.

In their divergences we can appreciate role-specific priorities: teachers uniquely emphasise GenAI as a planning, assessment, and content-development assistant, including workload relief and professional development opportunities. Students, on the other hand, more often foreground experiential aspects like enjoyment, comfort, and flexibility in study support.

The present document will augment on prior inquiries into perceptions on GenAI and its adoption by exploring other arenas related to psychological factors, like learning approaches or role changes. Similarly, gaps identified in D1.1, like scarcity of literature

on parents' and guardians' experiences, or on teachers' emotions, will be addressed in this document.

## 2.2 Psychological factors

Bringing GenAI into education is not just about learning a new tool; it is about how people think, feel, and interact with it. Teachers, students, and parents approach GenAI through their own beliefs, habits, and emotions, which means psychology plays a central role in understanding adoption. From confidence in one's own ability, to the influence of peers, to questions of fairness and trust, the way individuals engage with AI reflects much more than technical skill. Looking at GenAI through psychological perspectives helps us see how it reshapes learning, relationships, and responsibilities in everyday educational life.

### 2.2.1 Educational psychology

Educational psychology offers a crucial lens for understanding how individuals engage with GenAI in learning environments. Central to this perspective is the concept of **self-efficacy**, or the belief in one's capacity to successfully perform tasks. In the context of GenAI, self-efficacy influences whether teachers feel competent to integrate AI into lesson planning, whether students believe they can use AI to support assignments effectively, and whether parents feel capable of guiding their children's technology use (Zhai, 2024). Research demonstrates that teachers who perceive GenAI as a tool that can enhance their instructional practices are more likely to embrace its uses in the classroom, with teachers' perceived autonomy-supportive leadership, professional growth striving, and change-related stress of GenAI significantly associated with their eventual engagement and use of GenAI (Zhai, 2024).

**Cognitive load theory** provides another essential framework for understanding GenAI adoption. GenAI has the potential to **reduce cognitive burden** by automating repetitive tasks, thereby freeing up resources for higher-order thinking. However, it can also introduce **new forms of overload**, particularly when multiple tools must be managed or when training is inadequate. When GenAI is meaningfully and consistently integrated in pedagogical practice teachers develop routines and strategies for effectively incorporating GenAI into their lessons. This results in enhanced student outcomes and more efficient teaching practices (Zhai, 2024). The role of AI in mediating cognitive load is shaped by access, training, and integration into existing learning routines.

**Motivation** represents a central concern in GenAI adoption. Educational psychology underscores the importance of motivational orientations because they directly influence effort, persistence, and long-term learning outcomes. Research indicates that teacher educators generally hold positive perceptions about GenAI's potential to enhance communication and academic outcomes, making teaching and learning more enjoyable, and addressing diverse classroom needs (Akanzire et al., 2025).

Finally, **metacognitive awareness**, knowing when, how, and why to use AI, is central to productive adoption. Teachers possess intermediate to advanced knowledge of GenAI–a

comprehensive understanding of AI's practical applications, ethical considerations, and potential challenges (Zhai, 2024). Learners with strong metacognitive skills are more likely to reflect on whether AI is the right tool for a given task and to integrate AI into broader strategies for self-regulated learning.

### 2.2.2 Social psychology

The adoption of GenAI is equally shaped by **social psychological dynamics**, as classrooms, schools, and families are social systems where norms, authority, and identity influence technology use. Teacher **authority and control** represent important factors, as teachers not only regulate classroom technology use but also embody institutional policies. Teachers who develop confidence and align their practices with the institutional use of GenAI, while still learning about these tools, are more open to exploring new AI tools and to invest time in learning how to use them effectively (Zhai, 2024).

**Peer influence and group norms** strongly shape adoption patterns. Research reveals that teenagers often integrate GenAI into their daily routines, using GenAI as a friend or confidant, providing emotional support and companionship (Yu et al., 2024). These dynamics illustrate how social conformity and peer modelling play central roles in determining patterns of uptake. Student participants are frequently introduced to GenAI through friends and social media platforms like TikTok or Discord, which may promote unregulated or risky tools, highlighting the limited oversight and high influence of informal networks in shaping young users' engagement with AI.

**Identity and belonging** are equally significant factors in GenAI adoption. Technological literacy has become an important part of learner identity, shaping whether students feel included or excluded from educational communities. Teachers perceive GenAI as a valuable and integral component of modern education, recognizing its potential to transform both teaching and learning (Zhai, 2024). These identity dynamics extend beyond the classroom, as teachers become advocates for GenAI integration, sharing their experiences and insights with colleagues and contributing to a broader culture of GenAI adoption within their schools (Zhai, 2024).

### 2.2.3 Moral psychology

The adoption of GenAI raises significant moral psychological questions about **fairness, responsibility**, and **ethical boundaries**, with academic integrity emerging as a key issue. Research shows that ethical concerns regarding GenAI have been one of the significant setbacks in its use in education, with teacher educators lacking an understanding of how GenAI systems operate, how data is safeguarded, and how these tools meet academic integrity and quality assurance standards (Akanzire et al., 2025).

**Fairness** and **access** represent central moral concerns. Research findings further support research on the **digital divide** and the **biases** present in GenAI technologies, thereby demonstrating the concept of digital neocolonialism (Akanzire et al., 2025). Such

disparities risk reproducing and amplifying digital divides, with parents and teachers often expressing moral concerns about equity.

**Responsibility attribution** further complicates the moral landscape. When AI-generated outputs lead to issues, questions arise about accountability. Despite these efforts, the ethical challenges continue to be a significant concern, stretching the boundaries of what is acceptable and safe in the use of GenAI in educational settings (Akanzire et al., 2025). These attributions reflect deeper cultural beliefs about authority, autonomy, and the distribution of responsibility within education.

### 2.2.4 Affective Psychology

Beyond cognition, social dynamics, and morality, **affective psychology** highlights **how emotions shape responses to GenAI**. **Trust, anxiety,** and **dependence** are particularly influential factors. Research demonstrates that teenagers express specific worries about GenAI in social contexts, concerned about becoming overly dependent on virtual relationships with chatbots, which could exacerbate their challenges in forming real-life social connections (Yu et al., 2024).

**Anxiety** and **technostress** represent important emotional responses. Research shows that teachers report positive attitude towards the use of digital technologies in teaching and learning but may face several challenges, including lack of access to computers and the internet, lack of teacher training, and lack of technical support (Akanzire et al., 2025). Additionally, teachers may feel overwhelmed by the pace of technological change, while students may experience stress when AI tools generate confusing outputs.

**Trust in AI systems** varies significantly among users. In the study by Yu et al (2024), child participants reported two primary mental models: (1) GenAI functions as a search engine, and (2) GenAI acts as a vast database (Yu et al., 2024). These misconceptions can influence trust levels and emotional responses to AI systems. Most parent participants also shared the first mental model, viewing generative AI as functioning like a search engine (Yu et al., 2024).

**Dependence** and concerns about **overreliance** represent another affective dimension. Research reveals that the most frequently mentioned concerns about GenAI by teenagers primarily revolve around addiction to specific character-based chatbots and the virtual relationships they build with these human-like entities (Yu et al., 2024). In the study by Yu et al (2024), parents express similar concerns, adding concerns regarding children's avoidance of critical thinking by getting answers directly from generative AI and using generated content in their homework and school assignments (Yu et al., 2024).

### 2.2.5 Integration in Interviews

The preceding psychological perspectives demonstrate that GenAI adoption in education is a **multidimensional phenomenon** where **cognition, social dynamics, morality**, and **affect** intersect. Research confirms that teachers' perceptions, acceptance, knowledge,

and practices regarding GenAI are interrelated factors that collectively influence the integration of this technology into educational settings (Zhai, 2024). These **dimensions are interconnected**: self-efficacy influences motivation, which interacts with peer norms; moral reasoning about academic integrity is shaped by social identity and emotional trust.

The interview protocol captures these dynamics by focusing on lived experiences, allowing exploration of how psychological factors unfold in real-time. By examining specific incidents, researchers can understand how positive perceptions and high levels of acceptance are often associated with greater knowledge and more effective use of GenAI (Zhai, 2024).

# 3 Methodology

This study employed a qualitative research design to investigate how students, teachers, and parents perceive generative artificial intelligence (GenAI) in European secondary education. The research prioritised understanding the meanings and experiences of participants via semi-structured interviews, and reflexive thematic analysis, to capture diverse perspectives throughout the research stages presented in this section.

## 3.1 Introduction and Research Design

This study adopted a **qualitative research design** to explore perceptions of GenAI among students, teachers, and parents across diverse secondary education contexts in Europe. The choice of a qualitative approach was driven by the study's **emphasis on meaning-making** rather than measurement. The design decisions were guided by the study's applied aim namely, to illuminate the needs, expectations, and concerns of end-users in ways that can directly inform educational policy and practice.

The research was guided by an **interpretivist-constructivist epistemological framework**, which assumes that **knowledge is socially constructed and context dependent**. We adopted this stance as the most appropriate to capture how individuals experience, interpret, and negotiate the promises and risks of GenAI in schools. The study sought to reveal the **diversity of meanings** attached to GenAI by different stakeholder groups. This perspective guided all stages of the research, from selecting **semi-structured interviews** to the way data was interpreted during the analysis. We employed **Semi-structured interviews,** participants might bring forward ideas or concerns not foreseen by the researchers, as the main method of data collection as it is ideal for balancing structure and openness.

While there are existing psychological scales and standardised self-report questionnaires that can measure attitudes or behaviours toward technology, these do not capture the complexity of participants' lived experiences or the contextual factors shaping their views, as required by the Grand Agreement. In contrast, interviews allowed

for more flexible and open-ended exploration, enabling participants to express how different emotional, cognitive, social, and moral factors were interconnected, and how these played out in real educational settings.

## 3.2 Participants and Sampling

To capture a broad range of perspectives, the study included three participant groups: students, teachers, and parents. Over 44 individuals were interviewed by GenAI4ED members from four organisations: EA (Greece), PGMS (Cyprus), TRI (Ireland and Spain), and EPA (across EU countries).

**The student group** (ages 14–18) was balanced by gender and represented diverse cultural backgrounds, including Greek, Cypriot, Irish, Spanish, English, Indian, and Mexican. Including both younger and older secondary students allowed insight into varying experiences with digital technologies and curricular demands. **Teachers** brought diversity in age (29–60), subject expertise, and career paths. Their disciplines included English, philology, history, computer science, philosophy, and humanities. Some held academic or consultancy roles, while others were classroom teachers, offering a wide spectrum of educational perspectives. **Parents** also represented a range of professional and cultural backgrounds (e.g., social work, healthcare, academia, and management; Irish, Spanish, Indian, and Greek). Their dual roles as professionals and caregivers enriched their reflections on GenAI's risks and benefits.

Sampling was purposive, selecting participants who could offer relevant insights into GenAI in education. Roughly 15 individuals per stakeholder group were targeted to allow for both within-group and cross-group analysis. Recruitment combined direct outreach through partner networks and open calls via platforms like LinkedIn and Facebook. Participation was voluntary and uncompensated.

While not statistically representative, the sample achieved structured representation and organic diversity in nationality, occupation, and digital familiarity. A demographic summary is available in the Annex.

## 3.3 Data Collection

Data were collected through semi-structured interviews conducted online via Microsoft Teams. The interviews were carried out by researchers from the four partner organisations: EA (based in Greece), PGMS (Cyprus), TRI (operating in Ireland and Spain), and EPA (European Parents' Association). The online format ensured accessibility across countries and allowed for secure data capture through the platform's recording feature.

Prior to interviews, participants were sent an information sheet and consent form outlining the study's aims, procedures, risks, and confidentiality protections. Students under the age of sixteen were required to provide both parental consent and personal assent. At the beginning of each session, consent was verbally reconfirmed, and

participants were reminded of their right to pause, skip questions, or withdraw at any point.

Interviews typically lasted between twenty and sixty minutes, with most averaging around forty-five minutes. Sessions began with rapport-building questions before moving to substantive topics, which were structured around five thematic areas: perceived benefits of GenAI in education, perceived challenges and drawbacks, ethical and psychological considerations, familiarity and usage patterns, and expectations or recommendations for future integration.

Interviewers adhered to the semi-structured guides but were encouraged to adapt their phrasing and sequencing to each participant. Cameras were disabled, and communication took place via audio only to support privacy.

The multilingual nature of the study required careful planning. Interviews were conducted in English, Greek, or Spanish depending on participant preference. Interview guides were translated into the relevant languages by researchers fluent in those languages, ensuring both linguistic accuracy and cultural appropriateness. Transcripts were later translated into English for cross-team analysis, which was conducted manually by the interviewers themselves. Every transcript underwent a rigorous two-stage verification process: first by the interviewer to ensure accuracy against the original audio, and second by an independent researcher during anonymisation. This process minimised risks of semantic distortion and ensured that subtleties in tone and meaning were preserved.

## 3.4 Data Management and Analysis

All interviews were audio-recorded with consent and transcribed using Microsoft Teams' speech-to-text function. The transcripts were then manually corrected for accuracy and clarity while preserving participants' phrasing and tone. A second researcher verified each transcript against the audio to confirm accuracy.

Anonymisation was conducted conservatively. Identifying details such as names, institutions, or precise locations were removed and replaced with pseudonyms that preserved relevant demographic information, such as participant role, gender, and a numerical identifier (e.g., Student_03, Teacher_07). Indirect identifiers that could enable re-identification in small communities were generalised or paraphrased. This ensured confidentiality while retaining analytical value.

Data analysis followed Braun and Clarke's reflexive thematic analysis approach, complemented by template analysis techniques to manage the balance between deductive and inductive coding. Analysis unfolded in six iterative phases: familiarisation with the data, generation of initial codes, clustering into candidate themes, review and refinement of themes, naming and defining themes, and the production of a final analytic narrative.

Coding was undertaken in NVivo software, which facilitated systematic management of data, retrieval of coded segments, and maintenance of a transparent audit trail. Codes were initially generated using both theoretical constructs drawn from the four conceptual domains and new patterns emerging directly from the data. Themes were then developed collaboratively by two researchers, who sought consensus through discussion and memo writing. Unlike quantitative content analysis, the goal was not to calculate inter-coder reliability but to enhance reflexive interpretation through dialogue and critical engagement.

## 3.5 Ethical Considerations

Confidentiality was ensured through anonymisation and secure data storage. Recordings, transcripts, and related documents were stored on Trilateral Research's encrypted and access-controlled SharePoint platform, accessible only to authorised members of the research team. Data minimisation principles were followed, and any incidental personal details disclosed during interviews were removed at the transcription stage.

Given the sensitivity of discussing a rapidly evolving technology, interviewers were prepared to address potential discomfort among participants, particularly around issues of academic integrity or anxieties about technology use. Participants were reminded that they could skip questions or stop the interview at any time. No cases of distress were reported, but the protocol ensured that risks were anticipated and managed responsibly.

## 3.6 Reliability, Validity and Research Quality

Ensuring methodological rigor was a central concern. Credibility was pursued through triangulation across three stakeholder groups, allowing insights to be compared and contrasted. During interviews, researchers engaged in member checking by summarising key points back to participants for confirmation, ensuring that interpretations were aligned with participants' intended meanings.

Dependability was supported by detailed documentation of every stage of the research, including recruitment procedures, interview protocols, transcription guidelines, and coding decisions. This audit trail enhances transparency and allows other researchers to replicate or adapt the study. Transferability was facilitated by the deliberate diversity of the sample, which provides insights applicable to a range of European educational contexts.

Reflexivity was also embedded in the process. Researchers maintained field notes and an "assumption log" documenting prior beliefs about GenAI in education. These notes served as tools for reflexive dialogue during analysis, ensuring that the team remained attentive to the influence of their own perspectives.

While this study was carefully designed, it faced some limitations, including the absence of non-verbal cues due to online, audio-only interviews; a quota-based sampling

approach that may not have achieved full thematic saturation within each subgroup; a slight overrepresentation of private-sector educators due to current patterns of GenAI use; and, in a few cases, prior professional relationships between interviewers and participants, which were mitigated but not entirely without influence.

# 4 Findings

Interview findings respond to the psychological factors involved in the GenAI-human interaction, in secondary education environments. Findings are grouped around expectations, perceptions and experiences; the development of skills, competences and roles; and trust and responsibilities. **Expectations, perceptions and experiences** explore the purposes and expectations that participants have when engaging with GenAI; the tools stakeholders choose, how they learn about them and how they select them; the impact they perceive in GenAI use, including benefits and barriers; and the emotions they experience in relation to these tools. **Skills, roles and relationship changes** speaks of the development in competences and reflection on approaches after GenAI-human interaction; and how participants' roles and identities change after reflecting upon GenAI in education. **Trust and responsibilities** looks at the trust and changes in confidence experienced by participants in relation to GenAI, along with the ethical considerations that participants hold important.

The analysis of these factors informs us of the needs of teachers, students and parents necessary to develop a comprehensive **evaluation framework** in the GenAI4ED platform. These findings also make it possible to pinpoint areas that need support in the GenAI-human interaction in education, and to propose policy recommendations for institutions and stakeholders.

## 4.1 Expectations, perceptions, and experiences of GenAI in education

This section explores how parents, teachers and students engage with GenAI, from their purposes and expectations to their practices and emotions. Each section compares the similarities and differences among these groups.

### 4.1.1 Purposes, expectations, learning processes and selection criteria

Stakeholders engage with GenAI for different purposes like academic or professional tasks, and in doing so, they expect different benefits from their interaction. In this section we look at which tools these groups choose, how they learn about them, and how they select the most fitting tool for their purposes.

#### 4.1.1.1 Purposes and expectations

Stakeholders show different motivations for using GenAI, some engaging out of curiosity and others for task-oriented support. Their use further reflects the specific types of tasks each group seeks assistance with.

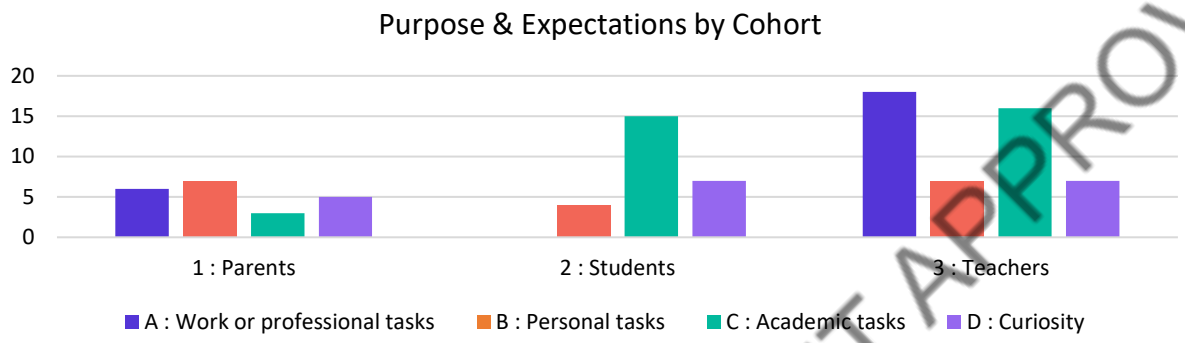


*Figure 1: Purposes & Expectations by Cohort*

- **Parents** show a relatively balanced distribution of uses, with **personal tasks** leading, followed by **professional and academic tasks**, and a smaller but visible share of curiosity. Their **low use of academic tasks** can be explained by the fact that parents usually do not directly assist their children with schoolwork, leaving this responsibility to teachers and students themselves. Instead, they mainly rely on GenAI for their jobs, which vary widely in nature, making the workplace the most salient context in which they gain experience with these tools.
- **Students** display a very different profile, with **academic tasks and curiosity** together accounting for the vast majority of their use. Their engagement with work or personal purposes remains marginal, which is consistent with their primary identity as learners and their natural drive to experiment.
- **Teachers** stand out by concentrating their use on **professional and academic tasks**, with **curiosity and personal use** remaining limited. Importantly, their professional tasks are themselves academic in nature, as their work is directly tied to teaching and learning. This overlap highlights how their engagement with these tools is deeply connected to pedagogical responsibilities, with their use framed less by exploration and more by the need to enhance instruction and manage academic duties.

#### 4.1.1.2 Expected benefits

When engaging with GenAI tools, all participants report on **improved learning** as the top benefit that they expect resulting from the use of these tools. Even when the purpose of the interaction is not academic, the use of **GenAI as a search engine** has become extended, even among educators.

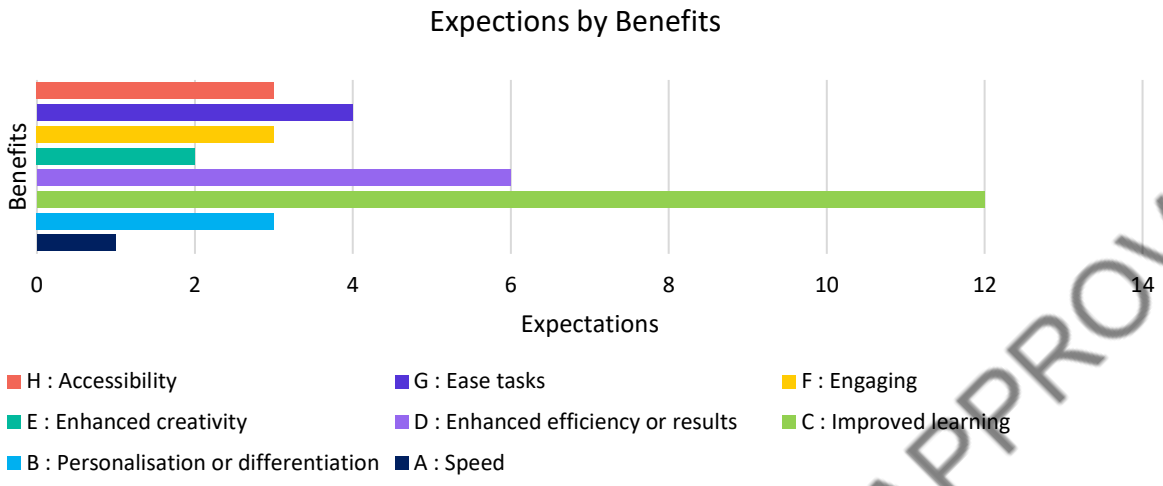


*Figure 2: Expectations by Benefits*

Similarly, participants from the three groups expect that interaction with GenAI will **enhance the results** of the task they want to perform, and they may **ease** said tasks.

**Teachers'** expectations on GenAI are more varied. They report on other expected benefits such as **personalisation, engagement** or **enhanced creativity**. This indicates that teachers possibly have more experience or better knowledge of tool features, which would allow them to have broader expectations of tool performance.

#### *4.1.1.3 Tool type*

The choice of GenAI tool used in performing a task varies greatly depending on the stakeholder group, although **ChatGPT** emerges in all instances as the favourite, which indicates that it has become the default GenAI tool, or it is the most accessible choice.

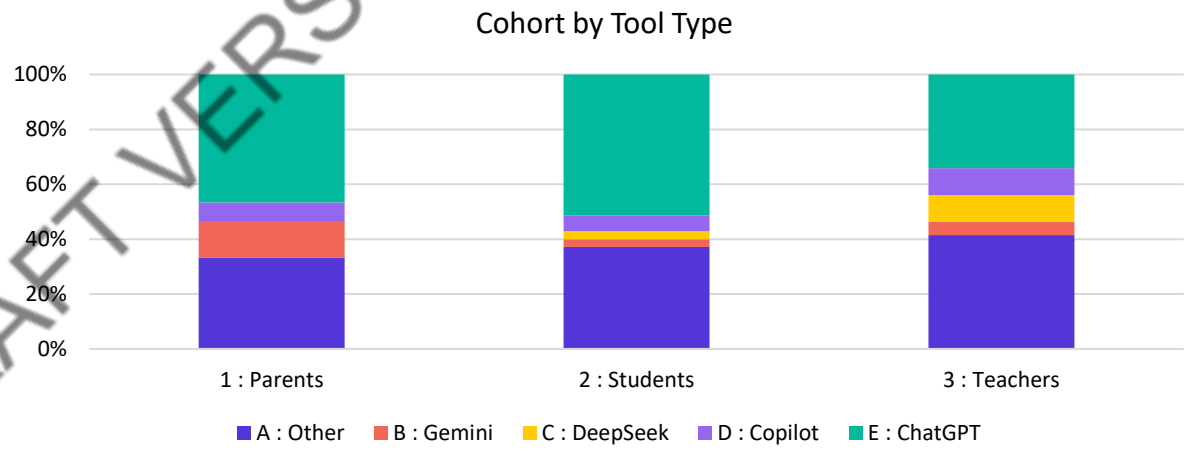


*Figure 3: Cohort by Tool Type*

- Parents use **ChatGPT** the most, although they show an increased reliance on tools like **Gemini, Copilot** and **other** minor tools. While parents explore other minor tools the least, the increase on Gemini use is interesting, as it indicates that they are testing

available alternatives, either encouraged by work, peers or through their own exploration.

- In **students** we see an **increase of exploration of minor GenAI apps**, along with anecdotal exploration of Copilot, DeepSeek and Gemini. This indicates some awareness of the existence of other tools. Yet, **ChatGPT** usage remains the **dominant**, presenting a higher percentage in this group than any other.
- In **teachers** the **combination of other tools** explored by participants amounts to considerably **more than ChatGPT uses (65%)**. This data clearly points at teachers' **increased literacy and awareness** of GenAI tools. This result is manifold, but it is directly linked to how teachers learn and engage with GenAI tools, as we will see in the following section, in their search for the most suitable tool for their teaching.

#### *4.1.1.4 Learning process*

How stakeholders learn about GenAI is a revealing piece of information that teaches us about information access, communication and interest.

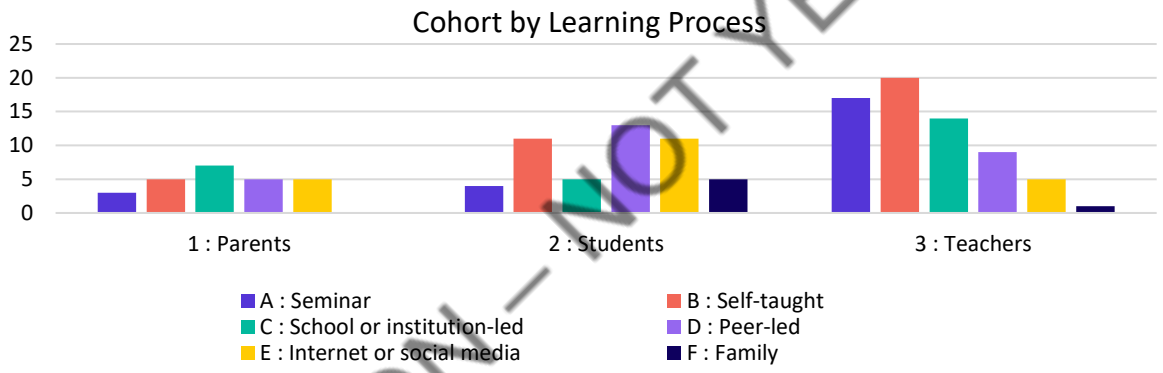


*Figure 4: Cohort by Learning Process*

- **Parents** learn about GenAI mainly from their **place of work**, followed by **social media and internet**, **peers** and **self-exploration**, with a smaller presence of official training events.
- **Students'** main sources are **peers, social media**, and **self-exploration**. A smaller percentage of learning emerges from schools, families or official training.
- **Teachers** learn about GenAI mainly from **self-exploration, seminars or official training,** and **schools or institutions**, with a minor influence from peers or internet sources.

This data indicates a disproportionate access to information, and a lack of communication between institutions and parents or, most importantly, students. Nevertheless, while institutions may provide teachers initial awareness of GenAI tools, they report a lack of official training from their institutions. This recurrently results in self-organised communities, where tech-savvy teachers share their knowledge of tools with colleagues in the shape of courses or seminars:

> "I wanted to share this knowledge with the philologists in the regions under my scientific responsibility, I looked for collaborators within the educational sector. We organized two such seminars—so that's one aspect: personal initiative" (Teacher_14).

Therefore, educational institutions are falling short in preparing stakeholders, particularly students, on safe AI adoption. However, as we will see in the section **4.1.2. Impact**, there are limitations that constitute an obstacle in institutional support.

#### *4.1.1.5 Selection criteria*

How participants choose which GenAI tool to use for a specific task provides us with some insights as to their knowledge of tools' functions and their availability.

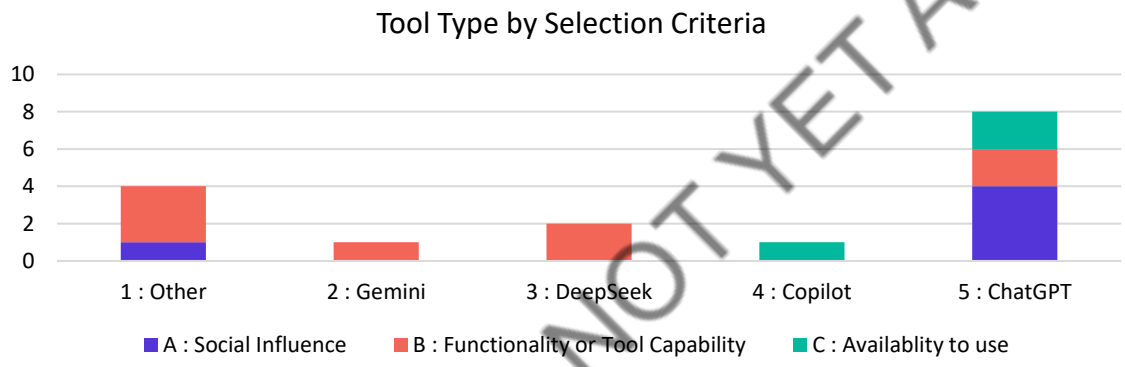


*Figure 5: Tool Type by Selection Criteria*

As we can observe in the chart above, the selection criteria among participants in the interview is divided between **social influence** (selecting the tool because it is famous, participants have heard about it from peers, media, etc), **functionality or capability** (the tool is chosen because participants know that it is suitable for the task that they want to accomplish) and **availability to use** (participants select the tool simply because it is convenient and available).

The most obvious finding is that **ChatGPT** is chosen, almost evenly, for all three reasons: **social influence, functionality and availability**. This can be explained by the fact that it is the **best known of all GenAI tools**, the one that is familiar to most users, particularly those who only know, or have only ever used, one tool. As ChatGPT was the **first GenAI tool to become widely accessible** to users, stakeholders have had time to explore it. This means that if participants are choosing it for its functionality, is because it is **broadly considered an effective tool**. Another reason that makes ChatGPT a stakeholder favourite is the fact that it **can be used for free and without the need of setting up an account**, a major advantage when compared with other GenAI tools.

**Copilot** leads as the tool that is chosen exclusively for its availability. The explanation for this is simple: users have free access to Copilot through their **institutional or corporate Microsoft accounts**. Students and teachers who benefit from these institutional accounts may choose Copilot simply because it is easy.

**DeepSeek, Gemini** and **other lesser-known** tools are chosen **almost exclusively due to their functionalities**. This would indicate that users that seek these tools would have a profile with **higher GenAI literacy** and more specific awareness of how tools function, and which tools are more effective for different tasks.

### 4.1.2 Perceived impact

The impact of GenAI in education is perceived as the benefits that stakeholders attribute to GenAI use, or the barriers that limit or difficult AI adoption. All benefits and barriers are felt by all groups to some extent, although there are apparent differences between groups depending on their interests and motives when engaging with these tools.

#### *4.1.2.1 Benefits*

Participants report varied perceived benefits when using GenAI for learning or teaching. There is a consensus between the three groups in that GenAI can **improve learning or understanding**; it helps performing tasks more **efficiently** or producing **improved results**; and it is overall perceived as **timesaving**. However, we find some differences among participant groups:

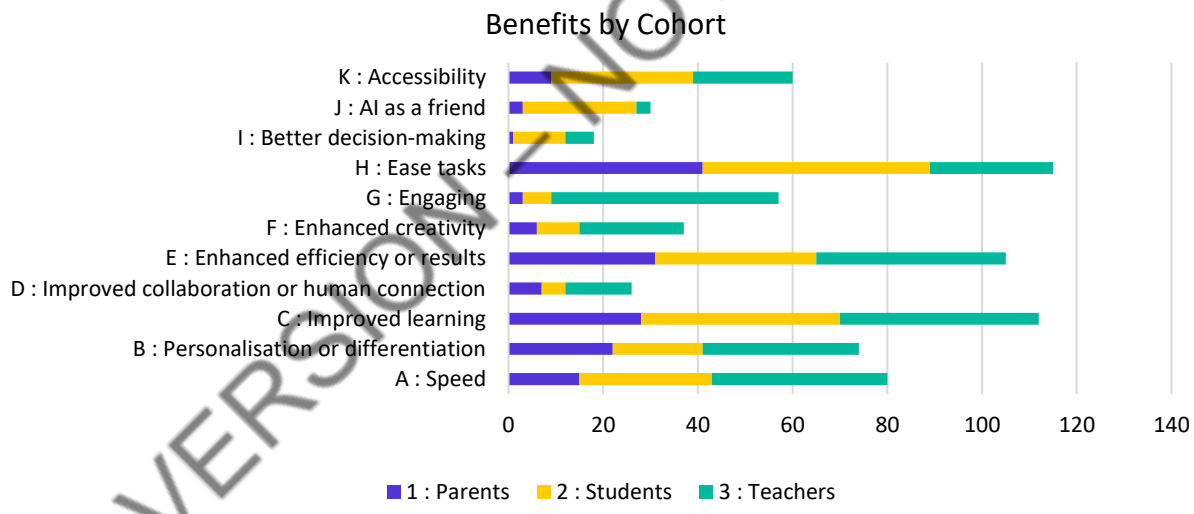


*Figure 6: Benefits by Cohort*

- **Ease tasks**: **Parents** and, especially, **students**, emphasise the benefits of GenAI to support tasks by making them easier, for example by providing **step-by-step instructions** or **simplifying** the language of texts. This is exemplified by Student_05: "I'd tell ChatGPT, 'I'm on this page and I want to go to that page or do this thing on this page. How do I do it?' And it guides me step by step on what to do".
- **Accessibility**: A prominent benefit for **students**, accessibility refers to GenAI's ease to access the platform or **access information** through the platform. This is particularly noticeable in statements like "I stopped using Google from the day that I found out about ChatGPT" (Student_05) which demonstrate that many students and

other users are actively using GenAI as a search engine and their main source of information.

- **Engagement**: This benefit is perceived almost exclusively by **teachers**, who report on GenAI's capability to **attract students' attention** and, at the same time, make teachers appear to be tech-savvy, ultimately facilitating human connection.
- **Differentiation**: While the three groups pay attention to differentiation, **teachers** find it most beneficial. Managing big classrooms with an array of learning profiles is a monumental task for which teachers receive minimal support. GenAI has the potential to democratise learning for students with different needs of educational support and to support teachers in reaching all students.
- **AI as a friend**: Mainly **students** report on this benefit, although we find some anecdotical examples in parents, and teachers. In this case, users perceive GenAI to be beneficial because it is easy to talk to, or it feels like talking to a friend or confidant. We find illustrating examples in: "I see it as a friend. We exchange information. I mean, I feel that whatever we say stays between us. This is the way I see it" (Teacher_02); "you can ask it questions in a very casual way. It's as if you're talking to somebody" (Student_03); or "it didn't get annoyed when I asked the same thing twice" (Student_09). Moreover, some students report conversations in TikTok and other social media encouraging users to use GenAI as an emotional support or psychologist.

#### *4.1.2.2 Barriers*

The use of GenAI tools is not free of limitations. Some of them are felt evenly across the three groups, while others are more specific to cohorts and require further examination to understand the needs of each stakeholder group. Below, we will explore the most prominent findings in this topic.

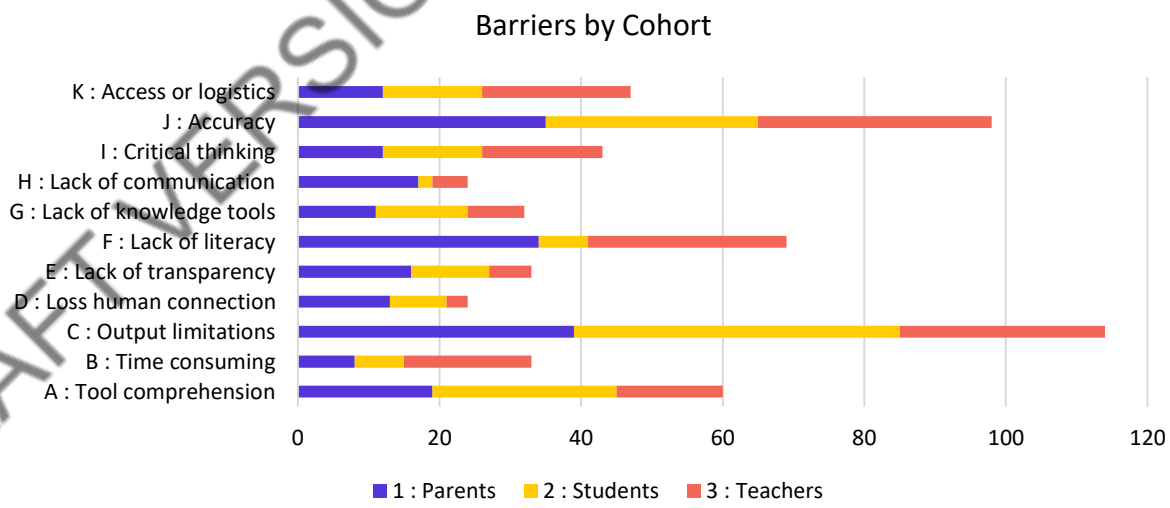


*Figure 7: Barriers by Cohort*

- **Output limitations:** A very recurrent complaint among stakeholders, **particularly students**, is that of the **output** produced by GenAI not aligning in some way with their expectations. Namely, the most common misalignments have to do with the

excessive complexity or length of the output, which leads to users re-prompting to simplify responses, as it was the case with Students_07: “at first, it gave me this big explanation. I didn’t even understand some of the words, so I asked it to make it simpler”.

- **Literacy: Parents** and **teachers** express that a **lack of literacy or proper training** on GenAI use is a key limitation or barrier in AI adoption. Among teachers the consensus is that institutions and official bodies are not providing satisfactory support, which leads interested teachers to self-exploration. This presents an issue of uneven adoption and difficulties in supporting students’ responsible use. Parents also receive limited guidance from their workplace when relevant, resulting in many parents and guardians lacking the means to support their children in using these tools.
- **Time consuming: Teachers** report that, while GenAI is generally fast and it saves them time, learning about different tools and how to use them can be a **time-consuming task** on its own right. For this reason, stakeholders tend to engage mainly with **one tool**. Teachers also attribute this barrier to **resistance** from other teachers, particularly older or non-tech-savvy teachers, to learn about GenAI.
- **Access: All participants** share an awareness and appreciation for the limiting practicalities in GenAI adoption. On the one hand, many schools lack the **resources** to effectively engage with these tools, from a lack of internet connection to a widespread ban of digital tools in the classroom. On the other hand, access is also understood as a barrier when users face **paywalls** that effectively limit how long and to what extent they can engage with these tools.
- **Lack of communication:** It is an issue felt almost exclusively by **parents**. It refers to parents feeling like schools, teachers, or even students, do not inform them on how and when students engage with AI tools. Parents are unaware of school policies, and many remain under the impression that GenAI is simply not being used by students at all, in school or otherwise.
- **Accuracy** emerges as the most prominent shared barrier. By accuracy we mean the generation of content that presents **false, mistaken,** or **imprecise information**. These errors are oftentimes linked to the corpus of data that GenAI draw from. These instances, which are commonly known as hallucinations, increase **scepticism** and **mistrust** among stakeholders (as we can see in the chart to the left) more than any other perceived barrier. In fact, **accuracy** along is found in this research work to be the **single most impactful factor in** swaying stakeholders’ **trust** on GenAI. Lack of accuracy also

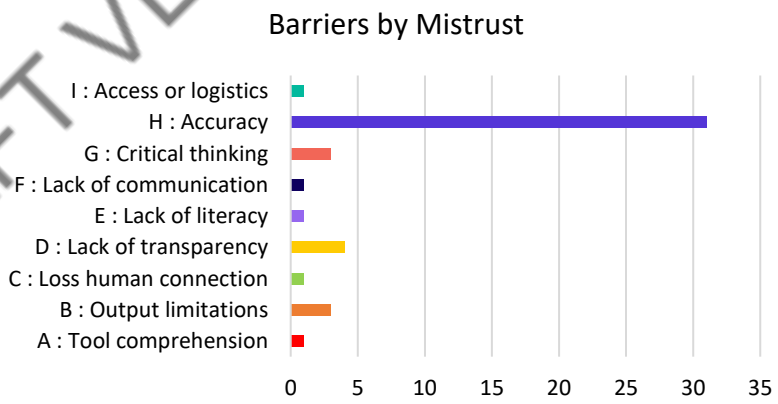


*Figure 8: Cross Examination of Barriers & Mistrust*

presents a real challenge when information is taken at face value without further cross-examination.

### 4.1.3 Emotions towards GenAI

Participants expressed different emotions toward GenAI at different stages of the interview. Oftentimes contradicting emotions appear within the same participant. We have grouped these emotions by positive, negative and transitional (those which are neither negative nor positive, such as surprise of confusion) as it eased analysis and representation. In the chart below we can see the general distribution of emotions by group.

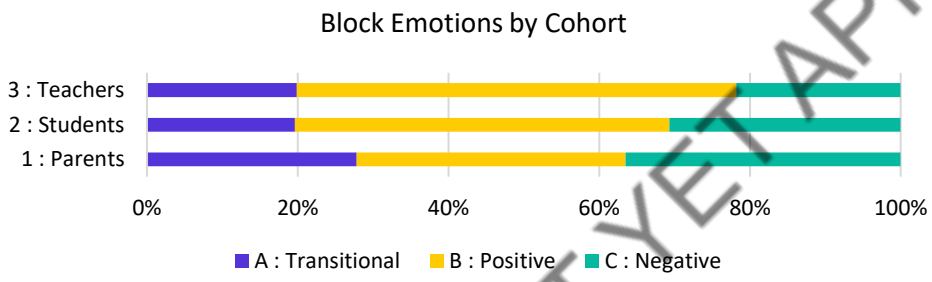


*Figure 9: Block Emotions by Cohort*

**All three groups** express around **20% transitional emotions**. **Teachers** lead with **most positive emotions** towards GenAI, with an average of almost 60% of teacher emotions. **Students** also express **positive emotions** in 50% of instances. This indicates an overall **positive attitude towards adoption** and satisfaction with GenAI's competence from these groups. **Parents**, however, present a more **undecided profile**, with slightly under 40% positive emotions, around 40% negative emotions and over 20% transitional. The spike of negative emotions in parents can be linked to a lack of engagement with these tools coupled with the influence of public opinion in parent groups and social media. Many parents' exposure is limited to these interactions and their perception of GenAI tools is often associated to cheating.

- **Transitional emotions:** for parents and teachers the most prominent transitional emotion is resignation. This is the emotion expressed when participants demonstrate an acceptance of GenAI tools that is not positive nor negative. For students, the leading transitional emotion is surprised. It is often expressed when students relay how GenAI's capabilities exceeded

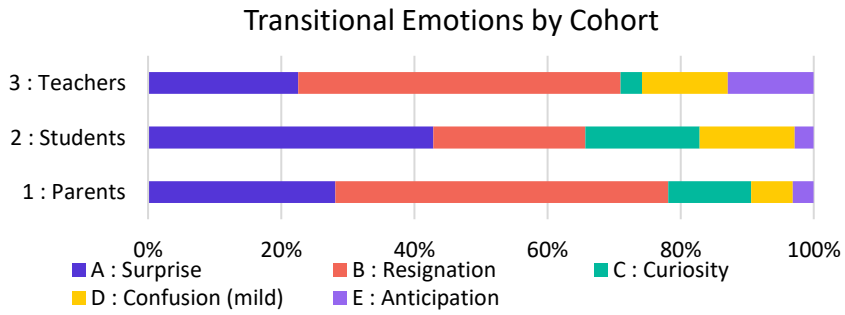


*Figure 10: Transitional Emotions*

or subceeded their expectations.

- **Positive emotions:** They mostly concentrate around **satisfaction** with GenAI tools. This is the leading emotion in all perceived GenAI benefits. We find an increase of **interest and excitement** on teachers. This corroborates teachers' trend as more knowledgeable of AI tools than parents or students, and keener to explore these tools.

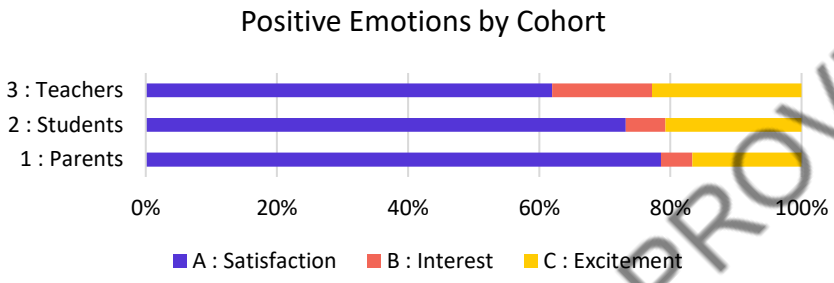


*Figure 11: Positive Emotions*

- **Negative emotions:** The distribution of this group of emotions presents a considerable contrast. For **parents and teachers**, the leading negative emotion is **anxiety or technostress**. This emotion usually appears associated to a self-perceived lack of literacy, a lack of knowledge of tools and their functions, the possible loss of human connection, lack of communication, perceived impact on critical thinking, job displacement and privacy concerns. Yet, students' most negative emotions divide evenly between guilt, frustration and disappointment. Guilt is mostly related to ethical issues, like cheating, while frustration and disappointment are generally associated to the tools' performance, understanding and paywall limitations.

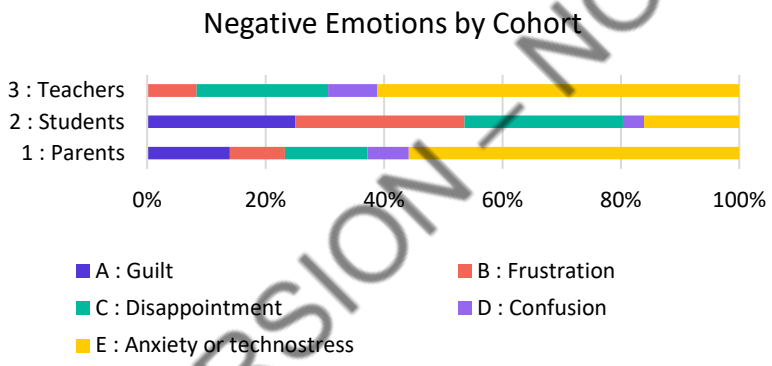


*Figure 12: Negative Emotions*

## 4.2 Skills roles and relationship changes

The introduction of Generative AI into everyday educational and personal contexts is reshaping not only the skills individuals need but also how they approach problem-solving, perceive their identities, and engage in relationships within learning environments. This section explores how different stakeholder groups develop GenAI-related competencies, adapt their thinking and working approaches, and experience evolving roles in response to the tool's growing influence. This section highlights the nuanced ways in which learning modes, generational differences, and shifting responsibilities shape interactions with AI, revealing both opportunities and challenges in navigating this technological transformation.

### 4.2.1 Skills and competencies

Findings indicate that the mode of learning may influence GenAI skills: structured seminars seem to equip individuals with stronger knowledge of tool features, while self-taught or internet-led approaches appear to leave gaps in literacy.

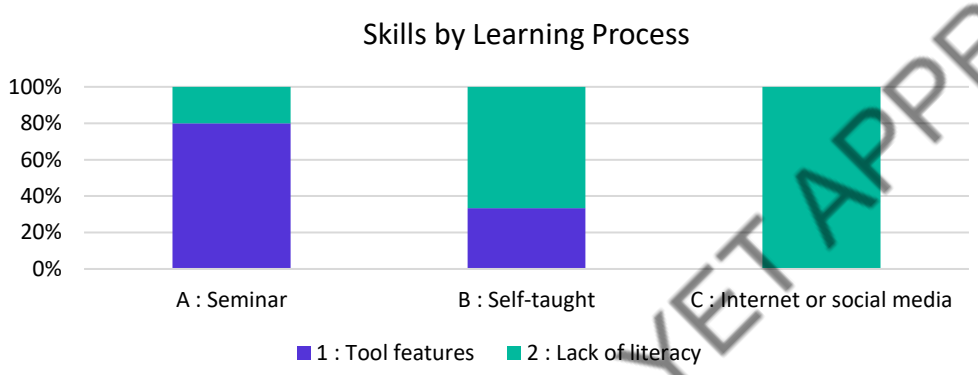


*Figure 13: Learning Processes and its Influence on GenAI Skills*

- **Tool features:** Individuals who learned about GenAI through **structured seminars** demonstrated a **stronger grasp of tool features**. Their exposure to guided learning sessions allowed them to understand not only the basics of GenAI but also the range of functionalities it offers. For instance, they reported greater knowledge of correct prompting techniques, as well as an awareness of the variety of applications, from generating text and images to supporting research or data analysis. This formalised learning process seemed to equip them with a more comprehensive skill set, enabling them to navigate the tool confidently and purposefully.
- **Lack of literacy**: By contrast, those who primarily relied on **self-taught approaches or internet/social media-led learning** often reported gaps in their understanding. While these channels provided them with initial exposure, they did not consistently build a deeper knowledge of how to fully leverage GenAI. As a result, individuals in this group were more likely **to face challenges related to literacy** in the tool's use. For example, struggling with how to frame effective prompts, being unaware of the tool's broader potential, or misunderstanding the rules and limitations of responsible usage. This limited knowledge base often left them unable to maximise the benefits of GenAI, underscoring the uneven skill development tied to different learning processes.

### 4.2.2 Changes in thinking approaches

Changes in thinking approaches reveal how different groups adapt to GenAI, with teachers and parents embracing new problem-solving strategies, while students often revert to familiar methods due to less developed critical thinking skills.

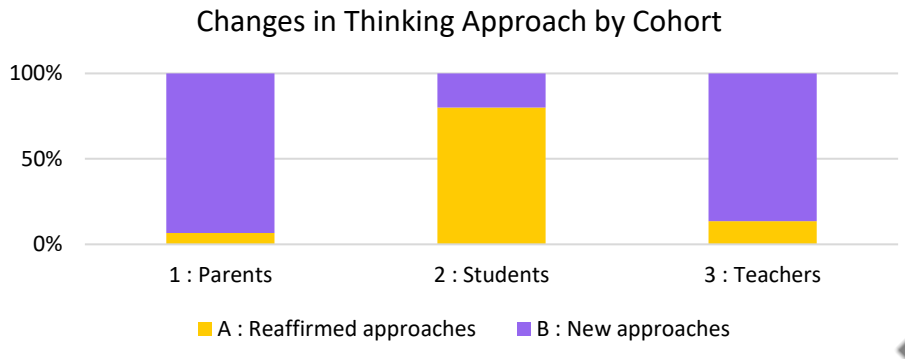


*Figure 14: Changes in Thinking Approaches*

- **New approaches: Parents and teachers** demonstrated the **highest adoption of new problem-solving approaches** after AI use. Their willingness to adapt reflects developed critical thinking skills and cognitive maturity, which enable them to evaluate AI outputs against their existing knowledge base and recognise when alternative methods might be more effective. **Teachers** in particular highlighted how AI integration requires changes in evaluation practices and teaching strategies. As one teacher explained, "To address this, evaluation methods must change if these tools are integrated into teaching" (Teacher_08). Another teacher described how classroom practice itself is evolving, noting that "lessons now include face-to-face, tech-based, and personalised interactions." **Parents,** having experienced AI in professional and personal contexts, also acknowledged its role as a genuinely helpful tool rather than just a novelty. One parent reflected on the inevitability of AI in education, stating, "what's the first thing a 13, 14-year old's going to do? [...] They need this... teachers or the schools need to come on board with AI and realise that there's no other way around it but to make sure that the kids are educated on it to use it correctly" (Parent_05).
- **Reaffirmed approaches: Students showed the strongest tendency to confirm their previous approaches** despite exposure to AI. This pattern can be explained by less developed critical thinking skills and a more rigid cognitive stance typical of younger learners. Students often dismissed AI suggestions that conflicted with their prior understanding or accepted them superficially without genuine integration. Their reliance on reaffirmed approaches was also linked to the perception that AI was not especially helpful for the specific tasks they required support with. **Teachers and parents also reported reaffirming existing methods**, but for different reasons. Teachers reaffirmed their approaches as part of refining evaluation criteria and adapting teaching styles to incorporate AI appropriately, while parents reaffirmed approaches because AI validated the usefulness of strategies they were already applying in their work and personal tasks.

### 4.2.3 Identity

The data reflects generational and experiential differences: students' digital nativity translates to greater AI comfort, parents' unfamiliarity breeds caution and self-doubt, while teachers' professional experience with educational technology creates a more

measured, balanced approach to AI adoption. This suggests that effective AI integration strategies should be tailored to address each group's specific concerns and confidence levels.

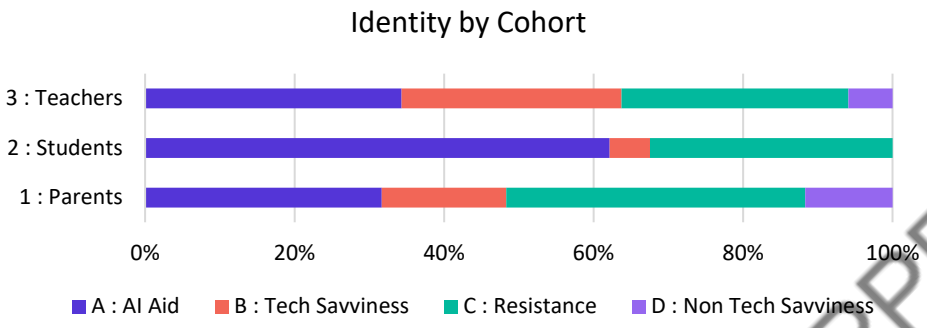


*Figure 15: GenAI's Influence on Identity per Cohort*

- **Students** demonstrate the **strongest AI acceptance**, with the largest proportion viewing **AI as an active helper**. They also show the **highest levels of tech savviness**, reflecting confidence in their digital skills. However, they still exhibit **notable resistance**, suggesting some underlying concerns despite their general openness to AI assistance. Their resistance arises from worries about academic integrity and teachers' discomfort with students using AI or becoming overly dependent on it, rather than from a basic fear of the technology itself.
- **Parents** display the **most resistance and self-doubt**, showing the largest proportion of worries or hesitation regarding AI use. They also demonstrate the **highest levels of non-tech savviness**, indicating negative self-perceptions about their digital and AI capabilities. Despite this, a significant portion still accepts **AI as helpful**, though this acceptance appears more cautious than students.
- **Teachers** occupy a middle ground, showing more **balanced distributions across all categories**. They exhibit moderate levels of both **AI aid acceptance and tech savviness,** while maintaining **reasonable resistance levels**. Notably, teachers show some **non-tech savviness**, suggesting they may underestimate their actual digital capabilities.

### 4.2.4 Role change

The chart below illustrates how parents, students, and teachers engage with themes such as critical thinking, shifting work habits, and collaboration, with teachers showing the highest density of references overall, parents demonstrating moderate engagement, and students displaying much less density, suggesting either satisfaction with their current habits and roles or a lack of self-reflection.

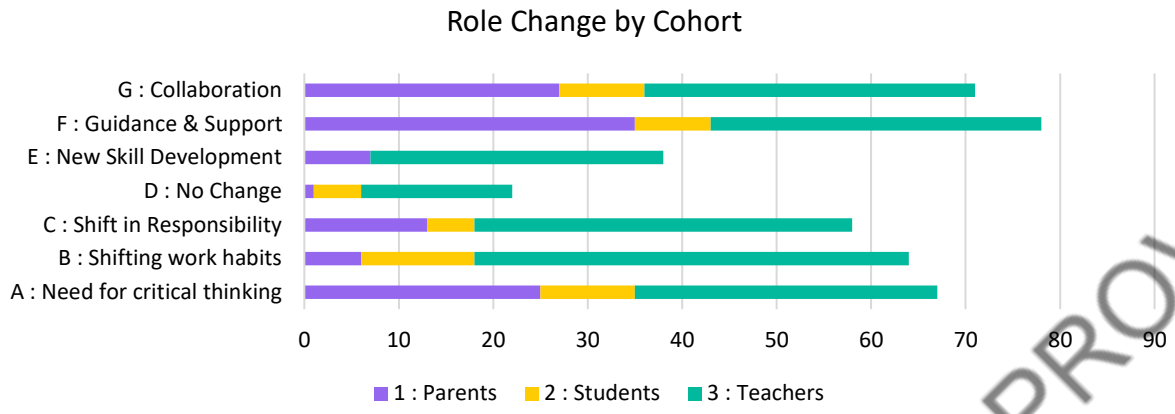


*Figure 16: Influence of GenAI on Role Change per Cohort*

- **Need for critical thinking: Teachers** emphasise critical thinking as central to AI use, describing their role as guiding students to evaluate AI outputs rather than passively accepting them. They see it as a way to adapt evaluation methods and counteract "closed mindsets" that limit innovation. **Parents** echo this, often framing AI as a support tool rather than a replacement, they use outputs to explain ideas in their own words, stressing that teenagers must not lose creativity by outsourcing thinking. **Students**, however, tend to acknowledge the risk but often view AI as a shortcut: some admit it makes them "lazy" since it can do the work for them, while others highlight reminders from teachers not to rely on it too heavily.
- **Shifting work habits: Teachers** show the strongest density here, noting that lesson delivery, classroom management, and evaluation methods are changing due to AI. They describe integrating AI into structured workflows, sometimes restricting its use until independent work is complete. **Parents** also reference shifting habits, though mainly in terms of staying up to speed with technology for the sake of their children's digital world. **Students** frame shifts in practical terms: AI helps them when they get stuck, guiding them to complete tasks, making their learning feel easier and more efficient compared to waiting for teacher feedback.
- **Shift in responsibility: Teachers** consistently frame their role as moving from content delivery to facilitation, focusing on helping students evaluate information rather than just absorbing it. They also see AI as freeing time to focus on direct teaching. **Parents** recognise a gradual shift, noting that AI could act as an advisor in supporting children's learning, though they remain cautious about its impact on relationships. **Students** interpret responsibility shifts differently, often perceiving AI as changing what it means to study or prepare, moving from self-driven work to seeking AI summaries or explanations.
- **No change: Teachers** still stress that core aspects of teaching remain unchanged like face-to-face interaction, authority in the classroom, and traditional evaluation criteria. **Parents** also highlight continuity, often using GenAI only as a supplementary aid. For **students,** this category reflects scepticism: some note that AI has not fundamentally changed their trust in teachers' methods, and they remain unsure of how transformative it will actually be.

- **New skill development: Teachers** highlight this most strongly, pointing out the need for training, tools, and ongoing adaptation as technology evolves faster than curriculum systems. They also note that students often encounter new tools earlier than educators, creating pressure for teachers to catch up. **Parents** acknowledge skill development too, particularly in learning platforms and apps used by their children, sometimes even adopting these tools themselves. For **students**, this theme is absent, reflecting a reliance on existing digital skills rather than proactive development of new ones.
- **Guidance and support: Teachers** see guidance as essential, stressing that they must teach students to use GenAI "appropriately," balancing support with active learning. **Parents** describe guidance more cautiously, often in terms of making sure their children do not let AI "do the job for them". **Students,** on the other hand, consistently identify teachers as their main guides, noting that teachers remind them not to over-rely on AI and to remain engaged in their own learning. Parents are acknowledged far less often as guides, reflecting their peripheral role in daily academic tasks.
- **Collaboration: Teachers** report strong collaboration, describing how they share experiences and feedback with colleagues to refine AI use. **Parents** express interest in collaboration between home and school, suggesting knowledge-sharing networks where parents, teachers, and students can exchange practices. **Students** mostly reference collaboration with peers, such as sharing AI-generated summaries or discussing outputs with friends, while occasionally involving parents in reviewing results.

## 4.3 Trust and responsibility

The rapid emergence and adoption of GenAI coupled with a lack of legislation blurs lines regarding ethical issues like responsibility, fairness and authorship. The fluid nature of GenAI involves considerable efforts from users to remain up to date, adapting to changes, upskilling and, naturally, shifting their beliefs and attitudes.

In this section we will explore participants' trust and behavioural changes and role changes expressed in their interviews, and how these relate to their positioning regarding ethical issues.

### 4.3.1 Trust and attitudinal changes

Many factors influence stakeholders' trust levels towards GenAI, from social influence to hands-on exploration. These attitudes are movable, sustained or challenged by new information and experience. As such, participants demonstrate general predispositions towards trust or mistrust, and attitudinal or behavioural changes after GenAI interaction.

#### 4.3.1.1 Trust and mistrust

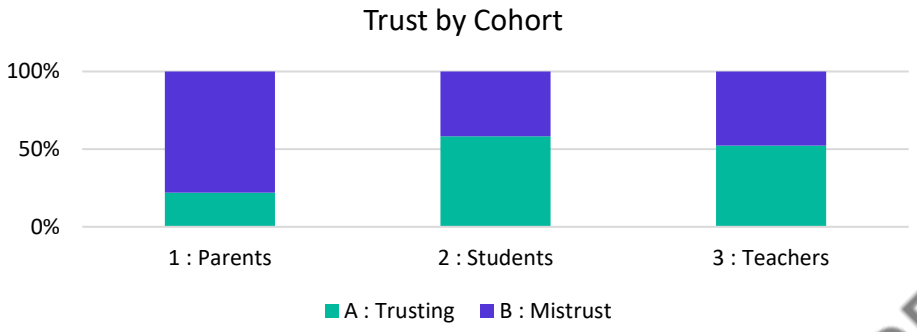


*Figure 17: Trust and Mistrust perception of GenAI per Cohort*

- **Parents:** This group leans towards **mistrust**. This data directly correlates with parents' perceptions of GenAI's impact on education, where most of their attention on impact (60%) focuses on barriers. Mistrust is explained by parents' lack of literacy and extensive experience in the use of GenAI tools, supported by concerns regarding accuracy, lack of transparency, privacy and cheating.
- **Students:** This group skews slightly towards **trusting.** For students, benefits represent 50% of the perceived impact of GenAI on education. This fact coupled with a less concerning outlook on ethical issues explains a more trusting attitude towards GenAI.
- **Teachers:** Teachers present a **levelled attitude** towards GenAI, echoing their perceptions of benefits and barriers to be equally impactful on education.

#### 4.3.1.2 Attitudinal changes

Upon reflection on their experiences with GenAI, participants reveal their evolving attitudes and beliefs towards it.

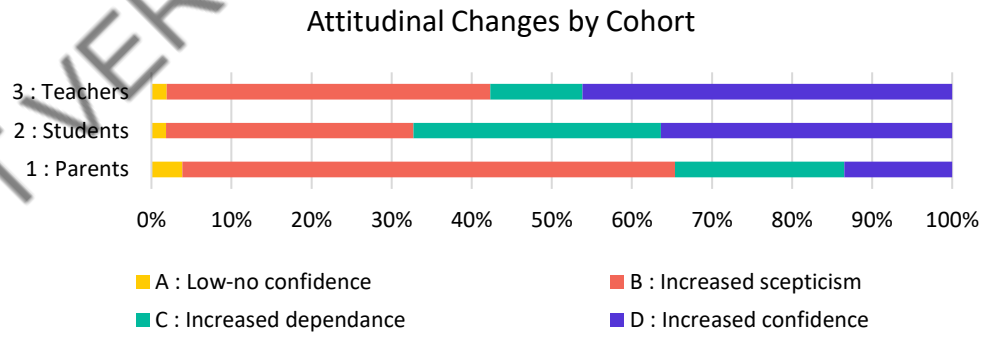


*Figure 18: Changes in Attitude per Cohort*

- **Parents:** Interaction with GenAI tools generally impacts parents' trust negatively, with a majority **increased scepticism** reported, and very low presence of increased confidence.

- **Students:** This group's confidence level is quite divided. We find that the leading change amongst students is **increased confidence** after GenAI use at almost 40%. Students are also the group with the **highest reported increased dependence**, a little over 30%, with students demonstrating an increased need to use GenAI for menial tasks that they were previously able to perform without support. Yet a 30% of behavioural change is also attributed to **increased scepticism**, illustrating general **indecision** regarding GenAI.
- **Teachers:** While dependence does not constitute an issue for teachers, their experiences with GenAI produce polarised responses, most of them divided between **increased scepticism** and **increased confidence**. Potentially teachers feel empowered by GenAI tools, but certain barriers or ethical issues might have a negative impact in confidence.

### 4.3.2 Ethical issues

According to research findings in D1.1, researchers, institutions and policy makers identify some ethical issues like plagiarism or privacy among the most pressing concerns regarding GenAI adoption in education. Most of the attention has been focused on teachers, followed by students, with limited attention centred on parents or guardians. We encountered slightly different findings in this research work:

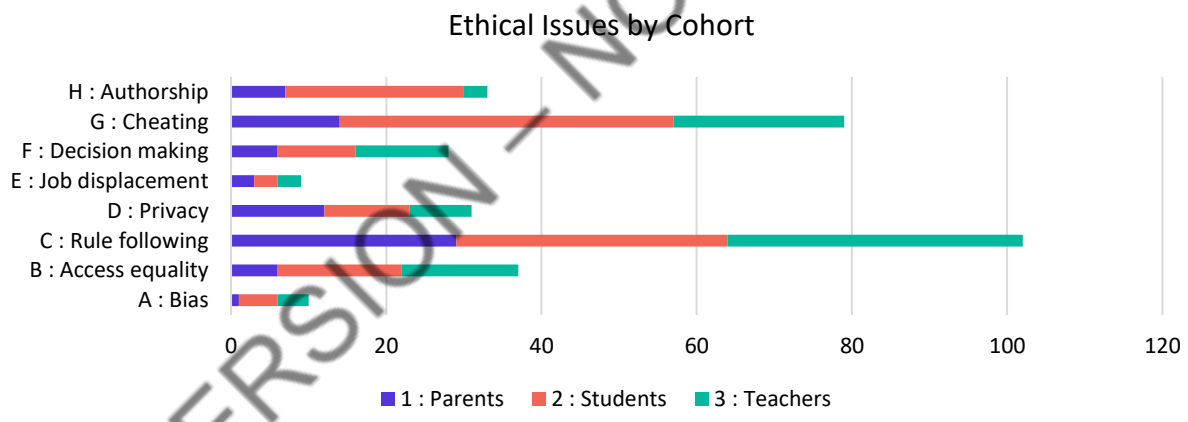


*Figure 19: Ethical Issues of GenAI Use*

- **Rule following:** In the graph above we can see that this is the most salient topic, important for all participants. **Parents** and **teachers** focus on the importance of complying with the **rules** for AI use set up by institutions or responsible adults. For **students**, this topic is important too, as they feel a responsibility to follow schools' or parents' rules. It must be explained though, that rules in this case do not refer to estate policies or general responsible practices, of which users seem generally unaware, but rather they seem typically connected to cheating or using GenAI when it is not permitted.
- **Cheating: Students'** main concern revolves around **cheating or plagiarism**. Some of the students interviewed acknowledge the use GenAI for this end, while admitting feelings of guilt. Others report on their classmates engaging in these practices. This

prominent topic begs consideration for fairness in assessment or alternative means of assessing students' competences.

- **Authorship:** Parallel to **students**' focus on cheating and the need to uphold GenAI rules are concerns regarding **authorship**. This topic, at first glance similar to plagiarism, differs from it in that the intent in is not to cheat: when working with GenAI stakeholders ponder whether the work produced can be consider as authored by the user. This topic is particularly concerning for students who fear that they may be accused of cheating, or worry about the consequences of not being able to distinguish AI generated content from human-created, as noted by Student_03 "it also concerns me a bit, because sometimes you're unable to see if something is very authentic, like if someone were to write you a letter expressing their feelings, how would you know that they didn't get ChatGPT to write this up?".
- **Privacy** when using GenAI tools, it is the third most important ethical issue for **parents**, with reduced attention from students or teachers. The research work on the Taxonomy (see T1.2 in D1.1) highlights how most GenAI tools implement limited data protection measures. Therefore, increased awareness on this topic is necessary for all three groups, particularly in instances when GenAI tools might be fed sensitive information.
- **Access equality: Teachers** and **students,** place greater emphasis on equal **access** to GenAI for all students. It is understood that, while accessing GenAI is relatively easy, if one has a device and internet connection, not all students have the availability of those resources, and unequal access threatens to broaden the digital gap.

These trends on ethical issues illustrate where participant groups place their concerns and interests: parents focus on the protection of the individual, their children and their data. Teachers tend to focus on equal access for the student body. This suggests that if institutions engage parents and guardians on students' AI use, they can provide supplementary support, constituting an integrated approach to GenAI adoption.

# 5 Stakeholders' needs and implications for policy and guidelines

In this section we highlight some of the most prominent stakeholders' needs inferred from research findings, outlining pathways for these needs to be addressed by policy and institutions.

## 5.1 Transparency, explainability and trust

According to our research findings, trust in GenAI, a key factor in adoption (Wu et al., 2011), is not widespread among participants, and the cause is manyfold. Interview participants in this study raise questions such as "You don't know where this people have taken the information from, you know what I mean? As it is not referenced" (Parent_06), Such statements evidence a **lack of literacy** regarding **how GenAI algorithms work**, with many participants equating GenAI to search engines. The comparison of GenAI with *Wikipedia* is also recurrent among participants, particularly parents and students. The

consequences of this misconception are, firstly, that users may interpret GenAI's answers as factual, leading to **decreased fact-checking** practices, and **diminished critical thinking** when analysing AI responses. Secondly, unchecked inaccuracies may lead to **mistakes or safety issues**. In fact, **inaccuracies** in AI-generated outputs are perceived as one of the most salient concerns among all cohorts. These facts, coupled with GenAI's failure to properly and correctly reference sources drive participants' feelings of **scepticism** and **mistrust** towards GenAI.

Guidance and policies need to **foster critical AI use** by, first, explicitly addressing the important **distinction between GenAI and other means of information access;** and then by providing **training with specific examples** that show how to leverage GenAI critically. Furthermore, beyond assessing AI outputs, critical AI use also means for training to focus on leveraging GenAI to **support higher order thinking**.

Similarly, participants report a **lack of awareness** of GenAI rules and policies, including **how GenAI tools may collect data** from end-users. Currently, training is limited and focuses on leverage but not on safe practices. This knowledge gap can sometimes result in **unsafe practices** like sharing delicate personal information, documents or private pictures. This can also lead to predatory behaviours that may exploit the current circumstances.

Policies makers have the responsibility of informing end-users, particularly students or parents who may not have access to training, on how their information may be used, **emphasising safe practices.** Policy also needs to address **the issue of transparency,** requiring AI developers to clearly disclose how information is sourced in alignment with the EU AI Act[1]. Similarly, the misuse of the tools and data to promote illicit practices like dissemination of pornography, child abuse, or any other practices that may harm underage users' needs to be specifically addressed, holding both developers and users accountable for their actions.

## 5.2 Training, support and access

**Access** to GenAI tools and **learning approaches** is another point of contention among stakeholders. Interview participants, particularly students, report in most cases that initial exposure to GenAI happens **through friends, anecdotal experiences or social media**. Parents report initial awareness of these tools through their peers or employers, with a focus on specific leverage. Teachers, however, receive some training from schools, colleagues, and, in most cases, from specific training events like seminars or training hubs that they seek motivated by their curiosity and intrinsic interest.

While the three cohorts differ on how they access and learn GenAI tools, they all coincide in a **lack of support from educational institutions**. Students receive almost no formal

[1] European Parliament and Council, Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence OJ L 2024/1689, 12 July 2024

training from their schools, with teachers attributing it to time constraints and logistic impracticalities. Parents, while remaining understanding of said practical barriers, denounce a **lack of communication** from institutions and teachers. Teachers, caught between students' needs, curriculum requirements and classroom realities, struggle with AI uptake while lacking the necessary **systemic support**.

For an effective, safe and informed adoption of GenAI in education, it is crucial for **training** to emerge **from sources of authority and official guidelines** accessible to all stakeholders. Institutions need to be given the tools to provide teacher training that is practical, and **subject specific**, beyond lesson planning and cheating workarounds. To answer student needs, training should be focused on **effective prompt literacy practices** and on using **AI as a learning assistant**, maximising their learning outcomes. **Communication** between schools and parents is paramount, offering parents detailed information on what tools and how they are being used in the classroom. Finally, schools need to foster access to tools and resources beyond learning activities at home.

## 6 Conclusions

Research findings in this align with most stakeholder perceptions reported in academic literature, adding new dimensions embedded in psychology. Perceived benefits for teaching and learning such as differentiation, speed, engagement, and efficiency are very much present in all participant groups. Likewise, barriers in GenAI adoption touch on topics relevant to literature like plagiarism, literacy or impact to critical thinking. Yet, in this work, we uncover a greater focus on issues like lack of teacher support, practical and logistic impairments to adoption in schools, accuracy issues or appropriateness of outputs. Expected topics like student autonomy, bias or the digital gap received limited attention by participants. Where academic literature insinuated a general perception of GenAI as a teacher assistant, findings here point at considerable technostress and resistance from the teaching body and parents, motivated by perceived low literacy and inaccuracies. Students', however, favour GenAI for its perceived similarity to talking to a friend, and their identity is the most open to AI adoption. Nevertheless, students also report concerns related to future work displacement, and their interview answers indicate a trends towards AI dependency. These findings outline a need for targeted literacy training for each cohort, coupled with increased self-reflection and cross-checking practices on GenAI exploration, to achieve critical AI adoption.

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# 8 Annexes

## 8.1 Participant demographic table

| Participant code | Organisation | Age | Gender | Nationality | Cohort | Subject/Profession |
|---|---|---|---|---|---|---|
| **STUDENT_06** | EA | 14 | F | Greek | Student | |
| **STUDENT_07** | EA | 14 | F | Greek | Student | |
| **STUDENT_08** | EA | 15 | M | Greek | Student | |
| **STUDENT_09** | EA | 18 | M | Greek | Student | |
| **TEACHER_06** | EA | 53 | F | Greek | Teacher | English |
| **TEACHER_07** | EA | 29 | F | Greek | Teacher | English |
| **TEACHER_08** | EA | 45 | F | Greek | Teacher | Philologist |
| **TEACHER_09** | EA | 42 | F | Greek | Teacher | Computer Science |
| **TEACHER_10** | EA | 40 | F | Greek | Teacher | History |
| **TEACHER_11** | EA | 40 | F | Greek | Teacher | Computer Science |
| **STUDENT_03** | PGMS | 17 | F | Greek English | Student | |
| **STUDENT_04** | PGMS | 18 | F | Greek Cypriot | Student | |
| **STUDENT_01** | PGMS | 18 | M | Cypriot/Mexican | Student | |
| **STUDENT_02** | PGMS | 17 | M | Cypriot | Student | |
| **STUDENT_05** | PGMS | 18 | M | Cypriot | Student | |
| **TEACHER_05** | PGMS | 34 | F | Cypriot | Teacher | English |
| **TEACHER_04** | PGMS | 57 | M | English Cypriot | Teacher | English |
| **TEACHER_01** | PGMS | 53 | F | American/ Cypriot | Teacher | English |
| **TEACHER_02** | PGMS | 48 | F | Cypriot | Teacher | English |
| **TEACHER_03** | PGMS | 36 | M | Cypriot | Teacher | Computer Science |
| **PARENT_05** | TRI | 43 | F | Irish | Parent | Training Centre Manager |
| **PARENT_04** | TRI | 52 | F | Irish | Parent | Social worker- Child protection |
| **STUDENT_12** | TRI | 17 | F | Irish | Student | |
| **TEACHER_12** | TRI | 36 | M | German | Teacher | History & English |
| **STUDENT_13** | TRI | 16 | F | Spanish | Student | |
| **PARENT_01** | TRI | 35 | F | Irish | Parent | |
| **STUDENT_10** | TRI | 16 | F | Irish | Student | |
| **PARENT_06** | TRI | 50 | F | Spanish | Parent | Diagnostic Radiology Technician |
| **PARENT_02** | TRI | 46 | F | Indian | Parent | Head of Department |
| **STUDENT_11** | TRI | 14 | F | English | Student | |
| **TEACHER_14** | TRI | 57 | F | Greek | Teacher | Professor Philologist, Consultant |
| **TEACHER_18** | TRI | 60 | F | Greek | Teacher | Professor Philologist |
| **TEACHER_17** | TRI | 50 | F | Greek | Teacher | Professor of German Literature |
| **TEACHER_15** | TRI | 42 | F | Greek | Teacher | Professor Philologist |

| | | | | | | |
|---|---|---|---|---|---|---|
| **TEACHER_13** | TRI | 42 | F | Greek | Teacher | Teacher Humanities/Greek Literature SEND |
| **TEACHER_16** | TRI | 49 | M | Greek | Teacher | Philosophy Professor – CSE |
| **PARENT_03** | TRI | 50 | F | Irish | Parent | PhD |
| **PARENT_07** | TRI | 42 | F | Greek | Parent | |
| **STUDENT_14** | TRI | 14 | F | Greek | Student | |
| **PARENT_08** | TRI | 46 | M | Greek | Parent | |
| **STUDENT_15** | TRI | 14 | M | Greek | Student | |
| **PARENT_09** | EPA | | | | Parent | |
| **PARENT_10** | EPA | | | | Parent | |
| **PARENT_11** | EPA | | | | Parent | |

## 8.2 Interviewer log sample

A platform for Assessing and Bridging Generative AI and Human Skills in Secondary Education
(GenAI4ED)
101178648
HORIZON-CL2-2024-TRANSFORMATIONS-01-11

GenAI4ED

Use these questions to get a sense of the factors that influence their decisions and actions.

| | |
|---|---|
| **BEFORE**<br>What led you to use or learn about GenAI | Because she didn't know about the field of expertise. It had been discussed in an office setting. A person with more expertise encouraged them to get knowledgeable for daily tasks like drafting interview questions. Has heard of tools but hadn't used. |
| **FIRST USE**<br>When and how did you first engage with GenAI | It was the common one and didn't test any other tools. |
| **DURING USE**<br>What happened while using GenAI? | One fluid interaction of 20 minutes with 3 or 4 exchanges of prompts. Quite impressed by the results. |
| **AFTER USE**<br>What were the outcomes or results? | Verified with a human. |
| **REFLECTION**<br>How do you feel about the experience now? | Impressed but frightened. She can see the uses and how quick it can make office work. Frightened at the thought of how it does the thinking for you. |



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