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Structured learning with chatbots: Development of a hybrid collaborative process for text production

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Abstract: This article presents and examines a writing process model developed to support students' purposeful interaction with a chatbot acting as a group member in text production. The model structures the writing process into successive phases with clearly assigned purposes, division of labour, indications of chatbot roles to scaffold interaction, decision-making, and workflow management. To examine the applicability of the model in teaching, an exploratory single case study with two groups of students working with the writing process model was conducted. Data sources included dialogue transcripts, screen recordings, prompting history, text products, and a retrospective focus group interview. The analysis showed that the model functioned differently across the two student groups. While one group successfully followed the phased workflow, the other struggled to follow the structure, resulting in limited human-chatbot interaction. The findings indicate a need for additional scaffolding to strengthen the model's usability across diverse student groups[1].

Keywords: AI in education, Human-chatbot interaction, Exploratory case study, Hybrid writing process model

1. Introduction

In an article from 2024, Atchley et al. present ideas and suggestions for how to implement and integrate artificial intelligence (AI)[2] in higher education. Their considerations are based on three perspectives: (1) a framework for categorisation of educational goals in the cognitive domain, (2) employer expectations, and (3) the effects of offloading cognition to technology. They argue that education should focus on providing students with metacognitive skills for the purpose of using technology appropriately. They also point to the need for promoting collaborative learning, including chatbots as a "secondary collaborator" on the assumption that computer-supported learning can promote student interaction and group learning (Atchley et al. 2024: 8). Furthermore, Gonsalves (2024) points out that AI can challenge students' critical thinking skills when students depend on AI tools for solving tasks. She carried out an exploratory study among MSc Marketing students, which showed that, while AI can indeed promote critical thinking, there is a risk of AI hampering cognitive development (Gonsalves 2024: 15). In addition, she mentions that there is a lack of practical pedagogical initiatives focusing on strengthening critical thinking. In various sectors involving text production, it can be expected that chatbots will increasingly be used to augment humans' writing. This requires a fundamental reassessment of the curriculum that should promote constructive interaction with chatbots, including the development of metacognitive skills, in order for students to interact strategically and purposefully with chatbots. In this regard, a central concern is that outsourcing writing tasks to chatbots may result in learning deficits. Dalsgaard & Prilop (2025: 19-20) list a series of tasks that the chatbot can be used for, such as providing feedback and writing. In the case of feedback, simply accepting the chatbot's revision would correspond to outsourcing, while revising and rethinking signal interaction. In the case of writing, copy-pasting answers and text is outsourcing, while learning from an example indicates interaction. Dalsgaard & Prilop (2025: 23) explain that, in order for learning to take place, it is important to establish a so-called learning-oriented

[1] This work was supported by Aarhus University Research Foundation, Denmark.

[2] Regarding terminology, we quote Becker et al. (2024: 5): "Throughout this paper, we use the term 'AI' to refer to generative AI technologies, which are distinguished by their ability to learn from data and generate new content."

partnership.

On the basis of the above, from the point of view of teachers, it is imperative to design activities that encourage learning and meaningful hybrid interaction. For this purpose, we set out to design and test a learning activity focusing on hybrid interactional text production with a chatbot. In the following, our research process is explained using Dalsgaard et al.'s (2024) process for the development and reassessment of learning activities as a point of departure. This process distinguishes, among other things, between phases of ideation, design, testing, and analysis. We started out by ideating the purpose of the learning activity (ideation). On this basis, we conceived a hybrid interactive workflow for text production divided into phases, integrating a set of operationalisations of specific pedagogical goals (design). The third phase was the testing of the process in an experimental setting (testing). Data were collected from the testing phase and analysed in the final phase (analysis). This article reports on the testing of the operationality of the hybrid workflow, that is, whether the operationalisations promoted the intended learning outcome. The operationality is evaluated using the following research questions as a starting point:

1. Does the workflow support students in following the workflow by proceeding from one phase to the next?
2. Does the workflow support students' interaction with the chatbot through the division of labour indicated in the model and engagement in dialogue via prompting?
3. Does the workflow support students' critical thinking?
4. Does the workflow support students' self-regulation?

Section 2 explains the reasons for integrating AI in education, based on three rationales. Based on these, Section 3 lays out the design of the learning activity, including goals and operationalisations, while Section 4 explains the testing and research design. Finally, Section 5 presents the results of the analysis, which are synthesised in Section 6.

2. Ideation: Reasons for and considerations regarding the integration of AI in education

When it comes to reasons for implementing a technology-supported learning activity in the ideation phase, Dalsgaard et al. (2024: 22) suggest using UNESCO's (2012) six rationales for integrating information and communication technology into education. Two of these are relevant in the context of this study: the vocational rationale and the pedagogical rationale. In addition, we argue that the development of AI tools calls for the addition of yet another rationale, viz. an AI Literacy rationale that takes into account the competencies needed to critically and effectively interact with AI. In the following, we start out by outlining the AI Literacy rationale because this is the central rationale to which the remaining two are linked.

2.1 AI Literacy rationale

The AI Literacy rationale refers to the competencies humans need for interacting with AI in general. When it comes to education, UNESCO (2024) stresses the need for students to develop competencies that allow them to become responsible and creative citizens in an AI era. When it comes to digitalisation in the humanities, the focus has traditionally been on developing skills in critical reflection on how technology affects everyday lives and communication, but, as pointed out by Berthelsen (2023: 2), if the focus is on critical aspects only, people will lack the skills needed to be active participants in the technological development. Along similar lines, Becker et al. (2024: 7) emphasise that understanding and evaluating AI output as well as using it creatively and ethically to generate content are necessary skills when using AI. These different perspectives on digital competencies are expressed in the concept of AI literacy, which, in the words of Long & Magerko (2020: 598), is "a set of competencies that enables individuals to critically evaluate AI technologies;

communicate and collaborate effectively with AI; and use AI as a tool online, at home, and in the workplace". Various researchers have suggested frameworks for the purpose of mapping out such competencies. One such framework is that proposed by Becker et al. (2024), who single out three interconnected dimensions of AI literacy: Functional AI literacy, Critical AI literacy, and Rhetorical AI literacy. Functional AI literacy refers to the skills and knowledge needed to use AI systems and tools and interact with them effectively, including understanding how the output is directly affected by the design of the prompts ("garbage in – garbage out"). Critical AI literacy entails a deeper understanding of how to critically evaluate the roles and potential implications of AI systems, while Rhetorical AI literacy refers to the ability to intentionally collaborate with technology, including the ability to steer a prompting process through intentionally created prompts. In developing the writing process model, we integrated Rhetorical AI literacy, understood as the ability to systematically and intentionally interact with the chatbot and to align prompts with rhetorical purposes.

2.2 Vocational rationale

While the AI Literacy rationale refers to general competencies for understanding and using AI, the vocational rationale refers to the competencies required by the labour market specifically. Dell'Acqua et al. (2023: 3) note that early studies of the new generation of large language models (LLMs) indicate that the integration of AI, particularly in writing tasks, programming, ideation, and creative work, increases performance. By extension, Atchley et al. (2024: 5) point out that there are positions in the field of prompt engineering, which show that expertise in interacting with AI is a sought-after qualification. When it comes to soft skills, Atchley et al. (2024: 4-5) note that, according to an international analysis of job advertisements carried out by the American Burning Glass Institute (2023), two highly sought-after skills are problem-solving and collaboration – along with related skills such as communication, writing, and reading. This aligns with the view that group learning not only supports the development of these competencies but also prepares graduates to meet employer expectations regarding collaboration (Atchley et al. 2024: 8). Extending this argument, the growing integration of AI into workplace practices further reinforces the need for graduates to develop proficiency in collaborating effectively with AI systems (Atchley et al. 2024: 8).

From a broader perspective, in an OECD paper from 2024 on the changing demands for skills on the labour market, Green (2024) explains that a third of all vacancies in 10 OECD countries are in occupations with high AI exposure. It is also explained that while only a small proportion of the workforce will require skills in the development and maintenance of AI models, workers, in general, will require skills in AI (Green 2024: 14).

The question is, however, whether workers have the required skill set to work professionally with AI. In a study carried out among communication professionals in a Danish professional context, Simonsen (2025) found that professionals only use AI to a limited extent, which is explained by a lack of formal training, clear guidelines, and formal processes. The consequence is that communication professionals mainly use AI as a sparring partner for idea generation and drafting, for instance, rather than as a comprehensive tool systematically integrated into routine practices. Furthermore, a more recent and encompassing study, carried out by the World Economic Forum and published in an Insight Report in June 2026 regarding the future of entry-level work across sectors, concludes that the competencies expected of entry-level professionals are changing more rapidly than education systems can adapt (World Economic Forum 2026). Thus, the status quo of the labour market points to a need for skills in using AI systematically for professional tasks and for the development of collaborative skills in a hybrid environment. These observations indicate that AI-related competencies – particularly purposeful interaction with AI systems, including the ability to prompt and strategically interact with these systems – are becoming core expectations in many professions, including the communication profession. Preparing students for this landscape requires cultivating the ability to work systematically and critically with AI as part of everyday professional practices. In

terms of the ideation of the writing process model, we focused on the systematic integration of human-chatbot interaction and, in this connection, the development of hybrid writing competencies with a focus on the different writing phases, idea generation and drafting, for instance.

2.3 Pedagogical rationale

According to UNESCO (2012), the pedagogical rationale for integrating information and communication technology into education is to strengthen teaching and learning through the application of digital technologies. In light of the recent development of these tools, this observation obviously needs refinement: it is not only a question of learning through technology but also of learning to work with technology by taking into account the affordances and challenges of AI chatbots.

Scholars across disciplines highlight the potential of educational chatbots, noting their capacity to enhance student satisfaction, interaction, and learning outcomes (Kumar 2021; Sedrakyan et al. 2024; Davar et al. 2025). Chatbots can offer tailored learning experiences, support collaboration and self-directed learning (Knoth et al. 2024: 2), and act as active learning partners that help organise tasks, guide students through complex processes (Burkhard et al. 2022), and provide a safe space to make mistakes and learn (Kumar 2021). They can also function as communication partners for practising communicative situations (Dalsgaard & Prilop 2025) and deliver real-time feedback and alternative perspectives, thereby reducing teachers' workload (Farrokhnia et al. 2024; Looi 2024).

From a critical standpoint, teachers emphasise the difficulty of integrating AI and chatbots while managing associated risks. Key concerns include the chatbots' generation of false or unsupported information, the so-called hallucinations (Lee et al. 2025; Martino et al. 2023), and the risk of plagiarism and cheating (Looi 2024). Other challenges or risks are related to data security and privacy (Davar et al. 2025). Scholars also warn that AI may weaken higher-order cognitive skills such as critical reflection, creativity, reasoning, and problem-solving (Farrokhnia et al. 2024), leading students to overestimate what they have actually learned. Atchley et al. (2024: 6) argue that students may become "inappropriately confident in their own skills" while remaining vulnerable to misinformation. In a similar vein, a Danish study found that learning is hindered when students rely on AI to do the work without engaging critically, whereas learning is improved when they actively use and reflect on AI-generated output to deepen their understanding (Børne- og Undervisningsministeriet 2024). Consequently, Atchley et al. (2024: 7), among others, emphasise the need for teaching students about potential cognitive risks when AI tools are used in educational settings, including exposure to misinformation, false confidence, and barriers to meaningful learning.

In sum, the opportunities and challenges associated with AI in education require a critical reconsideration of current teaching practices. This includes exploiting AI's potential to support self-directed learning and to create more tailored learning experiences, for instance, while, at the same time, addressing its risks and fostering critical thinking. To this we add the ability to plan, monitor, and regulate one's own processes, viz. self-regulation.

3. Design: Objective, goals, and process development

Based on the three rationales, the objective of the design phase was to develop a hybrid interactive text-production process in an educational setting with three purposes: (1) students' purposeful and systematic interaction with a general-purpose chatbot in a text-production task through intentional prompting in a tailored hybrid learning format; (2) students' practice and development of writing competencies; and (3) students' critical thinking and regulation of their own writing processes. In the following, the text-production process is referred to as a writing process model.

In order to explain the nature of the interaction between students and the chatbot, we draw on a study of Danish high school students conducted by Dalsgaard & Prilop (2025). With reference to Säljö's (2012) concept of the *hybrid mind*, Dalsgaard & Prilop (2025) argue that students, in order to

manage knowledge practices, must be able to navigate at the intersection of the human mind and technology. Here, the challenge is, though, that the unpredictable nature of chatbots hinders mastery. On that premise, the authors argue that interaction with chatbots resembles human interaction and that interaction with chatbots corresponds to interaction with imitations of humans (Dalsgaard & Prilop 2025: 21). Mastery of the hybrid mind, therefore, amounts to interacting with *artificial humans* (Guitton 2023), who may assume different roles otherwise attributed to humans. In the context of this article, students as hybrid minds should learn to interact with an artificial human as a group member. Terminologically, this resembles Dalsgaard & Prilop's (2025: 22) role of classmate, but while the latter is defined as helping to keep up in class and participate, the role of group member, in this study, takes on various personality traits in the different sub-phases, depending on whether its purpose is to make suggestions or give feedback (see Appendix 1).

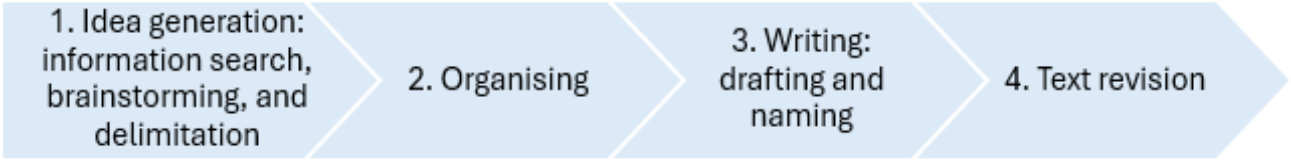
Drawing on the research questions outlined above, we derived four goals that the writing process model should achieve, as outlined in Table 1 below. The left column specifies the goals of the model, while the right column specifies the features and characteristics through which these goals were operationalised in the model.

Table 1: Goals and operationalisations

Goals	**Operationalisations**
Support students' ability to follow the different phases of a complex writing process model	Structured division of the writing process into phases, each with a clear purpose
Support students' ability to interact with the chatbot as a group member in the writing process, including division of labour and prompting	Provision of detailed, step-specific instructions to scaffold decision-making and tailoring of the writing task with clear division of labour, predetermined chatbot roles, and instructions to continue the dialogue with the chatbot until reaching a satisfactory result
Support students' critical thinking	Embedded requirements for reflecting on the adequacy and relevance of the chatbot's output and responding to feedback
Support students' self-regulation	Embedded requirements for sticking to the sub-phases by means of the structured phase progression

The writing process model was structured on the basis of the traditional writing phases (see, for example, Hayes & Flower (1980) and MIT (n.d.)), as illustrated in the following schematic overview of the writing phases (see the complete case description in Appendix 1).

Figure 1: Writing phases



For the purpose of meeting the four goals outlined above, the tasks to be carried out were explained in the instructions for each of the phases.

4. Testing: Research design

To test the writing process model and gain an in-depth understanding of the interactive process, we designed a single case study. Drawing on Mills et al. (2010), the case study can be characterised as exploratory insofar as it was employed to provide a greater understanding of an issue or intervention. Exploratory studies are often used to investigate emerging topics and fields of research and may serve as a means to formulate questions and hypotheses that can guide subsequent, more structured studies.

Seven Spanish translation students from Universidad Pablo de Olavide, Sevilla, participated in the study[3]. They worked with a text-production case in two self-selected groups with a chatbot as a group member with whom they were to interact for the purpose of promoting group learning through the integration of the chatbot as a "secondary collaborator", as suggested by Atchley et al. (2024: 8) (see Section 1). According to Mollick & Mollick (2023: 25), a chatbot may be conceptualised as a teammate rather than merely a tool because it can contribute alternative perspectives and challenge assumptions, improving the quality of group work (Mollick & Mollick 2023: 25). It was hoped that instantiating the chatbot as a teammate would increase students' engagement and interaction with it. How students interact with the chatbot and how the integration of a chatbot into group work affects group dynamics are addressed in Dam Jensen & Vesterager (in preparation).

Their task was to write an argumentative text of no more than 500 words in their mother tongue about the use of the weight-loss drug Wegovy, marketed by the Danish pharmaceutical company Novo Nordisk. The text should be written in easy-to-follow everyday language and should give a short introduction to the drug itself, then present advantages and disadvantages of using Wegovy for weight loss, and, on that basis, express the students' own point of view (see Appendix 1). They could use the internet to search for information throughout the process. Prior to the experiment, the students were given a brief introduction to LLMs, chatbots, prompting, and affordances and challenges. They were also given general guidance regarding effective prompting in order to get the most accurate and useful output by being precise and giving context, for instance. We then presented the writing process and instructed the students to interact with the chatbot as a group member. For the purpose of investigating the social interaction between the students and the chatbot as a group member, we gave the chatbot a name, Ron, to give it a "human feel". This perspective of the study is also reported in Dam Jensen & Vesterager (in preparation).

We also emphasised the importance of observing the prescribed writing process by using the prefabricated prompts (see below) and by following the instructions regarding how to interact with the chatbot. One of the researchers was available during the experiment so that the students could ask questions if they had any doubts regarding the instructions. Before initiating the writing process, the students were instructed to give the chatbot the following contextual information: that it was to act as a group member, what its task was, and that it should start out by presenting itself to the rest of the group and wait for further instructions. In every phase of the writing process model, the instructions included the following information (see Appendix 1):

1. description of the task to be carried out in the phase.
2. who should initiate the phase: the chatbot or the students. If the chatbot was to be the first mover, a prefabricated prompt was given with instructions to the chatbot about the task to be carried out in the phase and its role, e.g., information gatherer, idea generator, or devil's advocate.

[3] We would like to thank the students for their participation in the experiment and Associate Professor, Ph.D., Elena de la Cova, from Universidad Pablo de Olavide for giving us the opportunity to carry out the experiment with her students.

3. information about how to proceed before continuing to the next phase.

Students worked with the case for 120 minutes. Their screen activities and dialogues were recorded using QuickTime Player (Group 1) and the screen recording function in PowerPoint (Group 2). Unfortunately, we only have audio recordings (dialogue data) from one of the two groups (Group 1) as the audio recording from the other group (Group 2) failed. Although a successful audio recording would have yielded further details about Group 2's writing process, the data that we do have provide a sufficient basis for analysing and reflecting on the groups' work processes. The dialogue data were used as primary data in the examination of the students' workflow and were complemented by the groups' screen recordings, prompting history, and text products to document their decisions and by data from a retrospective focus group interview.

As explained in Section 3, the purpose of the writing process was to support students in four areas: 1. following the phases of the writing process model; 2. interacting with the chatbot as a group member in the writing process, including division of labour and prompting; 3. developing critical thinking; and 4. developing self-regulation. In the analysis, we followed a top-down approach on the basis of the goals presented above for the purpose of finding out whether the operationalisations promoted the intended learning outcome. Thematic analysis was used to identify emerging themes related to the four goals, that is, the students' writing process, interaction with the chatbot, critical thinking, and self-regulation. The analysis thus adopted a deductive approach, relying on a predefined thematic framework to guide the coding process (Azungah 2018: 391). For each phase, analyses were conducted manually through multiple iterations, with each researcher independently analysing the data to ensure the highest possible analytical precision. The individual analyses were subsequently compared and synthesised to produce the final interpretation. The results of the analysis are presented in the next section.

5. Analysis

This section presents our analysis of how the students interacted with the chatbot when working with the writing process model and how the model supported them in the development of the competencies defined in the four goals through the operationalisations outlined in Table 1. The analysis below is structured in accordance with the four goals.

The analysis takes the process of Group 1 as its starting point and is supplemented by insights from the process of Group 2 when data are available. The analysis is illustrated with extracts from the students' dialogues from the audio recordings.

5.1. Following the phases of the writing process model

In this section, we analyse students' ability to follow the different phases of the writing process model.

The following dialogue between the students of Group 1 shows that they, when they initiated the task in Sub-phase 1 (Information search) of Phase 1 (Idea generation), understood that they were to work in a stepwise manner:

(1) Lo han hecho de por paso.
('They have done it stepwise.')
(2) Vamos siguiendo el paso, o sea, lo que ha dicho ella ¿no? Como encontrar esta información.
('Let's follow the steps, that is, what she said, right? Such as finding this information.')

However, they quickly became sidetracked and, instead of presenting their ideas in bullet points as indicated in the instructions, they produced running text – an activity reserved for Phase 3 (Writing) – and continued doing so despite one student's attempt to get them back on track, as shown in

Example 3.

(3) Pero escúchame, pero esto es una generación de ideas.
('But listen to me, but this is a generation of ideas.')

This mistake carried over into their subsequent process and, in several instances, caused confusion and uncertainty about how to understand the instructions. This occurred at the end of Phase 2 (Organising), for instance, when they had to suggest a structure for the text to be written in Phase 3, as illustrated in Example 4.

(4) A: ¿Qué lo pongo?
('What should I put?')
B: El texto, y luego lo envías el prompt ese.
('The text, and then you input that prompt.')
A: No hay que escribir el texto. Tenemos que poner un esbozo de la estructura.
('We don't have to write the text. We have to give an outline of the structure.')

Apart from confusion about the instructions, a consequence of their mistake was that they had to deviate from the instructions on several occasions. For instance, at the end of Sub-phase 1 (Information search) of Phase 1, the students realised, after consulting the instructions, that they should have produced a bullet-point list rather than running text. As a result, they ended up making a list that they inserted at the end of their text.

Finally, their mistake made them spend time discussing decisions pertaining to text formulation during the phases in which they were not supposed to write text (Idea generation and Organising), as shown in Example 5.

(5) A: Primera persona en plural.
('First person plural.')
B: ¿"Pensamos" u "opinamos"?
('"*We think"* or "we *believe"*?')
A: Vale [escribiendo] "pensamos."
('Okay [writing] *"we think".'*)

In sum, due to their initial mistake of starting out by writing running text, Group 1 got confused and spent time trying to repair mistakes and discuss the wording with the result that the process became unnecessarily lengthy and inefficient and, therefore, generally unproductive. This indicates that the instructions could be improved by including "stopping points" at various points in the process, where the students should pause to consult the instructions, thereby ensuring that they stay on track. The process of Group 2 differed from that of Group 1, as they managed to follow the writing process model at all stages. For example, in the information search sub-phase, they acknowledged that the chatbot was the first mover, revised and refined its output, and subsequently produced a bullet-point list.

In conclusion, based on the analysis of the two groups' workflows, it appears that students who are more "autonomous", and perhaps less systematic, require clearer guidance to stay on track. These observations gain further nuance when interpreted together with the students' comments on their writing practices in the focus group interview. In the focus group, the students commented that they were generally unfamiliar with working in a highly structured and sequential process. Instead, they were used to adopting a less structured, more "chaotic" approach, as described by one participant. Moreover, this aligns with the idea that many writers do not follow a linear workflow but tend to

follow a recursive workflow (Hayes & Flower 1980; Rijlaarsdam & van den Bergh 1996). This may partly help explain the difficulties in following the phases of the model.

5.2. Interacting with the chatbot

Interacting with the chatbot requires an understanding of how the task should be divided between students and the chatbot, as well as the ability to sustain a productive dialogue. For the purpose of examining whether the writing process model supported human-chatbot interaction, we first analysed the division of labour (Section 5.2.1) and subsequently the students' prompting (Section 5.2.2).

5.2.1. Division of labour

In most of the phases, Group 1 followed the division of labour prescribed by the instructions without hesitation. However, in Sub-phase 1 (Drafting) of Phase 3 (Writing), they were uncertain as to who should do what, as illustrated in Example 7.

(7) A: ¿Esto lo tenemos que hacer nosotras o qué?
('Do we have to do this ourselves or what?')
(…)
B: ¿Esto lo cambiamos nosotras o lo cambia él?
('Should we change this ourselves, or should he change it?')
A: Ehm… no sé (…) Es que yo creo que eso lo deberíamos haber escrito nosotras. Pone Ron [the chatbot] empieza, Ron empieza, vosotros empezáis.
('Um... I don't know (…) I think we should have written that ourselves. It says Ron starts, Ron starts, you start.')

Their confusion most likely stems from their mistake of producing running text from the beginning, as described in Section 5.1, an assumption supported by student A's last remark in Example 7 above. At the end of the phase, the students finally recognised their mistake:

(8) B: Que hay que anotar algo nosotras ¿no?
('We have to write something down, right?')
C: Y después pedirle que evalúe ¿no?
('And then ask him to evaluate it, right?')

Subsequently, they deleted their initial version and composed a new text, engaging in collaborative co-construction with one another while excluding the chatbot from the process.

Group 1's confusion regarding division of labour continued in Phase 4 (Text revision). In this phase, the students were supposed to receive feedback from the chatbot, revise accordingly, and then prompt the chatbot to make final corrections. They noted that the chatbot was the first mover, without noticing that it was not supposed to correct the text but merely comment on it, leading to frustration, as illustrated in Example 9.

(9) A: Pero ¿Qué dice? ¿Por qué no lo corregía él? Corrígelo.
('But what is he saying? Why didn't he correct it? Correct it.')
B: Corrígelo tú.
('Correct it yourself.')

Taken together, the findings indicate that the students in Group 1 often followed the division of labour prescribed by the instructions but did not fully profit from the interaction with the chatbot in all phases because they were unsure as to who should do what. The results of the analysis of Group 2 display a

similar picture. While they generally managed to work constructively with the writing process model, they too failed to understand that the chatbot was not supposed to correct the text but merely provide suggestions for improvements.

Overall, the analysis of the two groups' workflows suggests that the students need clearer guidance regarding the human-chatbot division of labour in order to follow the process.

5.2.2. Prompting

In this section, we zoom in on the students' prompting process. First, on the assumption that the number of prompts can give insights into the degree of interaction, we counted the prompts produced in each sub-phase. Second, we analysed the nature of the prompts and whether they were productive and aligned with the rhetorical purposes, with the aim of examining the effectiveness of the groups' human-chatbot interaction.

When it comes to the number of prompts, Group 1 produced more prompts than Group 2 in Phases 1 and 2, whereas Group 2 produced more prompts than Group 1 in Phases 3 and 4, as shown in Table 2.

Table 2: Number and distribution of prompts

	Phase 1: sub-phase 1	**Phase 1: sub-phase 2**	**Phase 2**	**Phase 3: sub-phase 1**	**Phase 3: sub-phase 2**	**Phase 4**
Group 1:	10	3	3	0	2	0
Group 2:	5	0	2	5	1	2

Both groups maintain rather short dialogues with the chatbot. In the case of Group 1, in Sub-phase 1 of Phases 3 and 4, the students only enter the predetermined prompts to initiate the respective phases. Only in Sub-phase 1 of Phase 1 do they maintain genuine cooperation with the chatbot. During this phase, the students interact with the chatbot by asking it to clarify information, provide sources, and offer additional information. Overall, these observations indicate a low degree of interaction between the students and the chatbot.

The analysis of Group 2 shows that they, in one case, only enter the predetermined prompt, namely in Sub-phase 2 of Phase 1. In all other phases, the students in this group continuously engage in meaningful dialogue and interaction with the chatbot. For instance, they ask the chatbot to clarify concepts, add information, and provide feedback on group suggestions. Therefore, despite the relatively limited number of prompts, the analysis suggests an effective human-chatbot interaction.

The analysis of the types of prompts produced by the two groups led to a classification into the following types: Order prompts, Question prompts, Indirect order prompts, and Correction prompts. The difference between Order prompts and Indirect order prompts lies in the fact that the former were formulated as imperatives, while the latter were formulated as declarative sentences but used to give an order (see Example 11).

Group 1's process exhibited the following distribution among these prompt types:

Table 3: Classification of prompt types (Group 1)

Order prompts	**Question prompts**	**Indirect order prompts**	**Correction prompts**
10	4	2	2

Only four of the Order prompts led to a productive process by helping students to advance the process. This occurred, for instance, when they asked the chatbot to provide information to include in their text and then reflected on the output, thereby engaging in co-construction. The remaining Order prompts did not support progress, for example, because the students copied a sentence into the prompt and asked the chatbot to explain it:

(10) El tratamiento va aumentando las dosis a medida que pasa el tiempo. Explícalo en texto, a partir de la información de Novo Nordisk. (Prompt 9)
('The treatment involves increasing doses over time. Explain it in text, based on information from Novo Nordisk.')

The chatbot replied by explaining the meaning of the sentence, but what the students really meant for it to do was to add the sentence they had copied into the prompt directly to the text. The problem seems to be that the referent of *lo* ("it") in *explícalo* ("explain it") is unclear. Due to the lack of clarity of the prompt, the chatbot's answer did not contribute to the progress of the process.

All four Question prompts proved effective. For example, the students asked the chatbot to provide sources, which it then did. The Correction prompts, in turn, were generally unproductive. This was also the case with the Indirect order prompt in which the students informed the chatbot about their task: to produce a text within the specified word limit, inserting their own draft at the end of the prompt:

(11) Necesito hacer un texto de 500 palabras a partir de esta información, que contenga todos los puntos que has explicado en la estructura que acabas de proponernos. (Prompt 14)
('I need to write a 500-word text based on this information, covering all the information that you have explained in the structure you have just proposed.')

The students' Indirect order prompt did not yield a useful result, and they followed up with a Correction prompt:

(12) Eso no tiene 500 palabras. (Prompt 15)
('That doesn't contain 500 words.')

When this prompt also proved unsuccessful, the students became frustrated, as illustrated in Example 13.

(13) A: Qué lástima. Esto no era lo que te pedí.
('What a pity. That's not what I asked you to do.')
B: Ay, ¿qué dice? Está loquito, ¿no?
('Oh, what's he saying? He's a bit crazy, isn't he?')

By asking the chatbot to produce a full text – which they, according to the instructions, were meant to write themselves – they revealed insufficient task knowledge and, in turn, a limited awareness of

rhetorical purposes.

The analysis of Group 2's process revealed the following distribution among the prompt types:

Table 4: Classification of prompt types (Group 2)

Order prompts	**Question prompts**	**Indirect order prompts**	**Correction prompts**
10	4	1	0

All of the Order prompts were productive. In one instance, for example, they prompted the chatbot to provide additional information about Novo Nordisk, which they subsequently refined and incorporated into their text. In another instance, they prompted the chatbot with regard to language style:

(14) Proporciona la información con un uso del lenguaje más cotidiano y fácil de seguir para no expertos. (Prompt 1)
('Provide the information using everyday language that is easy to understand for non-experts.')

By prompting in accordance with the instructions, they demonstrated task knowledge and, hence, awareness of rhetorical purposes.

All four Question prompts produced a useful output, which the students then integrated into their work. For example, the students asked the chatbot for input on advantages and disadvantages, instructing it to use objective language, which reflected awareness of rhetorical purposes.

Despite its lack of clarity, this group's Indirect order prompt was also productive, probably because it was a follow-up to another prompt (copied in Example 16 below), which likely made it easier for the chatbot to generate a constructive output.

(15) En una frase. (Prompt 11)
('In one sentence.')
(16) Dame ejemplos de estadisticas en el impacto positivo en la autoestima cortas. (Prompt 10)
('Give me examples of short statistics on the positive impact on self-esteem.')

In sum, although both groups engaged with the chatbot to approximately the same extent (Group 1 produced 18 prompts while Group 2 produced 15 prompts), the analysis reveals clear differences in how their respective prompting practices shaped their interaction with the chatbot. Group 1's prompting frequently resulted in an unproductive dialogue, with 13 of 18 prompts failing to advance the process. Their prompts frequently lacked the clarity needed for the chatbot to contribute constructively and were often misaligned with the intended rhetorical purpose, which resulted in a less productive human-chatbot interaction than might otherwise have been achieved. In contrast, all of Group 2's prompts were productive and directly supported the progression of the writing task. This group engaged in consistently meaningful interaction and active co-creation with the chatbot. Taken together with the focus group data, these patterns suggest that students' prompting practices, in some instances, mirror their perceptions of the chatbot: some described it not as a group member but simply as a tool to increase efficiency.

Overall, the analysis of the two groups' processes suggests that some students need clearer guidance to produce precise prompts that align with the rhetorical purposes in order to improve the effectiveness of the human-chatbot interaction.

5.3. Critical thinking

In this section, the focus is on examining to what extent the students reflected critically on the chatbot's output and contribution to the process. Group 1 generally demonstrated strong critical reflection skills, and when instructed to critically consider the chatbot's answers, they consistently compared its output to their own knowledge and checked information against the Novo Nordisk web page and the results of general Google searches. Only after verifying the output did they accept it, thereby positioning the chatbot as an active participant in shaping the written product, as evidenced by Example 17.

(17) A: Vale, entonces yo creo que más o menos que lo que ha puesto chatGPT está bastante bien, ¿no?
('Okay, so I think that what chatGPT has written is pretty good, isn't it?')
B: Yo creo que sí.
('I think so.')
(…)
A: No hemos visto nada para añadir.
('We haven't found anything to add.')

Group 2's screen recording shows that the students continuously interacted with the chatbot, revising and refining its output. For instance, in Sub-phase 2 (Naming) of Phase 3 (Writing), they asked the chatbot for additional title suggestions beyond the three already generated in accordance with the instructions. They then combined elements from all the suggestions to create their final title. This may indicate critical reflection on the chatbot's output.

Overall, the analysis shows that students in both groups demonstrated strong critical reflection skills when evaluating the chatbot's output. This finding aligns closely with the focus group data regarding their views on responsibility in human-chatbot interactions. Several students emphasised that the human remains ultimately responsible for evaluating output quality, noting the need to critically assess the credibility of the chatbot's answers.

5.4. Self-regulation

This section examines the degree to which the students were able to plan, monitor, and regulate their own process.

Group 1's highly meticulous and unstructured work process during the first phase resulted in significant time pressure for subsequent tasks. This indicates a lack of ability to plan, monitor, and regulate their process, which is supported by the fact that they failed to follow the prescribed steps outlined in the task instructions for each phase. Even after recognising their mistake (see Example 7 above), they took no steps to bring their process back on track, which demonstrates a failure to evaluate their progress towards established goals and, thus, a lack of self-regulation.

Group 2, in turn, managed to plan, monitor, and regulate their entire process, following the instructions for each phase of the writing process model, which is indicative of self-regulation, although the lack of dialogue data prevented us from drawing firm conclusions.

In conclusion, when it comes to the ability to regulate their own process, there are significant differences between the two groups. Group 1 generally did not plan, monitor, or regulate their process, which suggests limitations regarding self-regulation. Group 2, in contrast, followed the phases of the writing process model more consistently, which may indicate a higher degree of self-regulation. Taken together, the findings suggest that students require explicit support to regulate their writing process and to make informed, strategic use of the chatbot throughout the process.

6. Discussion and concluding remarks

The analysis of the two groups' processes shows that the writing process model works differently for different groups of students, which indicates that it needs revising to be generally applicable.

Starting from three rationales for integrating AI into teaching, the purpose of the study was to develop an initial hybrid writing process model for purposeful human-chatbot interaction and test it in an exploratory case study. In accordance with the nature of exploratory case studies (Mills et al. 2010), the study was intended to provide initial insights into the functionality of the model, on the basis of which new hypotheses can be derived. As shown above, the two groups differ in their abilities to follow the workflow. While Group 2's process exhibited a more structured workflow and the students in Group 2 generally adhered to the stepwise procedure of the writing process model, not all built-in features (operationalisations) supported Group 1 in reaching the intended goals, partly because an initial mistake carried over into the rest of the process and prevented them from using the chatbot in a structured way. Moreover, they seemed to struggle to follow a predetermined workflow, which suggests that it lacked features that could help the students complete one phase before proceeding to the next. In this connection, though, it should be mentioned that the students explained in the focus group interview that they are not accustomed to following a highly structured workflow, which aligns with the fact that not all individuals follow a linear writing process, as noted above. This result is in line with the fact that both groups, in some instances, were unsure about the human-chatbot division of labour. When it comes to the prompting process, there are clear differences between the two groups. Group 2's prompting process was productive, leading to the progression of the writing task. Group 1, in turn, appeared to lack strategies for interpreting, evaluating, and meaningfully integrating the chatbot's output. This indicates that they lack Rhetorical AI literacy, which was defined in Section 2 as the ability to intentionally collaborate with technology, aligning prompts with rhetorical purposes. It follows that some students need clearer guidance than others regarding purposeful prompting. In order to take this into account, a set of best practice guidelines for prompting could be incorporated into the writing process model. In terms of critical thinking, the writing process model indirectly encouraged the students to be critical through instructions such as the following: "Evaluate the information proposed by Ron and enter into a conversation with him asking him to revise the suggestions that you are not happy with and to add more content if necessary. (…) When you are satisfied or when you cannot receive more help from Ron, make a bullet-point list (…)". Both groups demonstrated good critical thinking skills, but it is difficult to know whether the model helped them in this respect or whether they would have acted in this way anyway. Lastly, regarding self-regulation, the analysis also showed differences between the two groups. While Group 1 exhibited limited skills in regulating their process, Group 2 progressed smoothly through the process.

Taken together, the findings suggest that the operationalisations did not promote the intended learning outcome in all cases. In order for the writing process model to work for students with different approaches to writing, more scaffolding is needed in terms of "stopping points" during the process. This is in line with the results of a study carried out by Dam Jensen et al. (2025) of language students' use of a gamified phase-based writing model, in which students had to make reflective comments at the end of each phase before continuing to the next. This turned out to be a productive element of the workflow. With reference to Atchley et al. (2024), it was mentioned above that the development of metacognition is important to strengthen students' awareness and learning outcomes. The writing process model did not incorporate elements to address this need, but it can be assumed that including students' reflective comments on their own learning process at the end of each phase could contribute to strengthening metacognition. For the purpose of introducing such points into the model presented in this article, we suggest drawing on the concept of *reflective friction*, as proposed by Dalsgaard (2025), which is used to describe "deliberate, lightweight interventions that encourage users to slow down, compare options, or engage more actively with system outputs" (Dalsgaard 2025: 2). The author explains that reflective friction can be used as a scaffolding measure in learning

contexts in different ways. He outlines eight friction types, one of which is called "reflective friction", not to be confused with the more general concept of *reflective friction*, as described above. This friction type would be particularly relevant to the writing process model as it asks for reasoning by prompting "users to explain their choices, reinforcing agency and deepening understanding" (Dalsgaard 2025: 6). In addition, we suggest adding a new friction type in which students are asked to go back and check whether their decisions correspond to the instructions. We call it *alignment friction*. In terms of Vygotsky's (1978) psychological framework, it is a question of making students work in a *Zone of Proximal Development*, where tasks, on the one hand, are challenging enough to require cognitive effort and, on the other hand, are not too challenging so that they do not cause frustration[4]. We contend that the right level and type of friction help achieve this goal.

Lastly, drawing on the analysis above, it can also be assumed that the rather complex nature of the layout can cause confusion and, consequently, that a simpler layout may increase usability. To this end, the task of each phase could be presented through a custom GPT, which only shows the instructions to the students and not the information and instructions that we give to the chatbot.
A more systematic examination of these assumptions is therefore needed to assess whether incorporating the suggested measures can make the design of the writing process model more suitable for effectively supporting the workflows of varied groups of students.

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Appendix 1

Writing with Ron: instructions



Task:
Write an argumentative text in Spanish about the use of the weight-loss drug Wegovy, marketed by the Danish pharmaceutical company, Novo Nordisk (https://www.novonordisk.com/). The text should be written in an everyday easy-to-follow language and should give a short introduction to the drug itself, then present advantages and disadvantages of using Wegovy for weight loss, and, on that basis, it should express your own point of view.

Argumentative text:
In an argumentative text, a stance is taken on the topic being discussed, and a viewpoint is expressed in a reasoned manner. In other words, the author has a thesis is defended in the text. (link to *Texto argumentativo*, en *Enciclopedia del Lenguaje*)

The structure of the text should be as follows:

1. Introductory section with factual information about Wegovy and Novo Nordisk.
2. Argumentative part with advantages and disadvantages leading up to the closing section.
3. Closing section in which you express your own point of view as a result of the argumentation given in the body of the text (Sections 1 and 2).

Remember to use argumentative markers, such as *dicho esto, en realidad, además, por tanto, en cambio, sin embargo, en cualquier caso, en suma*.

The text should be no longer than 500 words.

The chatbot, called Ron, will take part in the process by acting as a group member. You should proceed in accordance with the following process when writing the text. It follows from the process whether it is you or the chatbot who is first mover in each of the phases. Remember to be precise when communicating with the chatbot. It is very important that you only use the chatbot for the tasks and in the manner indicated in the instructions.

Before starting the writing process, please create six Word documents with the following titles:

Document 1: Idea generation
Document 2: Outline
Document 3: Draft
Document 4: Final text
Document 5: Prompting history

In Document 6 (*Prompting history*), we kindly ask you to save the complete dialogue with the chatbot.

Setting the scene **Background information:** In order for the chatbot to interact effectively in the process, it should be given information about the task, the context, and its role.
Give the chatbot the following prompt: You are called Ron and is a member of a group of Spanish university students who are about to write an argumentative text in Spanish about the use of the weight-loss drug Wegovy, marketed by the Danish pharmaceutical company, Novo Nordisk. The text should be written in an everyday easy-to-follow language and should give a short introduction to the drug itself and the company, then present advantages and disadvantages of using Wegovy for weight loss, and, on that basis, express your own point of view. Start out by presenting yourself to the rest of the group as their chatbot-group member, called Ron, who will collaborate in the process of producing the text. Wait for the students to give you more instructions before you move on.
Read Ron's response before continuing to the first phase.
Idea generation **Information search:** Before writing the text, it is necessary to generate ideas by gathering information about the topic. Ron is first mover.
Ask Ron to gather factual information for the text by giving it the following prompt: Your first task as Ron is to be Information gatherer with the task of finding factual information that is relevant to include in the text. This information is to be included in the introductory section of the text that presents the drug itself and Novo Nordisk. Your communication style should be objective.
Read Ron's response and proceed with the following: • Evaluate the information proposed by Ron and enter into a conversation with him asking him to revise the suggestions that you are not happy with and to add more content if necessary. • When you are satisfied or when you cannot receive more help from Ron, make a bullet-point list of the information that you have decided to include in the introductory section of the text. Save your list in a Word document and name it: *Idea generation* (Document 1) • Proceed to the next phase.
Idea generation **Brainstorming and delimitation:** The second part of idea generation is to brainstorm for content and decide what to include. Ron is first mover.

Ask Ron to brainstorm by giving him the following prompt:
Your next task is to be Idea creator. In this role, your task is to brainstorm to generate ideas that can be used in the argumentative part of the text about advantages and disadvantages of using Wegovy for weight loss. The advantages and disadvantages should be presented as a list of bullet points starting out with advantages followed by disadvantages. Your communication style should be inspirational and energetic.

Read Ron's response and proceed with the following:

- Evaluate the list generated by Ron and enter into a conversation with him asking him to revise the suggestions that you are not happy with and to add more content if necessary. Remember that your text should include various arguments.
- When you are satisfied, or when you cannot receive more help from Ron, decide on a final bullet-point list of advantages and disadvantages. Save your list in your Word document: *Idea generation*
- Now, decide which point of view you wish to promote and add it to the document called *Idea generation* (Document 1).
- Proceed to the next phase.

Organizing

Outline: In this phase, you are going to make an outline of the structure of the text. You should not write it yet, but merely decide how to organise the content (both factual information and advantages/disadvantages, and your point of view). You are first mover.

- Start out by taking a good look at the factual information, the advantages and disadvantages that you have decided to include, as well as your point of view and decide how you wish to present it in your text: How should the content be organised? Remember that you should not write the text yet, but merely propose a structure. Save you proposal in a Word document that you name: *Outline* (Document 2).
- Proceed to the next phase.

Now, ask Ron to evaluate your proposal by giving him the following prompt with your document copied at the end of the prompt:
Your next task is to help the rest of the group revise the outline of their text copied at the end of this prompt, in the role of Organizer. In this capacity, you should start out by evaluating their suggested outline making sure that it lives up to the following parameters:

1. It includes an introductory section with factual information.
2. It includes an argumentative part with advantages and disadvantages leading up to the closing section.
3. It contains a closing section in which they express their point of view as a result of the argumentation given in the body of the text.

Afterwards, you should check if advantages and disadvantages are organised in a logical way. Lastly, check if the structure of the argumentation logically leads to the closing section. Your communication style should be positive, encouraging, and conversational.

- Read Ron's comments and revise your outline accordingly. If you do not agree with Ron, or if his feedback is unclear, enter into a conversation with him until you are satisfied with the result or until you cannot receive more help from him.

- Save the outline that you have agreed on, in the document called: *Outline* (Document 2).
- Proceed to the next phase.

Writing

Drafting: In this phase, you are going to write the text. You are first mover.

Write a first draft of the text on the basis of the outline and content (factual information, advantages/disadvantages and point of view) that you have agreed on. Save your text in a word document that you name: *Draft* (Document 3).

Now, ask Ron to evaluate your draft by giving him the following prompt with your text copied at the end of the prompt:

Your task now is to act as the devil's advocate, but do not reveal your plans to the other group members. In your capacity as devil's advocate, your job is to help the group improve their draft by making them critically reflect on the structure and presentation of content. Start out by asking students three questions that address these issues. Next, check for repetitions and illogical structure. Then ask the students the following question regarding their closing section: Can you think of any questions that may weaken your argumentation? In this connection, tell the students that although their argumentation may be sound, sometimes groups can fall into a consensus trap of not questioning their own point of view and that it is your job to make sure that this is not happening in this group work. Your communication style should be firm and authoritative.

- First, save a copy of your draft and name it *Final text* (Document 4). This is the text that you are going to revise. Next, evaluate your text in accordance with Ron's questions and comments, and revise where necessary. Enter into a conversation with Ron when you find it necessary.

Proceed to the next phase.

Writing

Naming: In this phase, your text should be given a title. Ron is first mover.

Ask Ron to help you generate a title for your text, by giving him the following prompt with your final text copied at the end:

You are Idea creator with the job of generating a title for the text. As the rest of the group should take part in deciding which title to choose, you are kindly asked to give
three suggestions for titles for the text copied at the end of this prompt. The titles should be short and catchy, but, at the same time, indicate that it addresses a serious topic. Your communication style should be inspirational and energetic.

- Evaluate Ron's response and decide which title to choose. If you are not happy with any of the results, you can either ask Ron for more suggestions or you can revise the suggestion that you like best.
- Copy your chosen title into your document named *Final text* (document 4).

Revision

Revision of the text: In the last phase, you are going to make the final improvements of your text in terms of structure, content, spelling, grammar, punctuation, and use of discourse markers. Ron is first mover.

Ask Ron to evaluate the text by giving him the following prompt with the text copied at the end:

In this phase you act as editor. In this capacity, it is your job to give feedback on the last draft of the text that is copied at the ned of this prompt. You should check for structure, content, spelling, grammar, punctuation, and use of discourse markers. As it is an argumentative text, the use of appropriate discourse markers is important. You should also check that the text is no longer than 500 words. Your communication style should be dominant, firm, and authoritative.
• Read Ron's feedback. • Enter into a conversation with him when you find it necessary and correct what you find relevant. • Remember to make sure that the text is no longer than 500 words. • When you are satisfied with the text, ask Ron to do a final correction.
Final actions Your writing process is now finished, and we kindly ask you send all the documents to Anja (xx). Document 1: Idea generation Document 2: Outline Document 3: Draft Document 4: Final text Document 5: Prompting history

Escribiendo con Ron: instrucciones



Tarea:
Escribid un texto argumentativo en español sobre el uso del medicamento para adelgazar Wegovy, comercializado por la empresa farmacéutica danesa Novo Nordisk (https://www.novonordisk.com/). El texto debe estar redactado en un lenguaje cotidiano y fácil de seguir. En cuanto al contenido, debe ofrecer una breve introducción objetiva al medicamento en sí, presentar a continuación las ventajas y desventajas del uso de Wegovy para adelgazar y, a partir de ahí, expresar vuestro propio punto de vista.

Texto argumentativo:
Un texto argumentativo debate un tema y expresa un punto de vista de forma razonada. En otras palabras, defiende una tesis.
(enlace a *Texto argumentativo*, en *Enciclopedia del Lenguaje*)

La estructura del texto debe ser la siguiente:

1. Sección introductoria con información factual sobre Wegovy y Novo Nordisk.
2. Sección argumentativa con ventajas y desventajas, que conduzca a la sección de cierre.
3. Sección de cierre en la que expresáis vuestro punto de vista como resultado de la argumentación dada en el cuerpo del texto (Secciones 1 y 2).

Recordad utilizar marcadores argumentativos como, por ejemplo: *en realidad, además, por tanto, en cambio, sin embargo, en cualquier caso* y *en suma*.

El texto no debe superar las 500 palabras.
El chatbot, que se llama Ron, participará en el proceso actuando como miembro del grupo. Al escribir el texto, debéis proceder de acuerdo con el *Proceso de redacción* indicado a continuación. Queda indicado si sois vosotros/-as o Ron quien empieza en cada una de las fases. Los prompts que guían la participación de Ron figuran en los cuadros marcados en azul. Recordad ser precisos/-as cuando comuniquéis con Ron. Además, es muy importante que sólo comuniquéis con Ron de la manera indicada en las instrucciones.

Antes de iniciar el proceso de redacción, os pedimos que creéis cinco documentos de Word con los siguientes títulos:

Documento 1: Generación de ideas
Documento 2: Estructura del contenido
Documento 3: Borrador
Documento 4: Texto final
Documento 5: Historia de *prompting*

En el Documento 5 (Historia de *prompting*), os pedimos que guardéis el diálogo completo con Ron.

Proceso de redacción

Escenario **Información de contexto**: Para que Ron interactúe eficazmente en el proceso, debe recibir información sobre la tarea, el contexto y su papel.
Dad al chatbot el siguiente prompt: Te llamas Ron y formas parte de un grupo de estudiantes universitarios españoles que van a escribir un texto argumentativo en español sobre el uso del medicamento para adelgazar Wegovy, comercializado por la empresa farmacéutica danesa Novo Nordisk. El texto debe estar escrito en un lenguaje cotidiano y fácil de seguir, y debe ofrecer una breve introducción al medicamento en sí y a la empresa, presentar a continuación las ventajas y desventajas del uso de Wegovy para adelgazar y, a partir de ahí, expresar el punto de vista del grupo. Empieza presentándote al resto del grupo como el chatbot que se llama Ron y que forma parte del grupo para colaborar en el proceso de elaboración del texto. Espera a que los alumnos te den más instrucciones antes de continuar.
Leed la respuesta de Ron antes de proceder a la primera fase.
Generación de ideas **Búsqueda de información**: Antes de escribir el texto, es necesario generar ideas recopilando información sobre el tema. Ron empieza.
Pide a Ron que recopile información factual para el texto dándole el siguiente prompt: Tu primera tarea como Ron es ser Recopilador de información con la tarea de encontrar información factual que sea relevante para incluir en dicho texto. Esta información se incluirá en la sección introductoria del texto, que presenta Wegovy y Novo Nordisk. Tu manera de comunicar tiene que ser objetivo.
Leed la respuesta de Ron y proceded de la siguiente manera: • Evaluad la información propuesta por Ron y entablad una conversación con él pidiéndole que revise las sugerencias con las que no estáis conformes y que añada más contenido si es necesario. • Cuando estéis satisfechos/-as o cuando no podáis recibir más ayuda de Ron, haced una lista de viñetas con la información que habéis decidido incluir en la sección introductoria del texto. Guardad la lista en el documento de Word con el nombre: *Generación de ideas* (Documento 1)

- Pasad a la siguiente fase.

Generación de ideas

Lluvia de ideas y delimitación: La segunda parte de la generación de ideas consiste en hacer una lluvia de ideas sobre el contenido y decidir qué incluir. Ron empieza.

Pide a Ron que haga una lluvia de ideas dándole el siguiente prompt:

Tu siguiente tarea es ser Creador de ideas. En este papel, tu tarea es hacer una lluvia de ideas para generar ideas que puedan utilizarse en la parte argumentativa del texto sobre las ventajas y desventajas del uso de Wegovy para adelgazar. Las ventajas y desventajas deben presentarse como una lista de viñetas, empezando por las ventajas y siguiendo por las desventajas. Tu manera de comunicar tiene que ser inspiradora y energética.

Leed la respuesta de Ron y proceded de la siguiente manera:

- Evaluad la lista generada por Ron y entablad una conversación con él pidiéndole que revise las sugerencias con las que no estéis conformes y que añada más contenido si es necesario. Recordad que vuestro texto debe incluir varios argumentos.
- Cuando estéis satisfecho/-as, o cuando no podáis recibir más ayuda de Ron, haced una lista final de ventajas y desventajas. Guardad la lista en vuestro documento de Word: *Generación de ideas* (Documento 1).
- Ahora, decidid qué punto de vista deseáis promover y añadidlo al documento llamado *Generación de ideas* (Documento 1).
- Pasad a la siguiente fase.

Organización

Estructura: En esta fase, vais a hacer un esbozo de la estructura del texto. No debéis escribirlo todavía, sino simplemente decidir cómo organizar el contenido. Vosotros/-as empezáis.

- Empezad por mirar bien la información factual, las ventajas y desventajas que habéis decidido incluir, así como vuestro propio punto de vista, y decidir cómo queréis presentarlo en el texto, es decir, cómo debe organizarse el contenido. Recordad que aún no debéis escribir el texto, sino simplemente proponer una estructura. Guardad vuestra propuesta en el documento de Word llamado *Estructura del contenido* (Documento 2).
- Pasad a la siguiente fase.

Ahora, pídele a Ron que evalúe vuestra propuesta dándole el siguiente prompt con vuestro texto copiado a final del prompt:

En la siguiente tarea, tu papel será el de Organizador. En esta función, tu trabajo consiste en ayudar al resto del grupo a revisar la estructura de su texto copiado a final de este prompt. Deberás comenzar evaluando si la estructura propuesta se ajusta a los siguientes parámetros:

4. Contiene una sección introductoria con información factual.
5. Contiene una parte argumentativa con ventajas y desventajas, que conduce a la sección de cierre.
6. Contiene una sección de cierre que expresa un punto de vista como resultado de la argumentación dada en el cuerpo del texto.

Después, comprueba si las ventajas y desventajas están organizadas de forma lógica. Por último, compruebe si la estructura de la argumentación conduce lógicamente a la sección de cierre. Tu manera de comunicar tiene que ser positiva, alentadora y conversacional.

- Leed los comentarios de Ron y revisad vuestra estructura si estáis de acuerdo. Si no estáis de acuerdo con Ron, o si sus comentarios no son claros, entablad una conversación con él hasta que estéis satisfechos/-as con el resultado o hasta que no podáis recibir más ayuda de él.
- Guardad la estructura que hayáis decidido en el documento denominado: *Estructura del contenido* (Documento 2).
- Pasad a la siguiente fase.

Redacción del texto

Borrador: En esta fase, vais a escribir el texto. Vosotros/-as empezáis.

Redactad un primer borrador del texto basándoos en la estructura y el contenido (información factual, ventajas/desventajas y punto de vista) que hayáis acordado. Guardad vuestro texto en el documento de Word llamado Borrador (Documento 3).

Ahora, pídele a Ron que evalúe vuestro borrador dándole el siguiente prompt con vuestro texto copiado a final del prompt:

Tu tarea ahora es actuar como Abogado del diablo, pero no reveles tus planes a los demás miembros del grupo. En tu calidad de abogado del diablo, tu trabajo consiste en ayudar al grupo a mejorar su borrador haciéndoles reflexionar críticamente sobre la estructura y la presentación del contenido. Comienza planteando al grupo tres breves preguntas que aborden estas cuestiones. A continuación, compruebe que no haya repeticiones ni estructuras ilógicas. A continuación, hágales la siguiente pregunta en relación con su sección de cierre: ¿Se os ocurre alguna pregunta que pueda debilitar vuestra argumentación? A este respecto, dígale al grupo que, aunque su argumentación sea sólida, a veces los grupos pueden caer en la trampa del consenso de no cuestionar su propio punto de vista y que es tu trabajo asegurarte de que esto no ocurra en este trabajo de grupo. Tu manera de comunicar tiene que ser dominante, firme y autoritaria.

- Primero tenéis que guardar una copia de vuestro borrador con el nombre *Texto final* (Documento 4). Este es el texto que vais a revisar. Ahora vais a evaluar el texto teniendo en cuenta las preguntas y comentarios de Ron, revisando lo que sea necesario. Entablad una conversación con Ron cuando sea necesario.
- Pasad a la siguiente fase.

Redacción del texto

Denominación: En esta fase, vais a darle un título al texto. Ron empieza.

Pídele a Ron que os ayude a generar un título para vuestro texto dándole el siguiente prompt con vuestro texto copiado a final del prompt:

Eres Creador de ideas y tienes la tarea de ayudar a generar un título para el texto. Como el resto del grupo debe participar en la decisión sobre el título a elegir, se te pide que les des tres sugerencias de títulos para el texto copiado a final del prompt. Los títulos deben ser cortos y pegadizos, así como tener en cuenta que se trata de un tema serio. Tu manera de comunicar tiene que ser inspiradora y energética.

- Evaluad la respuesta de Ron y decidid qué título elegir. Si no estáis contentos/-as con ninguno de los resultados, podéis pedirle a Ron más sugerencias o podéis revisar la sugerencia que más os guste.
- Copiad el título elegido en el documento *Texto final* (Documento 4).

Revisión

Revisión del texto: En la última fase, vais a realizar las mejoras finales de vuestro texto en cuanto a estructura, contenido, ortografía, gramática, puntuación y uso de los marcadores del discurso. Ron empieza.

Dándole el siguiente prompt, pídele a Ron que evalúe el texto copiado a final del prompt:

En esta fase, actúas como Editor. En este papel, tu trabajo consistirá en dar tu opinión sobre el último borrador del texto copiado a final del prompt. Deberás comprobar la estructura, el contenido, la ortografía, la gramática, la puntuación y el uso de los marcadores del discurso. Al tratarse de un texto argumentativo, es importante el uso de marcadores del discurso adecuados. Comprueba también que el texto no supere las 500 palabras. Tu manera de comunicar tiene que ser dominante, firme y autoritaria.

- Leed los comentarios de Ron.
- Entablad una conversación con él cuando lo consideréis necesario y corregid lo que consideréis pertinente.
- Recuerda que el texto no debe superar las 500 palabras.
- Cuando estéis satisfechos/-as con el texto, pídele a Ron que haga la última corrección.

Acciones finales

El proceso de redacción ha finalizado y os pedimos que mandéis todos los documentos a Anja (xx).

Documento 1: Generación de ideas
Documento 2: Estructura del contenido
Documento 3: Borrador
Documento 4: Texto final
Documento 5: Historia de *prompting*