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GenAI, ChatGPT and Critical Thinking in Swedish as a School Subject in Upper Secondary School

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Abstract

Digital learning resources and generative artificial intelligence (GenAI) have, during recent years, been increasingly discussed in the Swedish school context. The aim of this study, therefore, is to investigate how GenAI and chatbots influence teachers working in upper secondary schools. In the study, which was conducted during 2023, teachers of Swedish (mother tongue) were interviewed. The material was analysed using thematic content analysis and teacher agency theories. The study shows that chatbots affect the teachers' work and agency considerably. Almost all teachers highlight the work they have to do to prevent cheating, but several teachers also highlight the opportunities of chatbots as study buddies. Moreover, the teachers stress the importance of oral assessments, critical thinking, and AI-literacy, which tend to affect subject conceptions.

Keywords: AI, ChatGPT, Teachers, Upper secondary school, Swedish as a school subject

Introduction

During the autumn of 2022, the generative AI tool ChatGPT was introduced on a broad front in Sweden, which had major consequences for schools. The emergence of generative AI (GenAI) and ChatGPT has been called a game changer, and it is clear that we are now facing a paradigm shift (Kasneci et al., 2023; Klingberg, 2023; Nygren, 2023).

Previous research has addressed both the opportunities and challenges regarding GenAI (Graeske, 2024; Graeske & Ekberg, 2024), including the risks that AI tools are often socially unsmart and that AI technologies may contribute to increased inequality in educational contexts, potentially resulting in a shift in values. Moreover, certain groups may be at risk of marginalisation (Selwyn, 2022). However, research has also shown that ChatGPT is useful for training and testing students' knowledge before exams, and that it is important for students to learn how to handle AI tools and chatbots (Grassini, 2023; Zhou et al., 2023). Furthermore, previous research has also shown that students usually have a relatively limited understanding of GenAI and ChatGPT, and that new, effective teaching strategies are needed to promote so-called AI literacy that

can contribute to the technology being used in a creative way, beneficial to society (Bewersdorff et al., 2023; Nerdel, 2023; Lim et al., 2023).

Moreover, researchers claim that ChatGPT can affect the professional role of teachers and that relational qualities become even more important for learning when chatbots are available (Chan & Tsi, 2023; Farazouli et al., 2023). In a Swedish context, Nygren (2023) and Klingberg (2023) have shown that ChatGPT has consequences for our view of knowledge and in light of digitisation, researchers have also pointed out the importance of renegotiating the subject of Swedish language (Green & Erixon, 2020), which makes it important to investigate and discuss teachers' views on GenAI and ChatGPT.

The purpose here is therefore to contribute new knowledge about how teachers teaching Swedish as a school subject relate to GenAI and language models such as ChatGPT: How do chatbots affect teachers' teaching in upper secondary schools and their concepts of Swedish as a school subject?

Method and theoretical approach

To answer how teachers of mother tongue relate to GenAI and language models such as ChatGPT in their teaching, Swedish subject teachers (*n*: 8) working at two different upper secondary schools in a medium-sized municipality in Sweden were interviewed about their views on GenAI and chatbots. The researcher had good experience of these two schools from earlier practise-based research projects. The interviews, which were semi-structured, were conducted in 2023 and the questions served as support for starting a conversation and reflection about GenAI. The interviews were transcribed and analysed using qualitative reflexive thematic content analysis (Braun & Clarke, 2022), where four themes were identified: *A technical didactic game changer*, *Oral tasks and strong framing, The crucial critical thinking,* and *AI literacy and communication between man and machine.*

The empirical material was interpreted using teacher agency theories with an ecological approach to emphasise contextual factors in conjunction with teachers' actions, responsibility, and professional judgment (Priestley et al., 2015). The ecological perspective means that actions are seen as reflexive and creative abilities, affected by conditions in the situations in which the action takes place. Teacher agency is thus created in collaboration with a variety of factors and situations, controlled by the capacity to act in a conscious direction. In this context, theories of teacher agency contribute to a greater understanding of teachers' actions, considerations, priorities, and choices and underline the importance of contextual factors such as culture and social and material structures. Agency in such a view is seen as something that teachers possess, and they can be seen as being more or less agentic as individuals (Priestley et al., 2015).

Teacher agency theories contribute to an increased understanding of the individual's opportunities and limitations, where the individual's agency is in many ways conditional. Regardless of how competent a teacher is, and how much they can and want

to develop, other factors may make it too difficult or too risky. It is about a mutual interaction between the individual and the context: "What teachers 'bring' to the situation and what the situation 'brings' to the teacher, that is, inhibits or promotes" (Priestley et al., 2015:8). An actor always acts with the help of or in struggle against surrounding conditions in an environment instead of only acting in an environment. Defining agency in this way creates the possibility of understanding why a person may achieve agency in one situation but not in another. Through the ecological view of agency, the concept can be understood as something that is changeable during a person's life, since past experiences can contribute to a person's actions in the present and future.

In order to understand agency, then, the interplay between individual capacity and contextual factors, as well as intentional action, must be taken into account (Priestley et al., 2015). Agency arises through interaction between the individual's capacity and the conditions provided by the environment. This means that previous life experiences or professional experiences affect the agency, as well as the conditions in the present; but intentions, desire, and ambitions for the future are also important. This means that structural factors in the form of beliefs, ideas, discourses, and language or social factors such as relationships, roles, power, hierarchies, and trust, or material factors such as resources and physical environment, also shape the agency (Priestley et al., 2015).

In the analyses, interactions between individual, material, and contextual factors are therefore taken into account in order to understand how the teachers relate to GenAI and ChatGPT and how these tools affect their profession. In what follows, the themes that have been crystallised are presented, ending with a short discussion.

A technical didactic game changer

The first theme, a technical didactic game changer, shows the change the teachers experience with the chatbots. Several teachers in the study express that there is a "teaching life before and after" ChatGPT (T2). The teachers also point out that the development has occurred very fast and that teachers have to relate to the new technology, whether they like it or not: "we cannot stop it, so we should not try to, either." (T6)

A risk that all teachers mention in the interviews is that chatbots facilitate and invite "cheating", which creates suspicion and uncertainty among teachers. One teacher also points out that chatbots tend to legitimise cheating: "/.../, yes, it's more widespread now and you're not even embarrassed about it." (T3)

The use of chatbots for writing assignments is something that the teachers have frequently discussed together, and initially the focus seems to be mainly on the risks and how "cheating" can be minimised. To avoid cheating, several of the teachers want to use closed writing surfaces and digitally locked examinations. Furthermore, the teachers want to avoid writing assignments done at home, and they also point out the importance of following up written tasks with oral ones, which creates a lot more work.

Another aspect is how the teachers choose to confront students who may have used chatbots without permission. The teachers point out that chatbots can damage the trust

between teacher and student and create a suspicion which affects interpersonal relationships in the classroom. The teacher is suspicious but can't "prove anything" (T2), which creates a great deal of uncertainty, affecting relations and the assessment culture.

However, students getting help from others is nothing new. Before ChatGPT was available, students could seek help from elsewhere − siblings, friends, and parents. The chatbots therefore do not change much, according to some teachers. Some students have always had access to help from home and you cannot always be sure who wrote the text. A teacher states: "The difference is that now it is not only about students who have access to someone at home who can help them." (T1) This statement problematises cheating and highlights democratic aspects at the same time. Who has access to what, which resources, and how are equal conditions created for students' learning? GenAI and GPT raise many new as well as old questions (cf. Selwyn, 2022).

Oral tasks and strong framing

The second theme points out that oral assignments tend to be more common and that the students must use certain sources in their presentations (T2). The oral tasks, which often appear to be examining, can apply to linguistics as well as literary history: "Mind maps seem to work out well where the students tell each other, without a script. More controlled tasks." (T1) Here a strong framing, in which the teacher chooses sources, is perceived as a successful approach: "Then I know they didn't ask a bot." (T6).

ChatGPT thus affects the practices in these schools. The teachers adapt their tasks and give them a stronger framework. Instead of offering larger writing assignments, several small writing tasks are given in locked writing platforms (T4). The teachers also highlight the importance of the lesson and that it is didactically well-planned: "/…/ the lesson becomes very sacred and must be well thought out." (T7) The teachers try to counteract "homework" (T3) and instead the schoolwork is primarily done at school (T6).

Several teachers, especially at one school, also highlight the importance of working analogically in lessons, using paper and pencil instead of computers, because students "learn better" then (T2).

However, screens have a tendency to distract, according to some teachers, and they instead want students to find ways into "new worlds"; classic literature, for example. Some of the teachers also mention the importance of reading books. One claims that books give a "better overview" and are easier to "navigate" (T4). The students then have "everything in their hand"; they can feel that they own the material (T4).

The crucial critical thinking

The third theme highlights the importance of critical thinking and evaluation of sources. All teachers agreed that students often use ChatGPT unreflectively, and many students "blindly trust" (T3) the statements given and rarely examine them critically. The school must therefore continue to work with critical thinking and evaluation of

sources. This is already an important part of Swedish as a school subject but must be given even more importance in the future: "You need to have a critical attitude and discuss the conclusions you get from the chatbots." (T7)

Accordingly, meta-reflection is significant when the chatbots' messages have to be analysed critically. The teachers also point out the ability to communicate with machines, but still the subject must focus on reading and writing, to communicate, and get to know oneself and others: "Knowledge of how to communicate in speech and writing and what signals you send as a human being." (T1) However, Swedish as a school subject in the future also needs to focus on the boundary between man and machine:

> Where is the line between man and machine? /---/ What does it mean to be human? What is real, what is unreal, and then of course this thing with AI /…/ I think it is important to be open and proactive; what will be crazy and what will be good? /…/ what responsibility do you have as a person, if you have this aid? (T1)

Overall, the teachers agree that both students and teachers need to learn more about AI and chatbots: "How do you work with AI? How do you use it in a good way?" (T4) Both teachers and students must understand how GenAI works and learn to write prompts and ask relevant questions.

All the teachers believe that the role of Swedish as a school subject in the future is also about developing a language and an identity, what it means to be a human being, and about relating to the machines and interacting with them in an appropriate way.

GenAI can be a help, but generic texts can sometimes get "absolutely crazy" (T3). The teachers point out the risk of bias and the importance of developing critical thinking by reading fiction, when fiction constitutes a "counterweight" (T4) that is needed in a digitised society. The students need to train their "inner projector" (T4).

AI literacy and communication between man and machine

Swedish as a school subject, according to the teachers, has to deal with what it means to be human in a world where AI and machines coexist. It is important to talk about GenAI and discuss how the tool can be used. So far, it is mainly students with poor writing skills who tend to seek help, according to the teachers. However, the teachers argue that it is important not to leave the students' writing to a machine. The students must find their own "writing identity" (T4). In some cases, ChatGPT can serve as inspiration, as a "starter engine" (T8) and "study buddy" (T5), but the students themselves must learn to communicate, create, and process text.

Furthermore, so-called AI literacy, where students learn to write relevant prompts and interact with the machines, emerges in the interviews. GenAI tends to hinder the development of students' linguistic competence and their personal voice and style if they just write unreflectively, but GenAI can also stimulate and inspire students' writing if the resource is used wisely − with good judgement. The teachers therefore try to

find new ways of working and they want to learn more about GenAI, especially when Swedish is a dynamic school subject that tends to be significantly affected by chatbots: "Subjects such as physics, mathematics, chemistry, those subjects don't change. Language does, language is more dynamic." (T8)

Discussion – renegotiated agency

The interviews show that GenAI and chatbots affect teachers' agency regarding assignment culture, where tendencies for oral and analogical work increase. The teachers also discuss the importance of interpersonal relationships, and that the teacher's presence becomes even more important when GenAI enters the classroom, something that is in line with previous international research (Farazouli et al., 2023; Chan & Tsi, 2023). The teachers also emphasise the significance of collegial learning as a way to enhance their teaching, particularly in contexts where AI literacy becomes increasingly important. Hence, structural factors, in the form of discourses about the subject, social factors such as relationships and trust, as well as material factors such as AI resources, shape teachers' agency (Priestley et al., 2015). It is also clear that the teachers' previous professional experiences influence the agency, as well as conditions in the present, and intentions, desires, and ambitions for the future (Priestley et al., 2015). The teachers maintain that relational and social aspects, where the teachers create trust between themselves and the students, are crucial for learning: several teachers express that they currently lack the tools to handle chatbots in a relevant way in teaching, which affects practice and leads to more oral tasks and examinations. Some of the teachers also express a critical view of digital resources, while others are more positive. The study also shows a professional discourse (cf. Priestley et al., 2015), where classic educational ideals and methods focused on embodied analogue knowledge and where the students are supposed to use paper and pencil to learn and memorise new knowledge.

It is also evident that several teachers initially attempted to exclude ChatGPT from the classroom, implementing tightly structured assignments and secure exam formats to prevent cheating. However, numerous researchers have challenged this approach, asserting that students must be taught how to effectively engage with AI resources and chatbots (Grassini, 2023; Zhou et al., 2023). The solution does not reside in a movement that opposes technology, nor does it justify an uncritical stance (Selwyn, 2022). However, the development of AI literacy among students is advantageous, both for their personal growth and for society at large (Bewersdorff et al., 2023; Lim et al., 2023).

Conclusion

This is a small qualitative study that reveals distinct trends, which are consistent with previous research. All the teachers assert that GenAI is a technical didactic game changer that will impact their work as well as their views on education and learning. Large language models such as ChatGPT tends to have significant implications for

teachers' practice and subject conceptions, and how teaching can and should be conducted (cf. Graeske & Ekberg, 2024). Examinations must be carefully considered, and it is increasingly vital to focus on source criticism and AI literacy, where the ability to craft relevant prompts becomes essential. Furthermore, the human interaction gains greater significance when large language models enter the classrooms. ChatGPT thus tends to become a wake-up call that provides new perspectives and brings old questions to the fore; what should, and can, Swedish as a school subject *be*?

When viewing Swedish as a subject, the teachers move between the discourses of it as a skills subject, a democracy subject, and a cultural subject, where GenAI can have an impact on the teachers' as well as the students' agency, but the question is: Who is acting on whom here? Man or the machine?

Several teachers agree that Swedish as a school subject is in motion, a state of flux, where they must find new teaching models that include openness to the fact that "the Other" can be made up of non-human actors. This acknowledgement implies a new reality, where the only constant seems to be movement, the impermanent, where "the Other" also has agency that challenges that of teachers.

Biographical notes

Caroline Graeske is a Professor and Head of Subject in Swedish and Education at Luleå University of Technology (LTU) in Luleå, Sweden. She also coordinates a national project on practice-based research. Her work particularly focuses on task culture in textbooks and teaching materials, as well as the use of digital learning resources in education and how these resources affect teachers' instruction in Swedish as a school subject. In addition, she supervises PhD projects and is actively involved in teacher training programs at LTU.
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