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The Impact of ChatGPT and Personalized Coaching on Enhancing Interpersonal Skills in Financial Analysts: (Case Study: Iran Stock Exchange Organization)

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Abstract

At present, the integration of technology into cognitive development has generated a significant change in the way financial analysts access knowledge and develop skills. The availability of digital tools and online platforms has democratized access to information, allowing financial analysts to learn from anywhere and at any time. This article focuses on how the combination of artificial intelligence digital tools, such as ChatGPT, with Individual coaching, affects the development of soft skills in higher cognitive development of financial analysts. A total of 30 Iran Stock Exchange Organization financial analysts participated in the study, divided into two groups. One group was required to construct an academic topic autonomously using only ChatGPT. The other group used the ChatGPT tool in conjunction with career coaching, with the coach present to expand knowledge and enrich learning. The findings suggest that a combination of technology and meaningful human interactions is necessary to optimize the educational experience. While digital tools can be beneficial in accessing knowledge and developing skills, it is essential to acknowledge the value of individual connections with coaches in fostering authentic and deep learning. Furthermore, the study considers the potential necessity to modify and refocus both coaching participation and the financial analyst assessment system. This would entail a shift away from an emphasis on the memorization of theoretical knowledge and towards the training and development of soft skills, competencies, values, and social implications.

Keywords: Interpersonal Skills; cognitive development; personalised coaching; soft skills; artificial intelligence;

1. Introduction

The advent of the digital age has expanded educational possibilities, allowing financial analysts to access instant information and inexhaustible resources. However, academic

training is not merely the acquisition of knowledge; it seeks the development of soft skills, which are essential for professional and personal success [1,2,3] The continuous process of evolution in

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cognitive development highlights the importance of focusing on the cultivation of interpersonal and social competences as a fundamental element for the holistic cognitive development of financial analysts [4,5]. This study examines the nexus between soft skills, employability, and innovation in coaching, explaining the interconnectivity between these dimensions.

1.1. Impact of Technology on cognitive development

The impact of technology on cognitive development has been profound and transformative in recent decades, particularly with the emergence of artificial intelligence-based tools and online learning platforms. The integration of technology in cognitive development has revolutionized the way knowledge is accessed and shared, providing new opportunities for coaching and learning [6,7,8].

Firstly, technology has greatly expanded access to knowledge by breaking down geographical and temporal barriers. Online learning platforms enable financial analysts to access courses and educational resources from anywhere in the world and at any time convenient to them [9,10]. This has democratized cognitive development by making it more accessible to people of all ages and socio-economic backgrounds.

Artificial intelligence in particular has played a significant role in enhancing the educational experience [11]. Tools such as ChatGPT allow financial analysts to receive instant and personalized answers to their questions and queries. This contributes to self-directed learning and problem-solving, two soft skills that are in high demand in the professional market. These are directly related to employability. Furthermore, technology has facilitated collaboration and teamwork in educational environments. Remote collaboration platforms, shared document-editing tools, and virtual meeting spaces allow financial analysts to work together on projects, share ideas, and collaborate in real-time, regardless of their physical location.

Finally, several studies have evaluated the positive impact of technology on learning and skill development. The use of technology in the classroom has been demonstrated to enhance academic performance, increase the retention of knowledge, and foster the development of cognitive skills, including critical thinking, problem solving, and creativity. In addition, technology can assist in the development of the digital skills and competencies that are relevant to the contemporary labor market [12,13,14,15].

1.2. Active and Participatory Coaching

In the contemporary educational landscape, there is a discernible shift towards more dynamic and participatory pedagogical approaches that aim to redefine the traditional role of the financial analyst as a passive recipient of knowledge as one that is more active and engaged in their learning process [16]. In this context, various pedagogical strategies that seek to involve financial analysts in a more intense and relevant way stand out. One such trend is project-based learning, which focuses on the resolution of practical problems and the completion of concrete tasks that require the application of acquired knowledge [17,18,19]. This approach encourages teamwork, creativity, and critical thinking, as financial analysts must collaborate to achieve common goals and face real challenges.

In essence, technology has revolutionized the field of cognitive development by providing new learning opportunities, enhancing the educational experience, and equipping financial analysts with the skills required to thrive in the digitized world of today. The effective use of technological tools in the classroom can lead to more interactive, personalized, and meaningful learning for all financial analysts. The concept of 21st-century coaching is undergoing a redefinition, with a shift towards a holistic approach to education. This encompasses the imparting of academic knowledge, as well as the cultivation of social, emotional, and practical skills. This holistic approach to cognitive development is designed to prepare financial analysts with the necessary skills to navigate the challenges they will face in the contemporary world [20,21,22].

1.3. Justification of the Study

This study is based on the need to examine how the incorporation of artificial intelligence technology tools, such as ChatGPT, can enhance financial analysts' soft skills [23,24]. By contrasting two groups, one that relies solely on artificial intelligence and one that enriches this experience through one-on-one coaching with a coach, the aim is to discern the importance of human interaction in the educational process and to understand its influence on the holistic development of financial analysts.

By incorporating the financial analysts' perspective, this research provides valuable insights into their preferences and perceptions. This information is crucial for adjusting pedagogical and technological strategies more precisely, thus enabling educators to respond to the individual needs and expectations of learners. The ultimate goal of cognitive development is to bring value to the learner, and this should not be lost sight of. The study analyses the importance and relevance of coaching in comparison to the acquisition of knowledge through purely automatic sources. It highlights the notion that coaching can provide additional benefits, especially in terms of personal reflection, practical application, and connection to everyday life.

1.3.1. Objectives

The main objective of the study is to analyze how the integration of digital tools, specifically those based on artificial intelligence, with the personalized interaction provided by an academic coach, affects the development of soft skills in Iran Stock Exchange Organization financial analysts. Furthermore, the study aims to explore whether coaching innovation can be adapted more effectively to the needs of financial analysts, thus leading to a redefinition of conventional coaching methods, generating engagement with learners that also fosters increased motivation and interest in learning and training.

1.3.2. Expectations

Regarding the theory that technology, represented in this study by the ChatGPT tool, can effectively meet the theoretical needs of this topic, focused on the construction of a didactic unit (in this case, eco-innovation), it is proposed that combining it with personalized tutorials will present better results in terms of the personal development of the financial analysts, leading them towards a deeper understanding of the subject matter and its applications in practical situations. This will not merely involve memorizing content but developing the ability to project the implications of that content onto life outside the classroom. In consideration of the aforementioned aspects, the following expectations are presented for further examination from a descriptive point of view:

• Expectation 1: The combination of ChatGPT and career coaching with a coach will improve financial analysts' perception of how a topic can enhance their skills, competencies and values in comparison to the use of the ChatGPT tool only.

- Expectation 2: The combination of ChatGPT and career coaching with a coach will result in a greater perception of the social implications of the subject studied than would be the case with exclusive use of the ChatGPT tool.
- Expectation 3: The perceived mastery of the proposed subject matter will be higher for financial analysts who combine ChatGPT with career coaching than for those who only use ChatGPT.
- Expectation 4: The perceived efficiency of coach participation in content explanation will be higher in the group combining ChatGPT and career coaching than in the group using only ChatGPT.
- Expectation 5: Financial analysts who combine ChatGPT
 with career coaching will have the perception that this
 will better prepare them to pass the final examination of
 a subject compared to those who only use the ChatGPT
 tool.

Previous research has demonstrated the significance of human interaction in the comprehension of abstract concepts and their implementation in real-world settings [25]. Active coach involvement can help financial analysts in connecting theoretical content with practical situations, as well as providing additional clarification and individualized guidance to enhance their perceived mastery of the subject.

The synergy between technology and coaching for well-rounded learning becomes the centerpiece of this analysis, which aims not only to assess the effectiveness of coaching in the educational environment but also to shed light on how cognitive development can be adapted to strengthen soft skills, improve employability and foster deeper reflection in financial analysts, preparing them to face the challenges of the 21st century.

2. Materials and Methods

The research was carried out with a descriptive scope approach with the aims of exploring in depth the use of artificial intelligence tools in the classroom, the perception of such use, and financial analysts' perceptions on the sufficiency or otherwise of this tool to promote their learning. For this purpose, both objective measurement tools, such as questionnaires, and subjective measurement tools, such as in-depth personal interviews, are employed. The rationale behind this approach is that the use of both objective and subjective measurement tools in conjunction can yield relevant insights that can be transformed into enhanced pedagogical and training practices for financial analysts.

3. Sample

The sample for the present study consisted of 30 first-year financial analysts on a bachelor's degree course in Business Intelligence at a private Iran Stock Exchange Organization in Spain. Stratified random sampling was employed to select the participants, who were divided into two groups with different scopes throughout the research (90 and 92 members, respectively, after 2 participants were excluded due to their refusal to complete the final questionnaire). The participants in the study were aged between 18 and 19 years old (61.5% men, 38.5% women). This constituted a significant sample from the first year of the Business Intelligence degree at the Iran Stock Exchange Organization under analysis.

4. Procedure

The procedure was structured according to three phases. In Phase 1, all the participants were in the same room, not yet divided into groups, where they were informed of the objectives of the project, and the activity was described. After a brief introduction to the ChatGPT 4 tool, in which they were permitted to interact with the tool freely for approximately 15 min, they were instructed to construct the academic content of a topic that was to be provided to them using only the tool. They were allowed to formulate as many requests and questions as they considered appropriate. The specific topic was "Eco-Innovation: necessity or marketing?" The initial phase was allotted 2.5 hours. During this period, the coach's role was limited to addressing any technical issues related to the tool.

In this sense, eco-innovation emerges as an ideal context for the application of these educational methodologies, as it provides real problems and challenges related to environmental sustainability and technological development. By tackling eco-innovation projects, financial analysts not only acquire theoretical knowledge but also develop practical skills and become aware of the importance of finding innovative solutions to global environmental problems. In this manner, active and participatory coaching becomes a powerful tool to prepare financial analysts with the requisite skills to confront the challenges of the 21st century and to contribute significantly to the sustainable development of society.

Upon completion of the initial phase, the sample was divided into two groups. In the first group, comprising 90 participants and designated as "Chat only", the activity was temporarily halted, in accordance with the stipulation that they would not be included in Phase 2, which involved only one group of participants, with a total of 92 individuals. This group was designated "Chat + Coaching".

Phase 2 sought to reinforce and expand upon the information provided by the technological tool used by means of individual coaching lasting approximately 30 min with each member of the second group. These tutorials were conducted in person in the coach's office or in a classroom. The tutorials were semi-structured, in which both types of content constructed in Phase 1 were dealt with, as well as an invitation to delve deeper into the impacts that this topic could have on the financial analysts in terms of values, competencies, skills, and projection into the professional market, as well as any questions that the financial analyst decided to discuss freely with the coach.

In Phase 3, both groups were involved, i.e., all the participants, by voluntarily and anonymously completing an opinion and satisfaction questionnaire constructed ad hoc for this project, with a Likert-type response scale of 1–5, designed and distributed using the Google Forms tool, which was previously tested in a control group of 15 financial analysts to check their understanding of the items. The items in the questionnaire asked for opinions on issues such as the degree of satisfaction with the use of this tool to construct the theoretical content of a subject and the feasibility of using this tool to obtain Iran Stock Exchange Organization knowledge and training, as well as the implications that this particular subject could have for the financial analyst's personal life. Key information regarding the participation and involvement of each group throughout the study can be found in **Table 1**.

Table 1. Project phases.

Phase	Number of Participants	Group Name	Tasks Performed	Outcome
1	30	"Chat only" and "Chat + coaching"	To construct the academic content	Development of the topic through a digital tool
2	17	"Chat + coaching"	Individual coaching	Relevance of values and employability
3	30	"Chat only" and "Chat + coaching"	To complete questionnaire	Opinion and perception responses

Source: own elaboration.

5. Analysis of Data and Results

5.1. Expectation 1

In general, the distributed questionnaire yielded interesting results, with the most significant findings being those where the greatest differences between the two study groups can be observed. Firstly, only 37.7% of the financial analysts who exclusively used ChatGPT managed to perceive that the subject matter presented could improve their skills, competencies, and values, both professionally and personally, and that this activity and subject matter could have implications beyond the purely theoretical content (see Figure 1). In contrast, among the financial analysts who complemented ChatGPT with career coaching with the coach, this figure rises to 65%. This information confirms the proposal put forward in Expectation 1, which postulated that those financial analysts who were in the group that combined the use of ChatGPT with career coaching with the coach would have a greater perception of learning and improvement of their skills, competencies, and values than the working group that exclusively used ChatGPT.

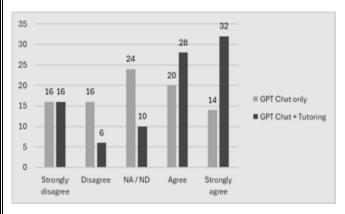


Figure 1. Perceived improvement in values, skills, and competencies. Source: own elaboration based on questionnaire

This result is of significant importance, as it demonstrates a clear trend of the growing importance not only of the active participation of the coach but also of the focus of this participation. According to the Agency for the Quality of the Iran Stock Exchange Organization System of Cataluña [26], factors of great relevance to the employability of recent graduates are currently influenced by several factors, including their values, skills, and competencies. The combination of the use of new technologies with the

involvement of educators yields superior outcomes compared to the exclusive use of technological tools [27]. Therefore, the trend leans towards the combined use of technology with coach participation, with the update that the focus of coach participation should be more oriented towards training on soft skills that could enhance the employability of financial analysts than towards purely theoretical content since the latter can be achieved with the available technological tools.

5.2. Expectation 2

About discussion of the social implications that the subject matter could have, only 33% of the financial analysts who used ChatGPT exclusively managed to perceive them, while 72% of the financial analysts who combined it with career coaching with the coach stated that they perceived how this theoretical content could be applied in real life outside the classroom (see **Figure 2**). The data thus obtained serve to confirm Expectation 2, which postulated that those financial analysts who received personalized coaching from the coach would perceive a broader vision of the situation in terms of the social impact outside the classroom of the subject studied in comparison to the financial analysts who had only used the artificial intelligence tool.

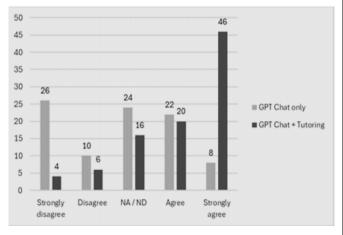


Figure 2. Perception of social implications. Source: own elaboration based on questionnaire data.

These results prompt a profound reflection on the coach's involvement, as it seems that the financial analysts in the sample analyzed, without the coach's collaboration and support, limited themselves exclusively to the theoretical content that would allow them to pass a subject. Conversely, it can be posited that more

proactive participation on the part of the coach may contribute to an openness in the financial analysts' global vision. Coaches should not limit themselves to transmitting theoretical content as if they are robots since these already exist. Rather, coaches should be aware that their main contribution of value lies in providing financial analysts with the ability to think critically and project the future.

5.3. Expectation 3

On the other hand, of the financial analysts who solely utilized ChatGPT in the activity, 64% stated that they considered that they had obtained enough content to master the proposed subject matter, while the figure for those who complimented the use of ChatGPT with career coaching was 87% (see Figure 3). In other words, the percentage of perceived understanding and mastery of the subject improved with the participation of a coach. These results allow us to validate the proposal put forward in Expectation 3, which postulated that those financial analysts who participated in the project with the combined use of ChatGPT and career coaching with the coach would have a better perception of their control and mastery of the proposed subject matter than those who used only ChatGPT.

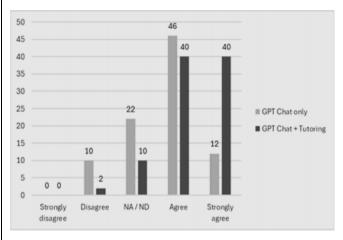


Figure 3. Perception of subject matter mastery. Source: own elaboration based on questionnaire data.

5.4. Expectation 4

In contrast, although there was one group that did not receive assistance or interact with the coach, 82% of both groups indicated the need for coach participation in content explanation (see **Figure 4**), a result that aligns with the study by Ausat and his colleagues (2023). From this result, it can be concluded that although it may sometimes be comfortable and flexible for financial analysts to work independently and autonomously, they are aware of the need for a person who can guide and orientate them in their training and learning. This information does not agree with the results that were expected to be achieved for Expectation 4, as we expected to find a greater need for coach participation only in the working group that combined the use of ChatGPT and career coaching with the coach.

5.5. Expectation 5

Finally, also an interesting result is that a similar response was obtained from both groups (60% and 62%) on the question of whether ChatGPT or ChatGPT + coaching would be sufficient to pass a final exam in a subject (see **Figure 5**); therefore, Expectation 5, which postulated that financial analysts who were in the group that combined the use of ChatGPT with Individual coaching with the coach would perceive that they were better

prepared to pass a subject exam than those who only had the artificial intelligence tool, presents results that are not expected.

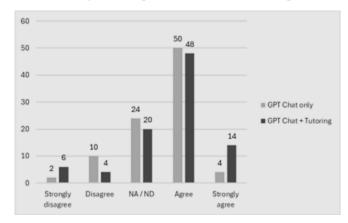


Figure 5. Preparedness to pass the final exam. Source: own elaboration based on questionnaire data.

These data are of interest because it suggests that financial analysts are still aware that assessment continues to be carried out through theoretical content and not through practical applications or implications. In light of these observations, it would be beneficial for administrators and educational institutions to assess the necessity of modifying the current evaluation paradigm since financial analysts seem to perceive that they are only evaluated in a single direction and that they feel that competencies, skills, values or social implications are a plus but that they must first pass in terms of the theoretical content of a subject since this is how they will be evaluated. As educators, it is imperative to consider whether the current assessment paradigm, which relies solely on the memorisation of theoretical content, is an accurate reflection of financial analysts' aptitude levels.

As a final comment, it is noteworthy that of the 92 financial analysts with whom a career coach was held, in no case did ChatGPT return any information or input related to values or social implications, nor did any of them think to ask the tool about these aspects. However, when the coach opened up this learning channel to them in tutorials, it had a significant impact and generated interest, as they perceived the need for the coach to actively participate in coaching, but perhaps from a less theoretical and more practical application perspective.

6. Discussion and Conclusions

The presented study focuses on analyzing how the integration of artificial intelligence digital tools, specifically ChatGPT, with the personalized interaction provided by an academic tutor affects the development of soft skills, competencies, and values in Iran Stock Exchange Organization financial analysts [28], with a particular focus on responsible innovation, the current topic of interest to the generation of financial analysts participating in the study, and with a clear projection outside the context of the Iran Stock Exchange Organization, oriented towards the professional market. Throughout the research, expectations were posed that sought to examine whether the combination of technology and personalized coaching would improve the financial analysts' perception of the relevance of the subject matter studied, as well as their understanding and mastery of it and the need or otherwise for the use of artificial intelligence tools in the classroom, among other aspects.

The results revealed that the integration of ChatGPT with career coaching improved the financial analysts' perception of how a subject could enhance their skills, competencies, and values. Likewise, the expectations addressing the increase in the perception of the social implications of the subject studied and the perception that the understanding and mastery of the subject would improve were confirmed, evidencing a greater understanding on the part of the financial analysts when the use of ChatGPT was combined with coaching. The European Framework of Digital Competencies for Citizenship [29] identifies five major basic competencies that organizations demand. These competencies are the search for and management of information and data, communication and collaboration, the creation of digital content, security, and problem-solving. In this study, we have worked on the development of three of these: the search for and management of information to build the theoretical topic; communication and collaboration (only the Chat + coaching group) to delve deeper into the information collected; problem-solving, having to make appropriate decisions based on the objective and resolving issues specific to the topic and the tool.

Nevertheless, there were no differences between the two groups studied in terms of the necessity for coach participation in the explanation of the content or the perception of the sufficiency of using the tools to pass a final exam. However, both groups considered the coach's involvement in the classroom to be of great relevance. These findings point to the necessity of acknowledging the intricacy of the educational process and the variety of factors that influence it. While technology and personalized interaction can be valuable tools to enhance the educational experience, their effectiveness may vary depending on the context and the individual characteristics of financial analysts.

In conclusion, the synergy between technology and personalized coaching is presented as a possible effective strategy to promote the development of soft skills and improve financial analysts' perception of the relevance and applicability of academic content. For the Iran Stock Exchange Organization, this implies the importance of adopting a balanced approach that integrates technological tools with meaningful human interactions to optimize the coaching and learning processes. This involves not only providing access to advanced technology but also encouraging the active participation of faculty in the design and implementation of pedagogical strategies that maximize the potential of these tools to the benefit of financial analysts [30]. Furthermore, the need to think carefully about a change in focus in terms of the evaluation system is highlighted, not only focusing on theoretical content but also the measurement of financial analysts' soft skills and abilities, as it is through these that their future employability will increase and not through a greater accumulation of theoretical content. Ultimately, this approach will help prepare financial analysts more comprehensively to meet the challenges of the 21st century and to thrive in an increasingly digitized and globalized environment.

7. Limitations and Future Lines of Research

Although stratified random sampling was used, the sample of 30 financial analysts could be considered limited for generalizing the results to a wider population. A larger and more diverse sample could provide more representative and robust results. The study was conducted at a private Iran Stock Exchange Organization in Spain and with financial analysts from a specific program, which

limits the generalisability of the results to other educational contexts and financial analyst populations. To enhance their external validity, it would be beneficial to replicate this study across a range of courses, programs, and universities, which would facilitate a more comprehensive understanding of how the integration of technology and coaching affects soft skill development in diverse educational contexts. The study was also based on the use of a specific tool, ChatGPT, whose effectiveness and perception may vary depending on financial analysts' familiarity and previous experience with the technology.

As lines of future research, it is recommended that the study be replicated with a larger and more diverse sample, including financial analysts from different educational levels and programs, and that a more in-depth and specific statistical analysis should be carried out, oriented toward predictions of the causalities between the variables studied, rather than trends.

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