



BETWEEN ACTIVATION AND DEPENDENCY: GIFTED ARAB STUDENTS' PERCEPTIONS OF THE LONG-TERM INFLUENCE OF SECONDARY-SCHOOL DIGITAL AND INNOVATIVE TEACHING ON THEIR MOTIVATION, CRITICAL THINKING, AND ACADEMIC INDEPENDENCE IN ISRAELI HIGHER EDUCATION

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Abstract:

This study explores how gifted Arab students in Israel who completed secondary school and are now studying at university perceive the long-term influence of digital and innovative teaching on their motivation, critical thinking, and academic independence. It uses a qualitative design and the reflexive thematic analysis of Braun and Clarke (2006, 2019), and draws on semi-structured interviews held in Arabic with thirty gifted students in Israeli universities and colleges. The findings suggest that the effects of digital teaching are more complex than commonly assumed. Digital tools supported students' motivation when they helped overcome learning barriers, but weakened it when students relied on quick answers instead of engaging in deeper learning. Critical thinking grew mainly from class discussion and questioning, not from the technology itself, although the students built a careful, critical way of using artificial intelligence. Academic independence developed more through students' real-life responsibilities than through any particular teaching method. The transition from Arabic-language schooling to studying in Hebrew influenced all three outcomes. Most importantly, the findings show that these three abilities are connected and should not be viewed as separate skills. The study concludes that technology helps students grow only as far as good teaching, the learner's own effort, and fair conditions allow.

Keywords: digital technologies, smart learning tools, administrative support systems, learning motivation, English language learning, East Jerusalem

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1. Introduction

Digital technology has changed the way learning happens. It is no longer just a tool but an essential part of teaching and learning. In today's knowledge-based world, success at school and university is no longer measured by how much information students can collect.

It is measured by the ability to think about that information critically, to stay motivated when things are uncertain, and to manage one's own learning (OECD, 2021). These three abilities- motivation, critical thinking and academic independence- have become key signs of success in higher education and of lifelong learning. Still, many studies warn that simply having digital tools does not guarantee that students will develop these abilities. What matters is how teachers use those tools (Selwyn, 2016; Bates, 2019). This tension between the potential of technology and the role of effective teaching is the main issue explored in this study.

This issue is especially important for gifted learners. Researchers today see giftedness not as a fixed gift that a person is born with, but as a potential that grows only when education and the environment support it. Despite their differences, the models of Renzulli (2021), Gagné (2018), and Sternberg (2021) all emphasize that giftedness develops through the interaction between the individual and the educational environment. Sternberg, for example, treats intelligence as a relationship between the person and the environment rather than a fixed trait. Because of this, gifted learners are especially sensitive to how much challenge and freedom their education offers (Clinkenbeard, 2012). A high ability does not turn by itself into strong motivation, mature critical thinking, or independent learning. Each of these is a quality that can grow or fade, depending on the conditions a learner meets (Vrbanović Lisac *et al.*, 2025; Demir & Cetinbas, 2023). The picture becomes more complex when the gifted learner also belongs to an educational minority. Gifted Arab students in Israel finish secondary school inside a system marked by unequal resources, different curricula, and a shift from learning in Arabic to studying in Hebrew at university (Abu-Hussain, 2023; Khalil, 2020; Ghorbani *et al.*, 2024). Their experience of digital teaching is shaped by these conditions, which research conducted in majority-language contexts does not fully explain.

Despite the large body of research on digital teaching and on giftedness, three gaps remain. First, most studies measure short-term gains in skills within single lessons or units, rather than the slower, lasting growth that may continue into university. Second, many studies assume that technology naturally builds higher-order thinking, and so they rarely ask under what conditions digital tools truly develop these abilities instead of only appearing to (Kozhevnikov *et al.*, 2020; Yavich, 2025). Third, we rarely hear from gifted minority learners themselves, even though their own accounts can show how earlier teaching shaped the way they study today. These gaps call for a study that places the students' own views at the center, rather than outside measures of teaching quality or grades.

For these reasons, this study looks at how gifted Arab university students in Israel see the long-term effect of their high school teachers' digital and innovative methods on their current motivation, critical thinking, and academic independence, and at how these three appear connected in their accounts. Using a qualitative, interpretive design and reflexive thematic analysis, this study explores the experiences of one specific group of students. It contributes to the literature by showing that motivation, critical thinking, and academic independence are closely connected and should be understood together rather than as separate abilities.

2. Literature Review

This review examines the main concepts and theories related to the study's three variables: motivation, critical thinking, and academic independence. It also explores how each of these has been linked to digital and innovative teaching. The main idea throughout the review is that the value of technology in education depends not only on the digital tools themselves but also on how teachers use them and on the learners' educational context. The review concludes by identifying the research gap that this study aims to address.

2.1 Motivation: A Changing Ability Linked to Autonomy

Researchers today agree that academic motivation is not a fixed trait. It is a changing, many-sided process that grows from the way a learner's beliefs meet the conditions of the classroom (Clinkenbeard, 2012). Self-Determination Theory explains this well. It traces lasting inner motivation to three basic needs: autonomy, competence, and a sense of belonging (Deci & Ryan, 2000). From this perspective, digital and innovative teaching can raise motivation when it gives students more choice, sets the right level of challenge, and lets them work together. Recent studies support this. They report more interest and engagement when teaching is interactive and student-centered (Mambetalina *et al.*, 2023; Szökök *et al.*, 2023; Wigati *et al.*, 2025; STANIMIROVIĆ, P *et al.*, 2024).

These gains, however, are not certain or automatic. Saritas and Olpak (2022) found that motivation falls in digital settings when students do not feel confident using technology. Martinson (2024) showed that weak teacher presence and a lack of personal contact online weaken the sense of belonging that keeps students engaged. Therefore, the effect of digital teaching on motivation depends on good design and good relationships, not on the tool itself. This is even more evident among gifted learners. Their motivation declines when teaching is repetitive or lacks sufficient challenge, even when digital tools are available (Vrbanović Lisac *et al.*, 2025). The same is true in settings with artificial intelligence, where independence and self-control can grow stronger, or can weaken when students lean on the tool too much (Aboud, 2026; Mohamed *et al.*, 2026). For this reason, the present study treats motivation as a dynamic process that cannot be separated

from the quality of earlier teaching and the extent to which it supported learners' independence.

2.2 Critical Thinking: Skill and Habit Together

As with motivation, critical thinking also depends on conditions. Researchers increasingly define it as a mix of thinking skills, such as analysis, evaluation, and reasoning, together with habits of mind, such as curiosity, openness, and a tendency to question. It is not skills alone (Facione, 1990; Miterianifa *et al.*, 2021). This point has a clear effect on the method. When critical thinking is reduced to a skill that can be measured, the evidence captures performance on a single task but misses the lasting habit that lets a student carry analysis over to new problems (Chashechnikova *et al.*, 2024).

A constructivist view makes this deeper. Because higher thinking grows through social work on demanding tasks (Vygotsky, 1978), the value of any digital experience depends on whether it makes the learner a real partner in inquiry or only a passive receiver of content shown on a screen. The evidence reflects this split. On one side, studies link technology to better reasoning when the tools sit inside a careful teaching plan (Lionenko & Huzar, 2023; Kontostavlou & Driga, 2023). On the other side, critical researchers warn that digital settings built around instant answers can shut down the useful mental effort through which critical thinking grows. Kozhevnikov *et al.* (2020) call this "digital slavery," and Yavich (2025) develops similar concerns for artificial intelligence.

So, the better question is not whether digital teaching helps or harms critical thinking, but under what teaching conditions it truly builds it instead of only imitating it. For this reason, the study clearly rejects the idea that technology develops critical thinking on its own. It treats critical thinking as a habit that grows only under certain conditions.

2.3 Academic Independence: Managing One's Own Learning

Academic independence, the learner's ability to plan, decide, manage, and take responsibility for their own learning, depends on the same conditions. The main frameworks treat it as a skill that can be developed, not a trait people are born with. Knowles (1975) describes it as the learner's own initiative in finding needs, setting goals, and judging results. Zimmerman (2002) explains its cycle of planning, doing, and reflecting. Mavlyanova *et al.* (2025) add a useful distinction between independence as action and independence as thought. This distinction points to a real risk: digital settings that ask for performance without reflection may build the first kind while ignoring the second.

As with the two earlier abilities, the evidence is divided. On one hand, studies find a positive link between using digital tools and self-directed learning (Gani *et al.*, 2025; Shcherbina *et al.*, 2017). On the other hand, other studies show that depending on digital tools can weaken the reflective work behind real independence, unless good teaching

supports it (Kozhevnikov *et al.*, 2020; Yavich, 2025). For gifted learners in particular, independence is something that is built, not born. It grows under open teaching that asks the learner to judge for themselves and slowly removes support (Demir & Cetinbas, 2023; Abdallah, 2024; Meyers, 2021). In this study, academic independence means making decisions and taking responsibility for one's own learning, rather than simply working without direct teacher supervision.

2.4 Technology Acceptance, Language, and the Research Gap

The Technology Acceptance Model offers a last lens. It holds that a learner's use of digital tools depends on two things: how useful the tool seems and how easy it seems to use (Davis, 1989; Abuhassna *et al.*, 2023). Still, the model needs adjusting for minority learners. A student may accept technology readily because it is useful for finding answers fast, yet still come to depend on it in a way that harms learning. This shows that the results of acceptance depend on what the learner brings to the tool, not on acceptance by itself. Moreover, for Arabic-speaking students who study in Hebrew, ease of use also has a language dimension that the model usually overlooks, because even accessing the content depends on language (Khalil, 2020; Axelrad *et al.*, 2021).

Together, these points reveal a wider gap. On one hand, research has not explained well how differences in resources and language shape the long-term effect of digital teaching on the three abilities among gifted minority learners. On the other hand, these three abilities are still studied as separate results rather than as one connected system (Salas-Pilco *et al.*, 2022). This study fills the gap in two ways. It places the views of gifted Arab students at the center of the analysis, and it treats the three variables as parts that build one another.

2.5 A Conceptual Framework Linking the Variables and Theories

The review so far has treated motivation, critical thinking, and academic independence as separate abilities, each with its own body of theory. The same conclusion returns in every section, however. The tool matters less than the teaching that surrounds it, and each ability depends on conditions rather than on technology as such. This shared conclusion is the basis for the conceptual framework that guides the study.

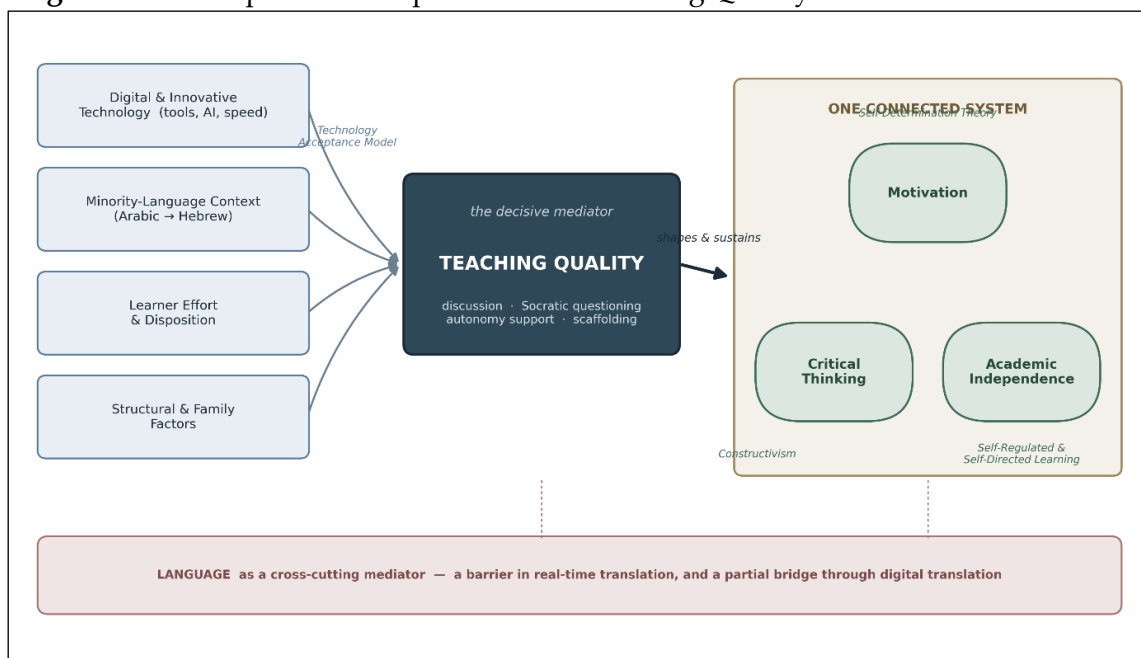
The framework places teaching quality at its center, as the mechanism through which the other factors work. Digital and innovative technology does not act on the three abilities directly. It works only as teaching takes it up, and teaching can turn a tool into a partner in inquiry or leave it as a faster route to ready answers. This central position is a reading of the theory already reviewed, not an assumption. Self-Determination Theory ties motivation to autonomy, competence, and relatedness (Deci & Ryan, 2000), and these needs are met or denied by pedagogy rather than by hardware. Constructivism locates higher thinking in social work on demanding tasks (Vygotsky, 1978), which is again a feature of teaching and not of the screen. Models of self-regulated and self-directed learning treat independence as something built through graded responsibility (Knowles,

1975; Zimmerman, 2002), a process that teaching either invites or blocks. In each case the active ingredient is pedagogical.

Within this frame, the Technology Acceptance Model has a precise but limited place (Davis, 1989; Abuhassna *et al.*, 2023). It explains why students adopt a tool, through perceived usefulness and ease of use, but not what that adoption produces. A tool can be accepted readily and still weaken learning, as when its usefulness lies in supplying fast answers that replace effort. The model therefore describes the gateway to technology, while teaching quality decides what happens once the learner is through it. For minority learners, the framework adds a further condition. Ease of use carries a language dimension that the standard model omits, because reaching the content at all depends on the language of instruction (Khalil, 2020; Salas-Pilco *et al.*, 2022).

The framework also treats the three abilities as one connected system rather than three parallel outputs. Motivation that drives a learner to look beyond the set material creates the occasion for independent work, which in turn calls for the judgment that defines critical thinking. Read through Self-Determination Theory and constructivism together (Deci & Ryan, 2000; Vygotsky, 1978), these are linked aspects of a single relationship with learning, not separate results of separate teaching. Two further conditions sit beside teaching in the model: the learner's own effort and disposition, without which good teaching has nothing to build on, and the structural and family factors that shape a student long before any method is chosen.

Figure 1: The Proposed Conceptual Model: Teaching Quality as the Decisive Mediator



Note: Technology has no direct path to the three abilities; its influence is routed through the quality of the teaching that puts it to use. Arrows among motivation, critical thinking, and academic independence indicate their reciprocal relationships within one connected system.

Figure 1 sets out these relationships. Technology, the language context, learner effort, and family and structural factors all feed into teaching quality, which serves as the decisive mediator. Teaching quality then shapes the three connected abilities, while language runs across the whole process as both a barrier and, through digital translation, a partial bridge. The arrangement makes the study's central claim visible. Technology has no direct path to the three abilities; its influence is always routed through the quality of the teaching that puts it to use.

3. Material and Methods

3.1 Research Design

This study uses a qualitative design based on an interpretive view of knowledge, which sees knowledge as socially constructed and tied to its context (Creswell & Creswell, 2018; Lincoln & Guba, 1985). Because the research question is about how students reflect on their experiences and make meaning, not about measuring relationships between variables, the study takes an exploratory and retrospective approach. It aims to generate insights that can transfer to similar settings, not for statistical generalization. The study uses the reflexive thematic analysis of Braun and Clarke (2006, 2019), because this method is flexible, interpretive rather than descriptive, and well suited to finding patterns of meaning across the students' accounts without forcing them into a fixed coding framework.

3.2 Participants and Sampling

The participants were thirty gifted Arab students in Israeli higher-education institutions who had completed secondary school within the Israeli system. Purposive sampling chose students who could give rich, relevant accounts, and snowball sampling helped reach this small and specific group (Patton, 2015). To participate, a student had to be identified as gifted in a recognized way, to have finished secondary school in Israel, to be studying at university now, and to be willing to take part in Arabic. Fifteen women and fifteen men took part. They study medicine, dentistry, pharmacy, engineering, computer science, mathematics, economics, and education, and they come from Arab communities in the north, the Triangle region, and mixed cities. This range gives some variation in school quality and resources. As is usual in qualitative work, the sample size followed the idea of information power rather than statistical power. Data collection continued until new interviews no longer generated new insights (Braun & Clarke, 2006).

3.3 Data Collection

Data were collected through semi-structured individual interviews. This is the method best suited to exploring how people reflect on their experiences and make meaning, because its open, flexible form lets the researcher follow important threads while keeping a steady focus across participants (Lincoln & Guba, 1985). An interview guide built

around the three main topics, motivation, critical thinking, and academic independence, served as a flexible frame rather than a fixed script. All questions were open and non-leading, with no closed forms or numbers. Each interview lasted between forty-five and sixty minutes and was held in Arabic, the students' first language, to keep it easy to follow, to lower barriers, and to respect the cultural setting. With consent, the interviews were recorded, written out word for word, and then translated for analysis. Quotations appear in English translation, while the original Arabic wording is kept in the discussion where it carries special meaning (Braun & Clarke, 2019). Collecting the data in Arabic was a deliberate choice. It places the students' first language as the medium of their fullest expression, which matters in a study about the language side of minority education.

3.4 Data Analysis, Reflexivity, and Trustworthiness

The analysis followed the six phases of Braun and Clarke (2006): becoming familiar with the data, first coding, building themes, reviewing them, defining them, and writing an account that moves between specific stories and broader ideas. Trustworthiness rested on the four criteria of Lincoln and Guba (1985): credibility, through member checking and long engagement with the data; transferability, through rich description; dependability, through a clear record of decisions; and confirmability, through a reflexive journal and discussion with a colleague. Reflexivity was part of the method, not a fix for bias. My background in gifted education was treated not as a threat to objectivity but as a useful resource, supported by open questions, a clear explanation of my role to participants, and ongoing reflective notes. Ethical approval was obtained before data collection. Taking part was voluntary and confidential; consent was secured throughout, and all data were made anonymous, with participants named by codes (Pn) (American Psychological Association, 2017).

4. Results

The analysis produced seven main themes. They address the study's questions about how secondary-school digital and innovative teaching shaped the students' motivation, critical thinking, and academic independence over the long term, and how these connect within a minority-language setting.

4.1 Theme 1: Digital Teaching and Motivation, Between Activation and Dependence

The first and most common theme is about digital teaching as a force for motivation that works between activation and dependence. Students often said that digital and innovative teaching had affected their motivation, though the direction and strength of this effect varied a lot. Several described a delayed change. The motivation that had been driven from outside during a Bagrut-focused secondary curriculum only came alive when they met the real challenge of university. P1 put it clearly: "*During secondary school I was not really interested. I would study only at exam time... But when I started at the university,*

something changed." Digital speed then worked as support for motivation rather than a source of real interest. P2 explained that AI helped him solve difficulties *"without feeling that I am missing something,"* so he stayed engaged through lectures, while P4 noted that a task *"that used to take more than half an hour now takes less than fifteen minutes."* Yet the same students described an opposite, worrying pattern of fading motivation. P5 felt that easy access discouraged deep learning: *"he does not really internalize it... because he knows it is always available."* P6 summed up the risk in one question: *"If I rely on ChatGPT for everything, why am I learning?"* So digital teaching supported motivation only under certain conditions, depending on whether the speed it offered helped real effort or replaced it.

4.2 Theme 2: Digital Teaching and Critical Thinking, Teaching Before Technology

The second theme showed that teaching comes before technology in building critical thinking. The students who described the strongest growth in their thinking traced it not to digital tools but to discussion and Socratic questioning. P4 remembered a civics class as "a platform where a person could say everything he thinks... from every angle." P3 described a biology teacher whose step-by-step questions *"opened horizons"* and built a habit he could carry forward: it *"has helped us a lot until now in university."* But this kind of thinking did not come from technology by itself. P4 confirmed that most teaching was traditional: *"just lecture-style... no innovative activities."* This shows that critical thinking grew only under certain teaching conditions, which were not present everywhere.

4.3 Theme 3: Critical Digital Literacy, A New Way of Questioning AI

The third theme is a new ability that the students built themselves: a careful, critical way of using artificial intelligence. Rather than trusting AI answers, they questioned and checked them. P6 compared several platforms because *"each one has different strengths,"* and refused to *"rely on any source one hundred percent."* Others described going back to an AI tool again and again to test its answers against what they already knew. But this habit did not come from using AI by itself. It appeared most among students who had also had strong discussion-based teaching, which suggests that it was carried over from earlier critical habits rather than produced by the technology. So critical digital literacy is a genuinely new ability, but it still rests on good teaching.

4.4 Theme 4: Digital Teaching and Academic Independence, From Dependence to Agency

The fourth theme traced academic independence from dependence to agency, with digital tools playing a helping but not a basic role. The strongest causes were practical, not about teaching methods. P3 described how his mother deliberately stepped back from managing his studies: *"you should manage yourself now."* Many lasting study habits were not digital. P1 and P5 insisted on summarizing by hand, and P5 said that *"if the summary does not come out of my own head... it is lost."* Where digital tools did support independence,

they did so for students who were already independent, as when P6 searched for explanations *"instead of waiting for a teacher."* The opposite pattern was just as clear. P12 drew the key line between *"artificial intelligence as a tool to accelerate things, not a substitute for them,"* warning that without basic knowledge AI becomes *"blind solutions that weaken your actual mastery."* So digital tools supported independence only where the student already had the habits and the basic knowledge to use them well.

4.5 Theme 5: Language as a Factor That Shapes the Three Results

The fifth theme found that the minority-language situation shaped all three results. P3 described the Arab student's position as *"two examinations,"* and explained how translating into Hebrew in real time competed with thinking: *"you have lost all the capacity you wanted to use for that question while you were thinking about how to ask it in Hebrew."* Importantly, digital tools eased this gap in part. P8, whose *"auditory comprehension in Hebrew is weak,"* used AI translation to work with the content at her own pace. So, reaching content in one's own language turned out to be a special part of the value of digital teaching for this group. It was both a burden and a partial remedy.

4.6 Theme 6: Structural and Family Factors Beyond Teaching Method

The sixth theme found that some of the strongest influences on the students' growth came from outside teaching methods altogether. Several pointed to the psychometric entrance examination, not school lessons, as what really prepared them. P9 said: *"What prepared me for university was not secondary school itself but the Psychometry period. That is what taught me to sit for long periods and answer questions steadily."* Others pointed to family. P2 recalled that *"my family encouraged me to depend on myself for everything... not only in transport, but also in life and in education."* Family attitudes toward learning, and the parents' own education, appeared as foundations that came before any teaching method. So, the teaching method worked alongside powerful structural and family factors, and at times mattered less than they did.

4.7 Theme 7: One Connected System

The seventh theme showed that motivation, critical thinking, and academic independence worked together as one connected system, not as separate results. P3's account of his biology teacher's questioning showed this clearly. Curiosity (motivation) pushed him to look beyond the textbook (independence), which then required him to weigh several sources (critical thinking), all within one lasting change. Students consistently described these as parts of a single relationship with learning, marked by real interest, careful thinking, and self-directed inquiry.

5. Discussion

Read together, the seven themes tell one story rather than seven. Across motivation, critical thinking, and independence, the factor that decided whether digital teaching helped or harmed was the quality of the teaching around it, not the presence or sophistication of the tool. The discussion that follows interprets each set of findings through the conceptual framework in Figure 1, in which technology reaches the three abilities only by passing through teaching quality. This lens turns a series of mixed results into a single, coherent account of where the real influence lies.

The findings on motivation both support and qualify Self-Determination Theory. The delayed change in motivation suggests that the effect of secondary school may be hidden at first rather than immediate. This extends Clinkenbeard's (2012) point about how sensitive gifted learners are to challenge, by showing that motivation built but not used in an easy curriculum only becomes visible when the learner meets a setting that matches their ability. The role of digital speed fits the idea of perceived usefulness in the Technology Acceptance Model (Davis, 1989): usefulness keeps students using the tool, which keeps them engaged. But the opposite pattern shows that when speed replaces effort, digital tools can weaken the sense of competence that Self-Determination Theory sees as the root of inner motivation (Deci & Ryan, 2000; Kozhevnikov *et al.*, 2020). So, the value of digital teaching for motivation is conditional. It works as support, not as the main spark.

The findings on critical thinking may represent one of the study's most important contributions. They challenge the idea that digital teaching naturally builds higher thinking. The fact that discussion and Socratic questioning mattered most fits Vygotsky's (1978) view of learning as social, and places the key factor in the teaching itself rather than in the technology (Mishra & Koehler, 2006). The new critical digital literacy, where students compared and checked AI answers, is a genuinely new ability. But it appeared most among students who had also had strong discussion-based teaching, which suggests that it is carried over from earlier critical habits rather than produced automatically by AI (Rawas, 2024). Where good teaching was missing, the mere presence of technology added little to critical thinking, which fits the wider research (Forsström *et al.*, 2025).

The findings on independence place digital tools as helpers that depend on earlier habits, not as basic causes. The fact that independence grew mainly from real-life demands extends Zimmerman's (2002) model, by showing that the strongest causes of self-direction may lie outside teaching. This has a clear lesson for policy: programs that try to build independence through teaching methods alone may work less well than arrangements that truly require students to manage themselves. P12's line between AI as acceleration and AI as substitution is the clearest statement of the digital independence puzzle. It refines the Technology Acceptance Model by showing that the results of

accepting technology depend on the thinking and motivation the student brings to it (Davis, 1989).

The language findings extend both Self-Determination Theory and the Technology Acceptance Model toward fairness. The mental load of translating into Hebrew in real time is a real barrier to the need for competence, because it splits attention between language and thinking, and so weakens the engagement that inner motivation needs (Deci & Ryan, 2000). The way AI translation eased this load extends the Technology Acceptance Model: for Arabic-speaking students, ease of use includes reaching content in one's own language, a part that the standard model leaves out (Davis, 1989; Salas-Pilco *et al.*, 2022). This view makes language access not an optional extra but a basic condition for fair digital participation.

Finally, the way the three results build one another carries a lesson beyond the findings themselves. Studies that measure motivation, critical thinking, and independence as separate variables with separate tools may underrate how closely they are linked, and may credit one what is really produced by all three together. This fits both constructivist theory (Vygotsky, 1978) and Self-Determination Theory (Deci & Ryan, 2000), and supports the value of qualitative thematic analysis alongside quantitative designs in studying how digital teaching shapes gifted learners. The three abilities are best understood not as separate products of separate teaching, but as connected ways of relating to learning.

Taken as a whole, these interpretations converge on the study's central contribution. The decisive factor in developing motivation, critical thinking, and academic independence was not technology but the quality of the teaching that framed it. The same tool, used inside discussion-rich and autonomy-supporting teaching, supported all three abilities, while the same tool used as a shortcut weakened them. This sets the findings against the common policy reflex of investing in devices and platforms as though access alone produced higher-order learning. What the accounts show instead is that technology works as an amplifier with no fixed sign. It strengthens whatever pedagogy is already in place, and where strong teaching is absent it adds little, or trades speed for understanding. The model in Figure 1 captures this by giving technology no direct route to the three abilities. For gifted minority learners in particular, the reframing matters, because it locates the lever of change in teaching and in fair language conditions, which policy can shape, rather than in the spread of tools.

6. Conclusion

This study looked at how gifted Arab students in Israel see the long-term effect of secondary-school digital and innovative teaching on their motivation, critical thinking, and academic independence. Across the experiences of the thirty participants, one clear conclusion emerged.

The value of digital teaching does not come from how advanced or how frequent the technology is. It comes from the quality of the teaching that uses it, the critical attitude of the learner, and the conditions of the minority school setting. Digital teaching supported motivation rather than creating it, and at times weakened it. Critical thinking grew through discussion and questioning rather than through the technology itself, though a new critical digital literacy appeared in the careful use of AI. Independence came mainly from real-life demands. And the move from Arabic to Hebrew shaped all three. Most of all, the three abilities work as one connected system, not as separate results. These conclusions have limits. As an interpretive study of how a small, purposely chosen group looks back, its findings can transfer to similar settings but cannot be generalized, and they rest on what the students themselves report rather than on outside measures of teaching or grades. Any call to enlarge the sample is better seen as a direction for future work than as a fault in the present design, whose information power was reached within the group studied. Future research could follow these paths over time, compare gifted minority groups across different languages, and test the suggested extensions of the Technology Acceptance Model toward language fairness. Overall, the findings suggest that technology, however advanced, develops students' abilities only as far as good teaching, learners' own effort, and fair educational conditions allow.

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Conflict of Interest Statement

The author declares no conflicts of interest.

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