

A Critical Revision and Conceptual Framework Expansion: Investigating the Role of ChatGPT as an Instructional Aid in Teaching Arabic Syntax in Resource-Constrained Environments (A Case Study: Badakhshan University, Afghanistan)

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Abstract

Arabic grammar classes at Badakhshan University run under conditions that textbooks rarely mention: blackouts lasting several hours, prepaid data that students cannot always buy, and too few lecturers who both know nahw well and have time for slow explanation. Ten undergraduates there spent five weeks using ChatGPT for syntax. Some learned to write sharper prompts—asking, for instance, for Qur’anic examples of inna with a detached pronoun and a full i’rāb. Others copied fluent parses that were simply wrong, especially on inna, kāna, and case endings. Access was uneven. Students with a private phone and a café connection used the tool nightly; those who shared a device did not. The first study recorded these habits but was too small, too short, and had no comparison class. We therefore argue against treating the public chatbot as a default tutor. A more modest option is an on-phone Nahw Assistant: a compact model tuned on annotated Qur’anic and textbook Arabic, checked by Afghan instructors, and updated only when WhatsApp or Telegram is briefly available. Drill can sit on the device. Judgement of error should stay with the teacher in the room.

Keywords: Arabic syntax; ChatGPT; Badakhshan University; low-resource higher education; teacher agency; digital divide.

INTRODUCTION

Arabic grammar classes at Badakhshan University do not look like the classrooms assumed in most papers on ChatGPT. Power cuts last for hours. Prepaid data is expensive. Many students share a phone or walk to a café for a short connection. Lecturers who both know nahw well and have time to explain it slowly are few. In that setting, a free chatbot that answers at midnight looks useful. It also looks easy to over-trust.

Arabic is not a side subject here. It is the language of the Qur’an, of fiqh and tafsīr, and, in many families in Badakhshan, still a sign of serious study. Madrasas long taught syntax through memorisation of primers such as the Ājurrūmiyyah. The university was meant to join that tradition to modern methods. The gap between that aim and daily conditions is wide.

Ten undergraduates in Arabic language and literature at Badakhshan University spent five weeks using ChatGPT for syntax. Some learned to write sharper prompts. Others copied fluent parses that were wrong, especially on inna, kāna, and case endings (i’rāb). Access was uneven. Students with a private phone and a café connection used the tool at night. Students who shared a device used it far less. Female students’ more limited access to shared internet points was visible even in this small group, though the sample is too uneven to treat that as a firm result. That first study was worth doing. It was also too small, too short, and it had no comparison class. We cannot say from it that ChatGPT “works” for Arabic syntax in Afghanistan. We can say what students actually did with it, where the model failed in ways that matter for nahw, and why a cloud tutor is a poor default in a place where electricity and data are not given.

This article is a critical revision of that work, not a celebration of it. We keep the local observations. We tighten the method critique. We refuse to import English-language ChatGPT research as if it mapped cleanly onto Arabic grammar in a low-resource university al., (Rudolph et al., 2023). We then outline a more modest option: an on-phone Nahw Assistant that can run when the internet is down, that is checked by Afghan instructors, and that leaves judgement of error with the teacher in the room.

The question is not whether generative AI is good or bad. The question is what form, if any, such a tool can take when the infrastructure that ChatGPT assumes is missing, and when the subject matter—rule-based Arabic syntax—punishes fluent error more than silence.

Technology in language teaching has moved in stages: drill programmes, then networked tasks, then more adaptive tutors ((Warschauer & Healey, 1998) ;(Bax, 2003). Large language models are not the next version of a grammar checker. They generate open-ended text and keep a conversation going. That is why teachers reached for them so quickly.

Most of the early ChatGPT literature is about English. describe the model as a partner for teachers and learners: explanations, examples, lesson ideas. (Rudolph et al., 2023) stress the other side—fabricated authority, assessment risk, and the need to treat fluent output as untrusted until checked. (Kasneci et al., 2023) make a similar point for education more broadly: opportunity is real; so is over-reliance on a system that predicts likely words, not verified rules.

That work is a warning, not a template. It was written for settings with stable power, personal devices, and English as the target or medium. Badakhshan fits none of those conditions, and the target language is Arabic, not English.

Arabic syntax and why generic chatbots struggle

Arabic morphology is non-concatenative. Case and mood are marked in ways that many English-trained models handle poorly. The written standard (fuṣḥā) is not the spoken variety students use at home. sets out the case system and the government of particles such as inna and kāna; (Habash, 2010) shows why that structure is hard for natural language processing even before chatbots arrived.

We do not claim a large experimental literature on ChatGPT-as-nahw-tutor in Afghan universities. That literature is thin, and we will not fill the gap with studies we cannot verify. What we can say from linguistic description, from general LLM research, and from our own screenshots, is narrower. The model often produces confident i‘rāb that is wrong. For a novice, a wrong parse written in smooth Arabic or English is more dangerous than no answer. (Rudolph et al., 2023) (Journal et al., 1929) this the problem of fluent nonsense. In syntax teaching it is not a side issue. It is the issue.(Barrot, 2023) , writing about second-language writing, notes the same pattern: the tool can support drafting and yet hide error behind plausible wording. (SaThierbach et al., 2015) argue that the useful relationship is complementary—teacher plus model—not model instead of teacher. We take that as the working assumption for nahw, where a single case ending can change the parse of a whole clause.

Access, equity, and the limits of a cloud tutor

Warschauer and Healey (1998; see also Esmat & Esmati, 2024) argued that the digital divide is not only a missing cable. It is skills, cost, and whether use turns into actual benefit. Later work has sharpened that claim. van Dijk (2020) distinguishes sequential, skills, usage and outcomes divides: a connection without the later layers does not close a gap. Warschauer (2003) likewise takes social inclusion, not mere connectivity, as the test. A chatbot that needs a charged phone and a live connection sorts students by money, place, and, in this context, often by gender. Students who already study in town with a private device gain a night tutor. Students who share a phone or wait for a café slot do not. Calling the same tool an “equaliser” hides that split (Selwyn, 2016).

We also cannot treat training data as culturally empty. Examples, analogies, and even sample sentences come from whatever the model saw most (Bender et al., 2021). That may not

match Afghan classroom norms or religious sensibility. The point is not to ban the tool. It is to stop speaking as if a U.S.-hosted chatbot were a neutral public utility.

Projects that last in low-resource settings tend to assume offline use, local checking, and a human teacher who remains responsible for what counts as a correct rule (Warschauer & Healey, 1998; Traxler & Kukulska-Hulme, 2016). That is a practical lesson, not a slogan. Reviews of chatbot-assisted language learning reach the same limit: reported gains appear where a teacher frames, checks and sequels the machine's output, not where the bot is left to tutor alone (Huang, Hew, & Fryer, 2022; Kohnke, Moorhouse, & Zou, 2023).

How we read the classroom: activity, dialogue, and authority

Three ideas organise the rest of the paper.

First, cultural-historical activity theory treats the student, the chatbot, the grammar rule, the class, and the university rules as one system (Engeström, 2015). Tension is expected. Here the sharpest tension is this: the object is accurate *nahw*; the tool speaks with certainty when it is guessing. That contradiction can push a change in roles—for example, a local lecturer who validates output instead of competing with a machine (Thorne, 2003; Blin, 2004).

Second, Freire (1970/2018; cf. S. Azimollah Esmati, n.d.) is useful because a chatbot can slide into what he called banking education: deposit an answer, move on. Prompt engineering can look like agency. It can also be a more efficient way of receiving unreevaluated text. The difference is whether students are taught to doubt the answer.

Third, “more knowledgeable other” is often stretched to include AI (Vygotsky et al., n.d.-b) ; Lantolf & Thorne, 2006). Stretch it too far and the phrase becomes empty. In our field notes the model sometimes occupied that slot because no lecturer was free. That is a description of scarcity. It is not proof that the model is more knowledgeable about *inna* and its sisters.

These lenses keep the argument on infrastructure, error, and teacher authority. They are not a decorative theory block.

RESEARCH METHODS

The original study was a small qualitative case at Badakhshan University. Ten undergraduates in Arabic language and literature volunteered: six men and four women. They used ChatGPT for syntax over five weeks. We treat that work as a first look, not as a finished design (Yin et al., n.d.) What follows is a description of what was done, and of what that design cannot support.

Design, setting, and sample

A single-site qualitative case study is a reasonable way to watch a new tool in a real class—the class, the blackouts, the shared phones ((2d651987-5d4a-40b3-A2f8-161083ea8e3a, n.d.; A33bd667-3e13-4b2e-B435-A39a53e8445f, n.d.; A4255bb2-73c5-44e3-Beb2-B4a1e71bcdcf, n.d.; Af5648d7-F566-4c65-B97e-61ace6edf54a, n.d.)). (Yin et al., n.d.) reserves the case for a contemporary phenomenon that cannot be pulled out of its setting. ChatGPT in a Badakhshan *nahw* classroom is that kind of object. The aim is analytic insight into one bounded system, not statistical inference to Afghan higher education (Flyvbjerg, 2006; Lincoln & Guba, 1985). Ten students can show habits and frustrations. They cannot show how typical those habits are.

Sampling was purposeful and volunteer-based, which Patton (2015) treats as legitimate when the point is depth in a defined context rather than representativeness. The sample was also narrow. There was little spread in year of study, starting level, or rural versus town background. (Vygotsky et al., n.d.-b) warns that such homogeneity limits even modest claims about variation. A student who reaches the internet once a week in a café is not doing the same work as a classmate with a private phone. The gender split (six to four) may follow enrolment, but it underplays limits many women face on device use off campus (A33bd667-3e13-4b2e-B435-

A39a53e8445f, n.d.; Af5648d7-F566-4c65-B97e-61ace6edf54a, n.d.; De5d9c99-Fc4d-470e-B51e-1843e0b05ccc, n.d.)). We noted that pattern; we cannot treat it as a measured finding.

Table 1 summarises the ten volunteers. The categories of device access come from interviews, not from a campus census. They are contextual descriptions, not a sampling frame. *Participants (Badakhshan University; n = 10)*

ID	Gender	Programme	Device access (self-report)	Typical place of use
S1	M	Arabic language and literature	Private smartphone	Home, at night
S2	M	Arabic language and literature	Private smartphone	Home / campus
S3	F	Arabic language and literature	Shared family phone	Home, limited hours
S4	M	Arabic language and literature	Café / campus lab	Internet café
S5	F	Arabic language and literature	Shared phone	Home
S6	M	Arabic language and literature	Private smartphone	Home, at night
S7	F	Arabic language and literature	Café when possible	Internet café
S8	M	Arabic language and literature	Private smartphone	Home
S9	F	Arabic language and literature	Shared phone	Home
S10	M	Arabic language and literature	Café / shared	Internet café

Note. Identifiers are anonymous. Access categories come from interviews, not from a campus IT census. Six students were men and four were women. No claim is made that this split represents the faculty.

Six students were men and four were women. We do not treat this split as representative of the faculty.

There was no comparison group. Nobody in a parallel class learned the same nahw topics only from a lecturer, or with another tool. So we cannot separate ChatGPT from novelty, from extra study time, or from the simple fact of being in a research project. That is not a minor gap. It is why we do not claim a learning effect.

What was collected

Three kinds of data were gathered: short surveys before and after the five weeks (attitudes and self-rated confidence); semi-structured interviews; and screenshots of chats that students chose to submit.

Using more than one source was the right idea. The balance was not. Most of the published interpretation rests on what students said they felt. The screenshots are the only direct record of what the model actually wrote. They were not coded in a systematic way: no tally of error types, no count of prompt length over time, no split between “explain,” “give an example,” and “check my sentence.” Without that, interview themes float. A later study should code the chats first, then see whether the talk matches the behaviour.

A pre-test and post-test of syntax, scored against a key, was not used. Self-rated competence is not the same as a correct parse of inna and its sisters.

Analysis: The original write-up followed thematic analysis as set out by (Braun & Clarke, n.d.) : reading, coding, grouping codes, naming themes. The method fits interview talk. The report did not show enough of the work. There were no sample extracts with codes beside them, no account of how codes were collapsed, and no second coder on even part of the set. One reader can see patterns that another would not. We keep the themes that still match the screenshots and the interviews. We do not pretend the analytic trail was complete.

Member checking with students, if it happened, was not described. For a revision paper that matters. Claims about “emergent prompt engineering” should be ones students still recognise.

Time span

Five weeks is long enough to see first reactions and a change in how people type questions. It is not long enough to know whether a correct rule sticks, whether a wrong rule sticks, or whether students still open the tool after the study ends. We therefore treat the original findings as an account of early use, not of lasting learning.

Consent for screenshots of private study chats needs a plain script: what is stored, who reads it, when it is deleted. In a faculty–student hierarchy, “voluntary” is easy to write and hard to guarantee. The original article did not spell that protocol out. We flag it as an ethical weakness of the first design, not as a side note.

RESULTS AND DISCUSSION

This section reports what the original data could support. We do not add new fieldwork. Interpretation is reserved for the Discussion. Table 2 sets out the six themes that the interviews and the volunteered screenshots will bear. The subsections that follow unpack each row. We do not report scaled survey means: the attitude items were not a validated instrument, and ten cases are too few for that kind of table.

Table 2

Themes, what we saw, and a sample line from the data

Theme	What the data showed	Sample (translated)
Sharper prompts	Questions became longer and more technical over five weeks	“Give five Qur’anic examples where the ism of inna is a detached pronoun, and parse each word.”
Night-time explanation	Students valued a reply outside office hours	“At night I can ask the same point twice. In class I cannot.”
Fluent wrong i’rāb	Smooth answers mislabelled case after inna or kāna	Screenshot: model assigns nominative where the particle requires accusative.
Three languages at once	Dari/Pashto, Formal Arabic, English interface	“I read the English, then I try to put it into the Arabic I already know.”
Uneven access	Private phone ≠ shared phone ≠ café	“I wait for my brother’s phone. I cannot open it every evening.”
Teacher still needed	Students could not reliably judge a wrong parse	“It sounds like a book. I only know it is wrong when the lecturer says so.”

Note. Themes follow (Braun & Clarke, n.d.) . They describe this group of ten. They are not frequencies for Afghan universities.

What students did with the tool

Sharper prompts. Early questions were short (“explain inna”). Later ones were more specific: Qur’anic examples, a detached pronoun as the ism, a full i’rāb of each word. That shift

is real in the submitted chats. It shows students learning the machine's habits. It does not show that the answers were right.

Table 3 gives three illustrative pairs from the submitted chats. These are examples, not a complete coding of every screenshot.

Table 3

Same student, early prompt vs later prompt (illustrative pairs from submitted chats)

Student	Week 1 (short)	Later week (more specified)	What changed
S2	"Explain inna."	"Three sentences with inna. The ism is a detached pronoun. Full i'rāb."	Length and grammatical metalanguage
S6	"What is kāna?"	"Examples of kāna with a feminine subject and a jar wa majrūr as khabar."	Constraint on the example
S8	"Check this sentence."	"Is the noun after inna manšūb? If not, say why."	Request for a rule, not only a tick

Note. These are examples, not a full coding of every chat. Screenshots were volunteered; they are not a complete log of five weeks.

The later lines are better questions. They are not evidence that ChatGPT's replies were correct. After-hours explanation. Students valued a reply at night and a chance to ask the same point twice without a lecturer's impatience. In a large class with few office hours, that is not trivial. Patience is not accuracy.

Making do. When no instructor was free, students used ChatGPT to check homework or to generate extra sentences. That is agency under scarcity. It is also how a fluent wrong parse becomes practice material.

Where the tool failed in ways that matter for nahw

The serious problem is not a crashed page. It is a smooth analysis that mislabels case after inna or kāna. Novices have little basis to doubt a sentence that looks like a textbook. In syntax, one wrong ending can carry a whole clause. Those errors appear in the volunteered files.

Students were working in three codes at once: Dari or Pashto at home, Formal Arabic as the target, and English as the usual ChatGPT interface. A gloss of khabar that works in English may not map onto what the student already knows in Dari. The model does not see that gap.

Access was not shared

The same tool did not mean the same opportunity. Students who owned a phone and could buy data used ChatGPT at night. Students who shared a device, or who waited for a café machine, used it less. Figure 1 restates that split. It is a schematic from interview talk, not a chart of measured hours.

The lecturer remained necessary

Nothing in the five weeks shows that the model can replace the person who says "this parse is wrong, and here is why." Students could not reliably judge a wrong parse. The recurring account was that the output "sounds like a book" and that certainty arrived only when a lecturer said so.

This section reads the findings against the limits above. We do not add new fieldwork. The five weeks at Badakhshan University show a split, not a miracle. Students can learn to drive a chatbot. They can also practise a wrong parse because the sentence looks like a book. Power, data, and a private screen decide who even gets that chance. A cloud tutor does not cancel a shortage of lecturers. In nahw, fluent error makes the lecturer more necessary, not less ((Jeon & Lee, 2023), 2023; (Online ; Esmat & Esmati, 2024; Rudolph et al., 2023)

(Rudolph et al., 2023) describe fluent but empty output in general terms. In syntax, one wrong ending can carry a whole clause. We treat those errors as a teaching hazard, not as a software quirk to be patched later.

Calling ChatGPT a "virtual teacher" hides the access split. (Warschauer & Healey, 1998;

Warschauer, 2004) is still the right warning: a connection is not inclusion. In Badakhshan the costs of power, data, and a private screen sort people by money, place, and often gender. (Jeon & Lee, 2023) argue for a complementary role: the model for volume of practice, the teacher for judgement. That is the only reading we accept for nahw in this setting. A narrative in which the chatbot equalises a shortage of instructors is not supported by the data we have.

We therefore do not recommend ChatGPT as the default grammar tutor for this campus. We recommend a narrower instrument, if any instrument is built at all: something that runs when the internet is down, that a local instructor can correct, and that never speaks with more authority than the person in the room.

What the original study can and cannot carry

It can carry description. Students moved from short prompts to longer, more technical ones. They liked night-time replies. They used the model when office hours were full. Screenshots showed confident mistakes on inna, kāna, and case. Access followed money, place, and, in this small group, often gender.

It cannot carry proof of learning. There was no comparison class, no scored pre-test and post-test, and only five weeks. Self-rated confidence is not i' rāb. (Braun & Clarke, n.d.) method was named; the coding trail was thin. Those limits are why this paper is a revision, not a second celebration of the same data.

Activity theory is useful here as a simple picture, not as decoration (LEARNING BY EXPANDING, n.d.). The object is accurate syntax. The tool guesses in a confident voice. That tension is the design problem. (Abdul Rahman Nahza et al., 2024; Freire et al., 2018; S. Azimollah Esmati, n.d.) is useful for the same reason: a chatbot can become a new way of banking answers. Prompt skill without doubt is still banking. (Vygotsky et al., n.d.-a) does not rescue the model. Using ChatGPT as a “more knowledgeable other” was, in our notes, a response to scarcity. It was not evidence that the model knows the government of inna.

(Warschauer, 2004) still names the equity problem. A tool that needs a charged phone and prepaid data is not an equaliser in Badakhshan. Calling it one hides who is left in the café queue.

Proposal: Nahw Assistant

The proposal is modest on purpose. We are not describing a national platform. We are describing a phone application that a department could trial on a few grammar topics. On the device. A small open-source model, reduced in size so it can run on an ordinary smartphone, fine-tuned on a closed set: Qur'anic verses with classical i' rāb, passages from standard school grammars, and short Modern Standard Arabic sentences annotated for case and mood. Core drills should work with no live connection. Habash (2010) (Habash, 2010; Online ; Esmat & Esmati, 2024) is a reminder of why generic English-heavy models fail on this structure; the training set has to be Arabic grammar, not a scrape of the web.

Lessons, not a blank box. Each unit offers a ready task, for example: “Write three sentences with kāna. The subject is feminine. The predicate is a prepositional phrase. Parse every word.” Students still learn to specify a request. They are not left staring at an empty chat. Lecturers in the loop. A simple page lets instructors at Afghan universities mark an output as wrong, replace an example, or add a note in Dari or Pashto. Students can flag a reply as confusing. The human being remains the one who decides what counts as a correct rule (SaThierbach et al., 2015).

Sync when a signal appears. Updates can travel through WhatsApp or Telegram. The default is offline. That matches how students already move files on this campus. Feedback that names the rule. “Wrong” is not enough. The message should say, for instance, that the noun is manṣūb because it is the ism of inna. School-grammar terminology remains the reference for those labels; the app should not invent new ones.

None of this is a claim that such an app already exists at Badakhshan University. It is a specification for a later design study. Table 4 contrasts the public chatbot used in the five weeks

with the specification above. The right-hand column is a design, not a result.

Table 4

Public ChatGPT versus the proposed on-phone tool

	ChatGPT (as used in the five weeks)	Nahw Assistant (proposal only)
Connection	Open internet	Core drills on the phone; WhatsApp/Telegram sync later
I‘rāb	Fluent guesses	Tuned on checked grammar text (if built)
Examples	Global model	Marked by local lecturers
Teacher	Easy to skip	Names the error
Data	Leaves the campus	Stays on the device first
Shape	Empty chat box	Short sequenced tasks

Note. The right-hand column is a specification, not a tool already running at Badakhshan University.

Figure 2 shows the intended loop. Core drill stays on the phone. A lecturer marks error. A short WhatsApp or Telegram sync happens only when a signal appears.

Ethics that the first study left thin

Screenshots of private study chats are not a small request. Students should hear, in plain language, who will read the file, where it sits, and when it is deleted. In a faculty–student hierarchy, a signature is not the same as a free choice. Future work should store data on a local encrypted drive, not on a personal laptop, and should not keep chats after transcription.

We also do not treat the model’s examples as culturally empty. A sentence that is normal in a U.S. training corpus may be a poor classroom example here. Local review is not politeness. It is part of accuracy.

What should come next

A prototype on two or three topics—inna and its sisters, kāna and its sisters, basic i‘rāb of the noun phrase—then a trial in more than one Afghan department, not only Badakhshan. Design-based cycles: build, use, revise (the logic is ordinary classroom development, not a new theory).

A longer comparison is needed if anyone wants to talk about learning: hybrid app, ChatGPT with a lecturer’s weekly check, and ordinary class only, over a year, with a scored grammar test. Five weeks of volunteers cannot answer that.

Teachers need practice in judging output, not only in opening an account. (Kasneci et al., 2023) are right that literacy about the tool matters. In this setting that literacy is: do not trust a parse until a human who knows the rule has looked at it.

Funding that dies with a donor cycle will kill the app. Any serious plan has to sit inside a department that can keep a phone image and a small annotated corpus without a foreign server.

CONCLUSION

ChatGPT entered a nahw class in Badakhshan because the class was already short of time, power, and instructors. Students used it with ingenuity. The model answered with fluency. Fluency is not nahw.

The first study was right to write down what happened. It was wrong if it is read as evidence that a U.S. chatbot can stand in for Arabic syntax teaching in a low-resource university. The literature on English-language classrooms does not transfer cleanly (Kasneci et al., 2023); (Rudolph et al., 2023). Arabic case government is unforgiving (Habash, 2010). Infrastructure is unforgiving too (Warschauer & Healey, 1998).

If AI belongs here at all, it belongs as a small, checkable drill on a phone, corrected by Afghan lecturers, silent when it does not know, and never treated as the person who says whether a clause is right. Judgement stays in the room.

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