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BETWEEN EMPOWERMENT AND COGNITIVE DEPENDENCY: HIGHER EDUCATION STUDENTS' PERCEPTIONS OF GENERATIVE ARTIFICIAL INTELLIGENCE IN FOSTERING INDEPENDENT LEARNING WITHIN ISRAELI HIGHER EDUCATION

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Abstract:
Generative AI has entered higher education faster than institutions have learned to guide it, and its effect on students' independence remains disputed. The present study asked how students in Israeli higher education perceive the role of AI in their formation as independent learners, a question the international literature has hardly examined in this national and linguistic context. A qualitative interpretive design was used, based on semi-structured interviews with thirty Arab students enrolled in Israeli institutions, conducted in Arabic around nineteen open-ended questions and analyzed through inductive thematic analysis with open coding and cross-question synthesis. Seven themes emerged. Participants framed AI as a supportive but non-substitutive academic assistant, used it widely for planning and time management, and reported gains in critical inquiry only where they verified its output, alongside clear warnings against passive reliance. Institutional guidance was described as thin, and students asked for training and boundaries rather than prohibition. Motivation rose as AI lowered difficulty, perceptions of geographical access were mixed, and integrity and dependency concerns cut across the interviews. The findings indicate that AI supports independent learning when the learner stays active and verifies, and that the guidance students request is the missing institutional condition.

Keywords: Generative AI, independent learning, self-regulated learning, learner autonomy, Arab students, Israeli higher education, critical thinking, cognitive dependency

1. Introduction

Higher education is passing through one of the fastest technological adoptions in its history. Within roughly two years of the public release of generative AI tools, their use

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among students has become ordinary, with studies reporting weekly use approaching ninety percent in some programmes (Bikanga Ada, 2024). At the same time, the goals of higher education have shifted from the accumulation of information toward the abilities that carry a graduate through a changing labor market, above all the capacity to learn independently, to regulate one's own effort, and to think critically about sources. The meeting point of these two developments defines the current moment, since a technology that can explain, summarize, plan, and answer on demand touches exactly the abilities that universities now claim to develop.

Within this broad field, the question that matters is not whether students use AI but what the use does to their independence as learners. Independent learning is understood in the research as the learner's active responsibility for setting goals, searching, organizing time, and evaluating results, a capacity described through the related frameworks of self-regulated learning, self-directed learning, and learner autonomy (Lan & Zhou, 2025; Saad & Abdullah, 2025). The evidence on how AI affects this capacity is split, with studies reporting genuine gains in self-direction where use is guided and reflective, alongside findings of cognitive offloading, weakened critical thinking, and dependence where use is passive (Xu *et al.*, 2025; Fan *et al.*, 2024). A growing consensus places the deciding weight not on the technology but on the conditions around it, the structure of guidance and the readiness of the learner (Qu *et al.*, 2025).

Despite the volume of this research, three gaps stand out. The evidence clusters in Asian, European, and Anglophone settings, and the Israeli context has been examined in almost no published work, even though it combines a distinctive institutional structure with a multilingual student body (Zilberman, 2026). In addition, most studies measure perceptions or effects through surveys and experiments while giving little room to students' own interpretation of their experience, although it is precisely this interpretation that shapes how they actually use the tools. For students studying in a language that is not their first, the leading acceptance frameworks also miss a linguistic dimension of use, since even reaching and verifying content depends on language (Baldrich *et al.*, 2025). These gaps meet in the population studied here, Arab students in Israeli higher education, whose perspective the literature has not yet documented.

To address this, the present study asks how students in Israeli higher education perceive the role of AI in creating independent learners. It draws on semi-structured interviews in Arabic with thirty Arab students across a range of institutions and disciplines, analyzed through inductive thematic analysis. The study contributes in three ways, by bringing an unexamined national and linguistic context into a literature that has passed over it, by placing students' own accounts at the center rather than measured behavior alone, and by treating independence, critical thinking, and motivation as connected parts of one relationship with learning rather than separate outcomes. The findings show a student population that has already drawn its own line between support and substitution, and that is asking its institutions to help hold it.

2. Literature Review

The question of how higher education students in Israel perceive AI's role in becoming independent learners rests on three lines of research - the frameworks that describe independent learning, the studies of how students use generative AI, and the evidence on what these tools do to thinking and autonomy. One point returns across all three, that AI does not build or break independent learning by itself but does so depending on how the teaching is set up and how ready the learner already is.

2.1 Theoretical Foundations of Independent Learning

Three overlapping traditions describe independent learning. Self-regulated learning, a cycle of planning, doing, and reflecting, covers the strategies a student uses inside a task and stays the most common framework (Lan & Zhou, 2025). Self-directed learning goes wider, describing how a learner takes charge of a whole course of study rather than one assignment, while autonomy falls between them, still argued over as a capacity, a process, or a result (Saad & Abdullah, 2025; Li & Tınmaz, 2025). Motivation sits under all of this through self-determination theory, which ties lasting learning to autonomy, competence, and belonging, with the heutagogical view letting learners choose what and why they learn (Da, 2025). A recurring problem is that self-regulation is mostly measured through self-report, rarely checked against what students actually do.

Whether students adopt AI at all belongs to the acceptance literature, led by the technology acceptance model, where a tool seeming useful predicts intention to use it more than anything else (Xue *et al.*, 2024). These consumer-research models have been criticized for ignoring differences between learners, though newer work joins acceptance to learning and finds motivation the strongest predictor across both (Zhu *et al.*, 2026). Since most frameworks predate a tool that can do part of the thinking, theory now adds AI co-regulation that keeps the learner in charge (Mohmad, 2025). The idea doing the most work is the split between dependence that helps and dependence that harms, where a tool either widens what a learner does or hollows out the independence it meant to build, working best when it shows learners their own progress rather than working for them (Da, 2025; Hooshyar *et al.*, 2020).

2.2. Student Perceptions and Use of Generative AI

The clearest result is that students almost everywhere find generative AI useful and easy to use, with a survey of over twenty-three thousand reporting curiosity rather than anxiety and smaller studies from Hong Kong and elsewhere showing the same (Ravšelj *et al.*, 2025; Chan & Hu, 2023). The view is seldom clean, though, since a large Swedish sample found approval and concern held together (Stöhr *et al.*, 2024). Acceptance depends on the task, so students are fine using AI to brainstorm but uneasy using it for graded work, and their trust stays low, driven by usefulness rather than belief in accuracy (Chung *et al.*, 2026).

Use is now routine, reaching nearly ninety percent weekly in one British course, and it clusters in early-stage work like brainstorming and drafting, with students saying they keep AI beside their own thinking rather than in place of it, though this rests on self-report (Bikanga Ada, 2024). The benefits are mostly speed and quick help, sometimes read as a fairness issue since it reaches students without tutoring, while the worries center on accuracy and dependency (Hua & Cunningham, 2025; Carias *et al.*, 2025; Dogaru *et al.*, 2025). What matters most is that institutions have not kept up, with only about one student in five given any rules, leaving responsible use to the student's own self-regulation (Stöhr *et al.*, 2024; Kelly *et al.*, 2023).

2.3 The Cognitive and Autonomy Effects of AI Use

Evidence here is divided, and the divide comes down to conditions. Though some studies report gains in self-directed learning, the clearest finding is an experiment where students given metacognitive support improved while those without it declined, showing the effect depends on the scaffolding rather than the tool itself (Xu *et al.*, 2025), with adaptive systems elsewhere weakening goal-setting as students waited to be told what to do. Critical thinking decides the direction, since strong students use AI to check and brainstorm while weaker ones lean on its answers, and several studies warn that better output can hide weaker learning (Kulgildinova *et al.*, 2026; Singhachotsukpat *et al.*, 2025; Arif & Naeem, 2025).

Pushing harder with firmer measures, the cognitive studies link heavy AI use to lower critical thinking scores and clear dependence (Rohilla, 2025), while a meta-analysis found AI helped lower-order tasks but not the higher-order work of evaluating and creating (Qu *et al.*, 2025). One experiment named the pattern metacognitive laziness, with the AI group scoring better on essays yet gaining nothing in real knowledge, and offloading emerged as the mechanism, since only about a third of students check what AI produces (Fan *et al.*, 2024; Ridlo *et al.*, 2026). The harm is not fixed, since digital literacy and metacognitive training protect against it (Akhtar *et al.*, 2026; Zilberman, 2026).

2.4 Language, Context, and the Research Gap

The three lines meet at one point: AI's effect on independent learning turns on teaching structure and learner readiness, and learner readiness carries a real risk that unguided AI use may widen the gap between strong and weak students (Du *et al.*, 2025). Taken whole, the literature leaves clear gaps, since the three areas are studied apart rather than as one system, the evidence is mostly correlational and short-term, and it clusters in settings that may not carry over. The sharpest gap is the Israeli one, barely studied beyond a single review, and it carries a language side that the usual frameworks miss, since for students learning in a second language even reaching the material depends on language (Baldrich *et al.*, 2025). This study addresses that gap by asking how students in Israel perceive AI's role in making them independent learners, joining the three literatures and putting students' own views at the center of a setting the wider research has overlooked.

3. Material and Methods

3.1 Research Design and Rationale

Since the purpose of this study was to understand how students themselves perceive the role of artificial intelligence in shaping their independent learning, a qualitative design grounded in an interpretive paradigm was chosen. The interpretive tradition assumes that knowledge is constructed socially and gains its meaning from the context in which people live and study (Creswell & Creswell, 2018). A quantitative design would have allowed measurement of associations between variables, but it could not capture the reasoning, hesitations, and conditions that students attach to their use of AI, and these were exactly the object of the study. The analytic strategy was an inductive thematic analysis, supported by open coding, grouping of categories, and a synthesis of themes across interview questions, following the six-phase model that has become standard in qualitative research (Braun & Clarke, 2006, 2021). An inductive approach was preferred over a theory-driven one so that the themes would grow out of the participants' own words rather than out of a predetermined coding frame.

3.2 Population and Sample

The study population consisted of Arab students enrolled in higher education institutions in Israel. From this population, thirty participants were recruited through purposive sampling, a strategy that selects information-rich cases capable of speaking directly to the research question (Patton, 2015). Participants came from Arab communities in northern Israel, among them Sakhnin, which was the most represented locality, as well as Nahef, Kabul, and Buq'ata in the Golan Heights. Their fields of study were varied and included Arabic language and its teaching, biology and chemistry, dentistry, early childhood education, and additional academic disciplines, which gave the sample a reasonable spread across faculties and types of academic demands. Sample size was not determined by statistical power but by the logic of information richness that guides qualitative work, and thirty interviews proved sufficient for the codes and themes to recur consistently across participants.

3.3 Study Tools and Procedure

Data were collected through individual semi-structured interviews built around a guide of nineteen open-ended questions. The guide covered the students' understanding of AI in higher education, the meaning they give to independent learning, the tools they use, the effects they attribute to AI on their thinking, research skills, planning, and motivation, the support offered by their institutions, geographical and institutional differences in access, and questions of ethics, integrity, and dependence. All questions were open and non-leading, and the semi-structured format allowed the interviewer to probe further while keeping a common core across the thirty interviews (Creswell & Creswell, 2018). Interviews were conducted in Arabic, the participants' first language, so that they could

express themselves fully and precisely, and the material was later translated for analysis, with quotations presented here in English. During the analysis, it became apparent that two access-related questions in the guide were nearly identical, and they were therefore treated as a single repeated item whose answers served to confirm rather than expand the emerging pattern.

3.4 Analysis and Trustworthiness

The analysis moved through repeated reading of the transcripts, line-by-line open coding, and the organization of codes into broader categories, until twelve recurring codes were consolidated. Examples include AI as an academic assistant, mentioned by twenty-seven participants; self-reliance and autonomy, mentioned by twenty-eight; time management and planning, mentioned by twenty-nine; critical verification of AI outputs, mentioned by twenty-four, and the risk of over-reliance, mentioned by twenty-five. These codes were then synthesized across questions into seven main themes, which are presented in the next chapter. Trustworthiness was addressed through the criteria commonly applied to naturalistic inquiry, namely credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985). Credibility was supported by staying close to the participants' wording, transferability by describing the sample and setting in detail, dependability by documenting coding decisions, and confirmability by anchoring every theme in direct quotations. Participation was voluntary and confidential, informed consent was obtained, and participants are identified only by codes (P1-P30).

4. Results

The thematic analysis of the thirty interviews produced seven main themes, which together describe how the participants perceive AI and its contribution to independent learning. The themes move from the basic conception of AI as a tool, through its links to self-regulation, critical thinking, and motivation, to institutional, geographical, and ethical conditions that frame its use.

4.1 Theme 1: AI as a Supportive but Non-Substitutive Tool

Across almost all interviews, participants described AI first of all as an academic assistant rather than a replacement for the student or the lecturer, a code that appeared in twenty-seven of the thirty interviews. In their accounts, AI accelerates access to knowledge, simplifies complicated material, and helps organize ideas, but the final judgment stays with the learner. P18 expressed the shared position clearly: "*I see it as a tool that helps simplify concepts, offers personalized learning, and runs simulations of scientific experiments, while stressing that it supports the teacher and does not replace him*." A similar boundary was drawn by P1, who described AI as "*a technological and scientific means that helps the*

researcher and the student broaden their horizons without relying on it completely and blindly." The tool is welcomed, then, but on the students' own terms.

4.2 Theme 2: Independent Learning and Self-Regulation

When asked what independent learning means, participants converged on a definition built around responsibility, searching, organizing time, and choosing one's own way of studying. As P11 put it, "*independent learning means that I depend on myself to understand the material, search, and try to reach the information without being fully dependent on the lecturer. It means I have responsibility for my learning*." Within this understanding, AI appeared as a practical support for self-regulation, and time management was in fact the most frequent code in the entire dataset, mentioned by twenty-nine participants. P18 described using AI "*to organize tasks, divide the material into small parts, and set a suitable schedule for each topic,"* adding that this strengthens her independence because it leaves the decisions in her hands. At the same time, several participants noted that the same planning functions can weaken autonomy if the student lets the tool decide instead of merely advising.

4.3 Theme 3: Critical Thinking and Research Literacy

A more conditional picture emerged around critical thinking. On the positive side, participants reported that AI pushed them toward clearer questions, faster comparison of sources, and more structured analysis. P18 explained that the tools "*helped me compare different sources, ask deeper questions, and analyze information instead of just memorizing it*." Twenty-four participants spoke about critical verification, describing a habit of checking AI outputs rather than accepting them as truth. The conditionality was stated most sharply by P13, who distinguished between two modes of use: "*when I use it passively, without thinking about the answers and relying on it completely, its effect is very negative and I no longer make an effort to think. Its effect became positive when I realized that using it correctly keeps me thinking and trying*." Critical gains, in other words, were reported only where verification and effort remained part of the process.

4.4 Theme 4: Institutional and Lecturer Guidance

Institutional support was described as thin and inconsistent. P11 reported that "*there is no clear support or detailed policies from the institution regarding the use of AI; there may be general guidance about responsible use, but most of the use depends on the student himself.*" What participants asked for, however, was not prohibition but instruction. Twenty-five of them raised the need for institutional guidance, and P18 described the desirable lecturer role as teaching students "*how to use it effectively by formulating clear and precise questions"* and offering training sessions on the tools. P2 formulated it as an obligation: "*it is the duty of every educational institution to offer courses that equip students with AI skills*." Guidance, boundaries, and AI literacy were framed as the institution's contribution to responsible independence.

4.5 Theme 5: Motivation and Academic Participation

Most participants linked AI positively to their motivation, mainly because it lowers the difficulty barrier. P18 said the tool "makes the material easier to understand and provides quick answers that push me to continue and explore," and added that it gave her confidence to ask questions and discuss ideas in class. Reduced pressure, faster understanding, and greater confidence to participate recurred across interviews, although motivation and confidence appeared as an explicit code in a smaller group of twelve participants, which suggests that the motivational benefit, while real, is less universal than the practical ones.

4.6 Theme 6: Geographical and Institutional Access

Perceptions of access were divided. Some participants saw no geographical effect at all, in the spirit of P1's remark that "*technology is not bound to a specific geographical area*." Others pointed to concrete gaps between institutions and regions. P11 observed that "*in some places AI tools are provided for free or as part of student support, and students are even taught how to use them properly, while in other institutions this does not exist*." P7 offered a two-sided reading, noting that students in peripheral areas may face weaker infrastructure and less professional guidance, yet AI itself can act as an equalizer that breaks distance barriers. The overall pattern is therefore mixed: availability may be broad, but the quality of use depends on infrastructure, institutional culture, and awareness.

4.7 Theme 7: Ethics, Integrity, and Dependency Risks

The final theme cut across the interviews as a persistent warning. Participants repeatedly distinguished between using AI for support and using it to replace personal effort, and twenty-five of them referred to the risk of over-reliance. P7 described the danger of "*students using AI to extract ready-made answers instead of doing their own research and analysis, which leads to a decline in their critical thinking skills*," and also raised the difficulty of verifying content reliability, especially in Arabic. Emotionally, the stance combined enthusiasm with caution, since total dependence was seen as threatening "*basic learning skills, such as patience in research and deep reading"* (P7). Integrity concerns were framed in broad terms as well, with P15 calling these questions "*the new social contract in the world of education*," extending beyond traditional cheating to intellectual property and human originality. Across the sample, the shared conclusion was that AI must remain a tool for support and never a substitute for personal effort or academic honesty.

5. Discussion

The purpose of this study was to understand how students in Israeli higher education perceive the role of AI in their formation as independent learners, and the seven themes speak directly to the three literatures reviewed earlier. As a whole, the findings support the review's central claim, namely that AI neither builds nor erodes independent learning

on its own, but does one or the other depending on the structure of use and on what the learner brings, while adding a linguistic and national context that the international evidence has largely passed over.

The first theme, in which participants framed AI as a supportive but non-substitutive assistant, sits well within the global perception research. Positive and pragmatic attitudes, driven by usefulness rather than by blind trust, have been the steadiest finding in large international samples (Ravšelj *et al.*, 2025; Chan & Hu, 2023). The boundary the participants drew, welcoming the tool while insisting that judgment stays with the student, mirrors the guarded trust reported elsewhere, where use rests on perceived usefulness while reliability is doubted (Chung *et al.*, 2026). What the present data add is that this boundary was stated spontaneously and almost universally, which suggests that the distinction between support and substitution has become part of how students talk about AI, not only how researchers model it.

Regarding self-regulation, the finding that time management and planning were the single most frequent code, mentioned by twenty-nine of thirty participants, gives concrete content to the theoretical claim that AI can serve as a scaffold for the planning phase of the self-regulatory cycle (Lan & Zhou, 2025). Participants described dividing material, setting schedules, and prioritizing tasks with the tool while keeping the decisions in their own hands, a pattern that matches the argument that AI supports regulation best when it makes the learner's state visible rather than doing the learning instead (Hooshyar *et al.*, 2020). Their own warning, that autonomy weakens when the tool decides rather than advises, restates in students' language the distinction between enabling and alienating dependence proposed in recent theory (Da, 2025).

The critical thinking findings deserve particular attention because they reproduce, from the inside, the conditional pattern that dominates the effects literature. Participants reported analytic gains only where verification and effort remained part of the process, and described passive use as directly harmful to their thinking, which is precisely the split between guided and unguided use found in experimental and meta-analytic work (Qu *et al.*, 2025; Xu *et al.*, 2025). One participant's account of moving from passive reliance to active questioning parallels the finding that critical disposition moderates whether students use AI for checking and brainstorming or lean on its output (Singhachotsukpat *et al.*, 2025). A notable point of contrast concerns verification itself, since twenty-four of thirty participants described routine checking of AI output, a far higher share than the roughly one-third reported in quantitative work (Ridlo *et al.*, 2026). Self-presentation may inflate this figure, yet it may also reflect a genuinely cautious norm in this population, and the gap itself is a finding worth testing.

The call for institutional guidance rather than prohibition converges almost exactly with the structural vacuum documented in the perception literature, where only a minority of students report having received any rules, and most learn through informal trial (Kelly *et al.*, 2023). Participants here described thin, general guidance and asked explicitly for training, boundaries, and AI literacy, which supports the argument that

responsible use currently rests on the student's own self-regulation by default rather than by design (Zilberman, 2026). This has a clear implication for Israeli institutions, since the burden of responsible use is falling on precisely the capacity, self-regulation, that the tools themselves may strengthen or weaken.

On motivation, the participants' reports that AI lowers difficulty, reduces pressure, and raises confidence to participate fit the finding that motivation is the strongest predictor across both acceptance and self-directed learning (Zhu *et al.*, 2026). Read through self-determination theory, easier access to understanding feeds the need for competence, which sustains engagement. Still, the motivational code appeared in only twelve interviews, fewer than the practical codes, and the literature cautions that motivational gains attach to reflective use while uncritical reliance breeds dependence (Dogaru *et al.*, 2025). The motivational benefit should therefore be read as real but conditional, like the cognitive one.

The access findings, mixed between those who saw no geographical effect and those who described concrete institutional gaps, connect the study to the equity concern raised in recent work, namely that unstructured AI use may reward prior advantage (Du *et al.*, 2025). The two-sided reading offered by one participant, of AI as both a challenge for peripheral areas and an equalizer that breaks distance barriers, matches the fairness argument that accessible help may serve students who lack tutoring (Hua & Cunningham, 2025). The difficulty participants raised in verifying content in Arabic adds the linguistic layer that the acceptance frameworks leave out, since ease of use acquires a language dimension when even reaching reliable content depends on it (Baldrich *et al.*, 2025).

Finally, the persistent warning against dependency, framed by participants as a threat to patience, deep reading, and honest effort, echoes the evidence that gains in output can hide losses in capacity (Arif & Naeem, 2025; Fan *et al.*, 2024). That students voiced this danger themselves, without prompting, suggests that the metacognitive awareness the literature treats as protective is present in this population, even if awareness alone does not guarantee protected practice (Akhtar *et al.*, 2026).

6. Conclusion

This study examined how thirty Arab students in Israeli higher education perceive the role of AI in becoming independent learners, and one conclusion runs through all seven themes. In the students' own accounts, AI functions as a genuine support for independence, above all in planning, access to knowledge, and confidence to participate, but only under two conditions: an active and verifying learner and a guiding institutional frame, and the second condition is largely missing. Participants asked consistently for instruction, boundaries, and AI literacy rather than prohibition, and they drew for themselves the line between support and substitution that the research literature draws between enabling and harmful use.

Several limitations bound these conclusions. As an interpretive study of one purposively selected group, its findings can transfer to similar settings but not generalize statistically, and they rest on self-reported perceptions rather than on measured behavior, so the high rate of reported verification in particular should be read with caution. The sample was also drawn from one linguistic and regional context, which was a deliberate choice but limits comparison.

Future research should follow students over time to see whether reported habits hold, compare Arabic-speaking and Hebrew-speaking students directly, and test institutional interventions that turn the guidance students request into practice. Open questions remain about whether perceived independence matches actual independence, and about how language shapes verification. What the study shows clearly is that students are not waiting passively for technology to shape them; they are already negotiating its terms, and institutions that fail to join that negotiation leave the outcome to chance.

Conflict of Interest Statement
The author declares no conflicts of interest.

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