The Role of Artificial Intelligence Technologies in Enhancing Non-Cognitive Skills Among Graduate Learners: A Case Study of Graduate Students at The University of Turbat, Balochistan

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ABSTRACT

The focus of this research is to signify the role of AI technologies in enhancing non cognitive skills among graduate cleaners at the university of Turbat Balochistan. Secondly, its second purpose is to identify both challenges and opportunities of using AI tools. Non-cognitive skills like problem solving, creativity, motivation, including critical thinking Indeed , these have significant contribution and essential part of modern education landscape. A mix method was structured to collect data and semi structure was applied to collect its further remaining data. The qualitative data were collected from 10 students through interview from different departments at the university of Turbat .The remaining part of quantitative questionnaires were collected through the close ended questions and data were collected from 140 students .Both data were collected through different process. The data of Quantitative were analysised through the soft ware of SPSS and qualitative data were analyzed through the observation of thematic analysis. However,The main purpose of this research is to understand the participants experiences and perceptions regarding the AI tools. Moreover ,the collective finding explored that the tools of AI such as CHAT GPT ,Deep seek grammarly including others have significant impact for the development of non-cognitive skills , similarly , a large number of participants had heavy positive view in the usage of AI tools. While, only a small number of students have shown less interest and not having much acknowledgment about the AI tools and its function in enhancing non cognitive skills.

Keywords/

AI tools ,critical thinking ,problem solving ,decision making

INTRODUCTION

Indent, AI has a significant role in educational sectors .However, since the development of 21st century AI has been distributing a positive impact especially for the development of non-cognitive skills . However, like cognitive skills non-cognitive skills development were recognized one of the important parts of human life. Its demand does not only have an importance in educational sectors, but also in business sectors . For instance, teamwork, self-control, and perseverance including well being, employee including others can be recognized tremendous role in the educational sector .However , the skills of non-cognitive are also called soft skills and main function of these skills are to develop someone's ability in learning, facing challenges and fostering positive relationship. Moreover, its main part is significantly recognized that AI has positive role in decision making and critical thinking. No doubt, various effective role of non-cognitive skills plays

crucial role for the achievement of educational outcome. It provides countless opportunities for the students and its strategies enhance students' confidence including engagement, motivation.

Indeed ,Several positive impacts are existed, which define the role of building career and academic performance. No doubt ,With the development of educational institutions, various high concern was given in the development of non-cognitive skills in academic level. For instance, the socio emotional ,primary role has been given a tremendous focus in 21st century. The part of problem solving, critical thinking, teamwork, adaptability, and communication have been adopted for the building good career of students. Further, these skills help the educators to design better curriculum for building bright future of students. Still, many researchers seeking out like how non cognitive-skills have high capacity to differentiate students' socio economic, cultural, and linguistic background to handle barriers for the succession of academic career. In recent time soft skill has been receiving much importance like cognitive skills. With the passing of centuries, education has adopted its importance as one of the crucial parts of human life. It does not only develop bright future for the students, but also ensures equality among the people. Therefore, it is very important that the educators should adopt critical thinking in their curriculum. However, cognitive skills have been adopted one of the important parts in educational sectors for many decades, but since the turning of centuries, non-cognitive skills has accepted as an imperative part in educational and business sectors. However, both skills have their own differences.

The ideology of critical thinking was discovered by an American philosopher Jon Dewy. The main purpose of this non-cognitive skill was to assist the individuals in the time of assumption, argumentation including the process of information evaluation .Secondly, the main function of critical thinking indeed was to help the students to determine the capacity of recognizing the process of analyze, evaluate, and interpreting of information. However, critical thinking has its own importance in educational sectors. The significant of critical thinking not only describe the reason of thinking capacity ,but also capable the individuals   to apply these laws in their real life problems. Applying the power of critical thinking not only improve students knowledge ,but also allows you to apply your own opinion and ideas to make you more open minded in order to respect the other emotion including values and ideas (A. Z. Bhat, V. R. Naidu, and B. Singh 2019). The process of critical thinking further nourishes your confidence to make better plan and to engage your own issue in a high qualitative level. Critical thinking is an art that its technique allows the students to be better thinkers, (B. Arisoy and B. Aybek 2021, R. H. Ennis 2018). The process of thinking makes students capable how their thinking can be developed. Those ,who have better thinking ability, can apply their thinking process in daily bases. (J. Rai, R. C. Tripathi, and N. Gulati 2020, M. M. Gupta, S. Junkie, S. S. Pancholi, D. Talukdar, P. K. Sahu, and B. Sa 2020, S. Shukla, A. Lakhmani, and A. K. Agarwal 2017) the concept of various studies of critical thinking   is based on the ideology of identifying the strengths that the individuals apply to develop their deficiency. According to the statement of Hader (2005), the development of critical thinking has high scale that will support the individuals to be more creative regarding their time management. Education, indeed, is the basic individual's requirement that main purpose is to boost up the development of human internal talent. According to Meyer (1976) the education main aim must be how to develop strength and the thinking capacity.

As (Emir ,2009) defined that the qualitative education main purpose should be how to and in what way student learn.Education provides various positive impacts that Students will get the potential like how to evaluate and what they have learned. No doubt, Qualitative education show many way like, what and how to learn. While students evaluate what they have learned in their learning methods, they manifest their critical thinking abilities on the base of it. (Emir, 2009). As Cotton indicated that (1991) students apply this process in their professional and real-life problems. In recent time critical thinking has been recognized as a regular thinking object that the people plan and apply it for the future betterment (cR. Naidu, and B.

Singh 2019). Today, the strategy of critical thinking has been accepted as an art that the students enhance their ideas in order to understand and to get to know like how to improve their thinking capacity.

Like the critical thinking decision making is considered one of the crucial parts of individuals life. The process of decision making is an imperative in education and its fundamental function has been recognized an Important part of lives .Its wide range of positive impact at academic level can develop students personal, and professional growth. However, Education does not only mean to provide knowledge but also open various ways for the students to how to handle issues in order to come up with proper solution. Therefore, it is very crucial to integrate both critical thinking and decision making into the curriculum to prepare the students for the real-life challenges. The process of decision making is involved to identify the main problem of any issue and go for its best solution. It also ensures to select the best regarding decision making. However ,The decision making is involved into three process that define problem, identification of objectives and diagnosis. The skills of critical thinking and decision making both are necessary for the professional succession (Bellack & O'Neil, 2000). The resrach ,which were conducted by Ersoy, Ogurlu, and Aydin (2019) and Fan (2016) stated that it is very crucial to teach the importance of decision making and its process have high capacity in order to improve the learner's academic achievement and development of higher thinking skills. Its primary function will support the students to achieve their academic achievement and save the stability of pupils (Ha, 2012a). today's in modern and globalization area, decision making is become an important due to the fast changing of markets and other fields competition (Walter, 2010).

Those students who,have the lacking capacity of decision making always experience bad behaviors with their families and themselves, and societies. (Ha, 2012b). Moreover, the students of universities should identify the significant of decision making because the identification of decision making will help them to encounter those mistakes that they will face (Al-Aajam, 2018; Simić, Kovačević, Svirčević, & Simić, 2017) No doubt, strategies of non-cognitive skills have been adopted according to its important since the turning of the century . (Nguyen, Van Bui, & Chi, 2021). However, various reports suggested that many current graduates have various lacking power of communication skills, like analytical ,critical thinking and problem solving and decision-making skills. (Pitan & Adedeji, 2012; Ross & Cornish, 2003). The study of Vietnam committed that 83 percents do not have the potential of soft skills the skills of decision making indeed can provide wide range of skills especially to assist in their educational career.

The skills of both cognitive and non-cognitive skills have been given various concentration for many decades .However ,its main strategies have given significant part of individuals. But since the starting of 21st century, the non-cognitive skills have been given its own significant. However, both have their own significant importance, cognitive skill is the process of reasoning, memory, and information process while non cognitive skills is linked with the personality traits and socio emotional competency .so, cognitive skills follow the logic of how we think while non-cognitive follows how we act and interact.

Since the advancement of AI tools various changes have been recognized in the sector of education. However ,the significant role of AI has been playing crucial role both in general and higher education . Its new tools indeed have been providing mix both opportunities and challenges ,which are influencing the students' academic career **(Edtech, 2020**). The rapid changes of AI have raised countless questions related to equity and accessibility that change the traditional teaching method. Its main functioning role was observed when it enabled personalized learning through the adopting of various educational context to meet the requirement of students and individuals **(Hdnndkeusser et.,al 2024**). The adapting learning system has provided a platform for the students to enhance their engagement and performance to give them feedback in their learning environment **(Luckin et al., 2016; Zawacki-Richter et al., 2019).**

Students in traditional methodology, they were encouraged to participate in the learning process specially to develop their learning skills through exploration, analysis, and problem solving. No doubt, critical

thinking is one of important strategy in shaping students thinking capacity. So, the rapid advancement of AI tools has challenged   the old traditional learning process and machine base learning platform.

The usage of AI has become challenging one .According to the study of,(Qadir (2023) the tools of AI have been using in a misuse ways by the students such is completing the assignments without proper attribution).The challenges must be ensure by higher education and defines its main function and other impacts **(Holmes & Tuomi, 2022).**

After the development of computer and data processing, AI has been introduced in the sector of educational field .Teaching and learning platform have received another potential level after adopting the applications of AI tools like intelligent tutoring systems, educational robots, learning analytic dashboards, adaptive learning platforms, and human–computer interactions (Chen et al., 2020; Zawacki-Richter et al., 2019). For instance the tools like intelligence system has been adopted in order to give personalize feedback including students engagement and improving learning (Luckin et al., 2016). The human interaction and ethical data privacy were addressed to be the most challenges one ,(O'Neil, 2016).

In recent time the importance of non cognitive-skills have been given a large scale of importance as compare to cognitive skills. Today's , in modern area ,various educators researchers have great concern in the development of no-cognitive skills in educational sectors .Moreover ,the skills of non-cognitive skills like critical thinking ,decision making ,encouragement ,problem solving including others have been considered some of effective and personal qualities of individuals . Various researchers indeed have high interest to investigate the positive factors of non cognitive skills in academic level.

The skills of non-cognitive are playing significant role in recent time .However ,its effective role have been observed in various sectors . The skills ,which are considered soft skills and personal characters have been adopted important one in the educational sectors .No doubt ,this research main intention is to measures the contribution of non-cognitive skills and how its role in academic level brings a positive outcome for the achievement of non-cognitive skills.Secondly , its second purpose is to know how it influences the ability and social life. In this book ,the knowledge and current thinking provide basic information about non-cognitive skills and positive impacts on educational sitting .

 However, various tools and applications are created for the creativity of knowledge and socio emotional skills. Since the world entered into the 21 century, various talks are in towns about the skills like emotional, social, and skills of life (Cherney 2018 and kinnaras 2017). Recent research was carried out on this purpose, which was included with 136 socio emotional skills, which were based on non-cognitive skills (Abram 2022). The integration of Artificial Intelligence (AI) in institutions (Smith & Johnson, 2023). These skills, including emotional intelligence, critical thinking, collaboration, and adaptability, are increasingly recognized as crucial for academic and professional success (Brown et.al., 2024). As (Griffin, McGaw and Care) stated that non-cognitive skills are very important in this 21 century. According to Williams (2023) AI tools can help students to develop the important skills of life in a new and creative ways, teachers need to be careful about how they use these tools in their classrooms. They must make sure AI tools where fits well with their current teaching methods. the university students require the skills of non-cognitive skills for their succession of lives including their career achievement. (hakeem2022). The wide range of AI technologies advancement have brought the concept of interacting of socio emotional learning and reducing their stress(woolf2013).

This research examines how AI technologies can be leveraged to enhance these skills of graduate students at the University of Turbat while addressing potential challenges in implementation.

Background of the Study

Critical thinking, problem solving, self-motivation, teamwork and emotional indeed are the important part of non-cognitive skills. These can only be developed through education. Indent ,These skills have high capacity to develop individuals personal and professional life. So, with the passing of centuries, the advancing of AI has been recognized an important part of education system. Its role cannot only be identified in supporting of learning but also feedback.The condition of learning environment not only enhance the capacity of decision making, but also encourages them to be good collaborators. However, in such level, various tools have been adopted at the higher level such as, chat bot, Grammarly, tutoring system.These tools indeed have been playing crucial role for the development of non-cognitive skills. Thus, due to its large scale of advancement in educational field, it very is important to study how the AI tools can develop non-cognitive skills.

AI Technology

The AI technologies are computer-based system that have the capacity of performing tasks. The present of wide scale of its usage in educational sectors have been playing numerous roles. As one of its greatest roles has been identified in developing non-cognitive skills. Non cognitive-skills indeed play an incredible role for the success of life.

Learning Motivation

As learning motivation is a significant impact for the university students. As it develops students' motivational level, for instance building their behaviors and extending academic performance. However, many researchers have stated that the major students have problems in self-motivation because of the inefficiency so ,due to this negative impacts , the major skills of learning are being   affected.

Theoretical Framework

The current study of this research focuses on the theories of Bandura (1977) and Rosalind Picard (1995) .The importance of AI regarding its primary role in enhancing non-cognitive skills, which were emphasized in the theory of Bandura model. According to this theory, the individuals have major skills of learning social skills through observation, reinforcement, and imitation. So, in this case the AI technologies can play a tremendous role in developing the non-cognitive skills of the university's students. Various   of AI tools are existed that can enhance non-cognitive skills.

The theory of Roslind Picard, the main aim of this theory was focused on AI technologies and its primary function in developing emotional skills. The main pillar of this research was on developing the skills of decision making, learning, and social interaction skills of the university's students. No doubt, numerous AI toools are existed that can enhance the growth of non-cognitive skills. For instance, social robots and chat bot, class craft, Chat bot and many others have significance role.

Research Problem

The importance of no cognitive-skills and increasing of AI invention in educational sectors has raised various unexceptionable thought but there is still confusion how AI tools can essentially support the advancement of these skills of the university students. The main aim of this research work was to bridge this knowledge by various investigations through both opportunities and challenges of AI integration in non-cognitive skills development

Research Objectives

1. To evaluate AI applications in developing non-cognitive skills like decision making critical thinking, self-motivation of students of Turbat University.

2. To determine the most effective method for using AI tools in social-emotional learning of Students.

3. To highlight challenges and limitations in implementing AI-based solutions in learning process of students.

Research Questions

1. How can AI technologies effectively facilitate the development of non-cognitive skills of students at University of Turbat.

2. What are the most effective methods for AI tools in social-emotional learning of students?

3. What are the challenges and limitations in implementing AI-based solutions in learning process?

Expected Outcomes

1. Framework for AI integration in non-cognitive skill development

2. Best practices for implementation

3. Guidelines for addressing challenges

4. Recommendations for policy and practice

Timeline

The purpose of research thesis was to structure the span of a total duration of eight months, divided into four key phases. The first phase, a comprehensive literature review, will take two months to identify existing studies and theoretical frameworks relevant to the research topic. The second phase of three-month data collection was committed to collecting primary data through interviews, and other methodologies. The analysis of collected data was taken two months, acknowledging for examination of findings and their implications. Finally, the research was concluded within one month to report writing, insights was expressed evidently and effectively to communicate the research outcomes.

Significance of the study

The current research work was looked at how AI tools change the old learning to modern learning methods. They gave us a peek into how teaching first into classrooms and helped to connect old teaching methods with the new teaching advancements. The result was suggest ways to update how we taught and how AI might helped students to learn the importance of life skills. They have shown real proof of how these tools helped students to grow in all areas. With the findings the future researchers has come up with the new gap.

Limitation of the Study

The research was limited to the district Kech of turbat university of Balochistan .The result might not be a typical case for other regions in Balochistan or Pakistan .Geographical boundaries was limited the generalization of the results .A total of 150 participants (,students at the university of turbat)were

sampled .Mix Methodology was used and semi structure interviews and close ended questioners were applicable for collecting data to find out challenges in capturing nuanced perspective on AI technologies in learning environment.

Ethical Considerations

In the process of data collection and stata analysis, the students data privacy and protection were par-amounted, ensuring that sensitive information was safeguarded against misuse. AI systems collected vast amounts of student data, including learning patterns, behavioral responses, and even biometric data was used only for the academic purposes.

LITERATURE REVIEW

AI is basically a new product of social and cognitive, and its primary function is to communicate with the people of society for performing complicate tasks. Its major functions are involved in both cognitive and non-cognitive skills. In historically, it has based on the sectors of science, psychology, metaphysics, mathematics, biology, and philosophy. However, the field of AI is too vast. It is deeply rooted in nineteenth and twenty centuries. But the concept of AI was first introduced Isaac Asimov, who was best known for his technical machine. But the concept of technology was initially introduced in 1789 by Freiherr Friedrich. However, AI tools, applications, frameworks have become more common after the first and second world war. The robots indeed become part of human lives (Herb Simon). Further, the advancement of AI tools were carried out through a program in 1965 in Edinburgh, the main aim of this workshop was to collect the opinion of individuals about AI.

Today, is the world of technologies and AI is considered one of the major pillars in the educational sectors. Its major role can be found in both teaching and learning .The presence of robots and other AI tools are providing large scale of support in the fields of teaching ,learning and activities(costa et al 2017 ,Garica et al 2007).Various educational institutions are using large number of AI tools for the teaching of students .For instance ,khan academy has been using the app of CHAT GPT for the purpose of personal analization ,the using of this AI means to provide feedback actively and it covers variety of subjects including mathematics ,language programming and others (Bicknell et al 2023).Its great effect can also be seen in learning management .For instance the Absorb and Deebo ,they have high scale of capacities of facilitating teaching and learning and they support for creating content ,various task of administrations including self-learning (iFly tek2024). Various workshops were conducted on the measurement of AI, and it tools on the base of its merit and demerit. However, the first workshop, which was programmed in 1956, the primary purpose of this workshop was to recognize the merits and demerits of AI.

The experts and researchers have great interests in this program to know how its tools can be the consequence of damaging societies, education, and others. The innovation of Chat Gpt brought a serious revolution in education after its establishment in 2022. According to the study of (Chen 2022) AI has emerged as a positive outcome. His research outcome cleared that the tools of AI have tremendous impacts for the administrative tasks regrading assignments and promoting teaching skills. The research of (Zawacki Richer 2019) committed that the AI tools have a high significant impact for the educators, and they have a great concern of using its tools in higher education. The presence of its various language of tools in higher

education like GPT 4 and BARD has marked a informativeness impact (Alqahtani 2023). According to (woe 2023) Chat GPT has various benefits in order to provide all answers whatever the questions will be asked related to designing contents, messages and other functioning.

Further this research said that like its merits ,there are countless demerit which have negative impacts on educational sectors and students .(Merete 2o19) stated that the providing information from the AI about facts ,opinions and answers major time are not corrected .Further ,his research elaborated that the using of its tools reduce the rational thinking of students ,which is considered a big impacts on students .The research of (Ginting 20229) pointed out that numerous merits are existed that provide cognitive development like the usage of Quill Bot and Grammarly. Thse both tools indeed have high scale of helping students for their growth and development ,while its second side has major role of impacting on students excellence performance. For instance, the tools of Quill Bot and Grammarly and their usage provide cyber security fear.

No doubt, Cognitive development plays a significant role. Its skills indeed are required in all aspects of life. The questions related to cognitive, and its development was raised in 2005 through F M R I. After its introduction, it stated that the development of cognitive skills occurred in the time of childhood and adolescence. however, the basic concept of cognitive development was developed by jean Piaget in 1965, the primary purpose of his research was to know about the presence of things and feelings through asking questions.

It plays tremendous role in educational sectors because its skills motivate the students in reading and writing (smith and William 2022). Like cognitive skills, the non-cognitive has its own various significance. The skills are composed with different behaviors, and other various importance skills, which are require for the succession of personal and professional lives. (James 2022). (Heckman 2006) said that the skills of non-cognitive development have more significant as compared to cognitive skills, due to its linkage with the academic performance. Both skills have their own importance, but the skills of non-cognitive skills have better values. The study of (Heckman 2012 identified that the major students do not have the skills of discipline, motivation, and patience, which are more importance than the cognitive skills.

Non-cognitive skills are very important. Its strategies about various behaviors ,motivations and other soft skills have great impact for the succession of lives including professionals .Policymakers, indeed, have high scale of interest in developing soft skills of young people .However ,due to lack of strategies ,the non-cognitive skills were not given much importance ,but since the development of AI ,again the non-cognitive skills have become in discussion in educational sectors .(levin 2013) said that the significant of non-cognitive skills can be identified in educational sectors .Critical thinking ,which is one of an important part of non-cognitive skills and those individuals who have the capacity of critical thinking can face the challenges independently (Thornhill Mill 2023).The capacity of critical thinking not only develop positive aspect in their personal lives but also contribute various positive efforts in the societies (Cagan Anaga 2018).The research of (Yuliana 2020) stated that the problems related only can be resolved through the support of 5E learning model. Secondly, the tools like class craft, has a major role in developing of confidence, which is a major part of student's professional life (wadi 2003).

Various theories were conducted to know the importance of non-cognitive skills development. From those theories, one of the theories was the Hickman and uraeus which was established in 2006. The theory basic ideology completely agreed on the significance role of non-cognitive skills development.

According to this theory, like the cognitive skills the non-cognitive skills are imperative for the growth of social and economic life. Further, the non-cognitive skills significant were elaborated in the model of personality traits theory. However, this theory explained the primary purpose of workers behavior like how the non-cognitive skills have tremendous role for the workers at their workplace.

Numerous studies emphasized the importance of teachers in shipping students cognitive and non-cognitive abilities. No doubt, cognitive skills were emphasized in teacher training regarding pedagogical skills for teaching. Recently, experts and researchers have recommended and suggested that non-cognitive skills have tremendous positive impacts on students learning outcome. However, the importance of non-cognitive skills has been extensively examined by many researchers. The study of Botswana collected data on non-cognitive skills, identified a wide range of their significance. In this research, students were provided with questions related to non-cognitive skills to assess their impacts on academic achievements. However, just like cognitive skills, non-cognitive skills also play an imperative role. Basically, non-cognitive skills refer to a set of behaviors and attitudes that have significant implications for students' academic performance.

The importance of non-cognitive skills is not only linked to cognitive abilities but also influences students' behavior, contributing to their academic success (Rosen, Glennie, Dalton, Leinonen Bozic 2010). Indeed, non-cognitive skills are considered more crucial than cognitive skills or IQ regarding academic employment, and life outcomes. The success tools and strategies like motivation, optimism, resilience, adaptability, self-efficiency, hope, and perseverance were recognized from schools and at work places ,which are linked with the non-cognitive skills

The primary tool of such research was to identify the success frameworks related non cognitive skills. According to (Heckman study 2006) investing in the development of non-cognitive skills can significantly enhance academic and workplace performance. (Borgan 2006) research founded that non-cognitive skills, including various personality traits and motivational habits, can strengthen students' confidence levels in school.

Non cognitive skills encompass various consciousness related traits ,including motivation ,self-control ,and other personal characteristics (Brogans 2008).According to the study of Rauber 2001)non-cognitive skills have tremendous influence if it is developed during the time of adolescence .The development of poor skills of non-cognitive skills impacts on students' performance that lead them to face multiple issues in their career (Farkas 2003 ,Kerchhoff and Glennie 1999). Non cognitive skills have historically received less attention .However ,over the past few decades ,educationalists ,experts and researchers have recognized the significant influence of non-cognitive skills recently ,researchers have identified the positive impact of non-cognitive ,but its basic tools are linked in historical background (Bowles and Gintis 1976).Numerous researches have been conducted in educational sectors to recognize the importance of non-cognitive skills and their impact on students learning outcome .The primary purpose of this program was to know the importance and advancement of cognitive skills tools and frameworks ,secondly the main aim of conducting research was to compare both cognitive and non-cognitive skills .(Raden bash and Kasim 1998).

In the perspective view of academic achievement ,non-cognitive skills can be more effective (Heckman 2006).According to the research of James (1979)non-cognitive skills motivate individuals and economists in their respective business sectors .Discipline ,indeed ,a major pillar of non-cognitive skills that can be effectively utilized by teachers and parents for their kids .The positive aspects of discipline can further develop achieving high score ,which are crucial for the succession in schools level.(Chamorro Premise and Furnham 2003, Duckworth and Seligman 2005 ,2006).The research of Heckman committed that the power

of earning and economic benefits are linked with the frameworks of non-cognitive skills .No doubt, the strategic frameworks of non-cognitive skills are linked with critical thinking ,decision making ,facing difficulties and including others .

Critical Thinking

The critical thinking strategy is used to assess individuals' information processing skills, assumption, and arguments. Undoubtedly, critical thinking is one of the key pillars of non-cognitive skills. Its basic values rely on teachers' motivation. Teachers indeed, play a significant role in the presence of   class because various positive motivation including ideas will be increased among the students (shareet and Abbas 2004). Currently, the educational sector demands a high level of thinking, which are crucial for the curriculum design (vockell and van Seusen 1989)
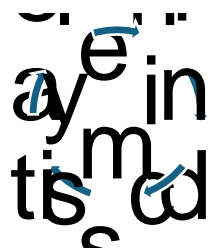
Critical thinking skills

Figure 2.1: The above Figure illustrates the various Phases of Critical Thinking (Jayakumar, U. M 2008)

The concept of critical thinking is rooted back to Socrates time, but later it was coined by John dewy in 1910. This soft skills has become an important in 21st century .Its basic significant are required problem solving .The strategy of critical thinking always applies when a scope of a problem will be analyzed .Therefore ,it is called an art of thinking power where individuals analysis problems that they face in their walk of life or at their work place .Its process is also known as rational thinking process that its fundamental strategies are based interference ,arguments and experiences .And these frameworks are used in decision making related to issues .Various educational institutions adopted this ideology to teach students. According to the report of the national assessment of writing and the commission, the basic concept of critical thinking is identified weak skills among the US students. Further, it defined that it must be adopted as the priority in the educational sectors to develop these skills.According to (Ennis 1984) critical thinking is a non-cognitive process which is completely linked with the mind. And its function process depends on both agreement and disagreement. The process which further adopted with of purpose to recognize the problems consistency and validity. (Capella L.M 1986) defined that critical thinking is a non-cognitive process, which is considered an imperative skills so, it must be developed in business students. Moreover, its tools are associated with the questions of how do we know? why do we believe it? what is the evidence? (Scriven M and Paul 1987) stated that critical thinking framework was developed nearly 2500 years ago due to its importance. It is too crucial to understand or analysis the problems by using AI tools. Through, apply various data, recognizing small mistakes and developing new changes in algorithm for its better improvement,are very crucial. It is true that knowledge is the primary Part of algorithm so, without its support, a problem analysis is not possible. Having the soft skills including social skills, and emotional skills, only soft skills provide a wide range of framework for the development of bright future. Social intelligence such as the teaching of complex, handling communication, tendency of collaboration,

contextualization, and thinking, these all have linkage with the AI. Design thinking is important part of human daily life. So, adopting the functioning structure of critical thinking would enhance their knowledge, experiences, and observation in high level. No doubt, thinking perspective have long rooted with the AI. Various educational institutions have tremendous concern to introduce the

strategies of AI to develop the better level of thinking in students. Various academic level introduced many approaches and strategies for the advancement of soft skills as one them is critical thinking.

The reason behind its primary role especially in education system is to represent it as a crucial objective including to accept its core value into the tremendous shape of competency level (zhao et al 2024). The main and initial role of critical thinking has been recognized in various views. Such is enhancing learning and self-development. The most importantly its kinetic performance level was observed   in students' academic level.

Theory of Critical Thinking

The importance of critical thinking and its framework was observed by f Richard Paul's with Elder in 1997 ,2006. This theory was divided into some Components, the first was the reasoning, second was based on instinctual power that was linked with the applying of thinking power, which is based on the elements of reasoning and the final element was linked with the critical thinkers like how the problems will be handles according to its solution. Further, their study signified that students are required two essential dimensions of thinking about upgrading their thinking level.

Soft skills have numerous importance in both professionals and nonprofessionals' fields. The business departments have tremendous interest in soft skills professionalism. However, the major significant part of soft skills link with someone personal competency. For instance, empathy, communication, enthusiasm, planning etc. In recent time the advancement of technology has raised its importance in another level. When the scientists and researchers have started their high focus in the advancement of soft skills. These skills indeed have its own capacity in order to interact with the people regarding succession. Similarly, the ideology of these skills was identified through the communication of individuals. The study of (de Freitas and Almendra 2001) claimed that the career and bright future development relies on these skills. Moreover, the ideology of critical thinking in recent time has been adopted as an important part of soft skills. Due to its high demand it is has been giving high value in educational sector. The researchers have sought out countless significant of critical thinking, which especially have relationship with the bright future advancement of students. Morrel et at (2020) critically said that the integration of soft skills has high capacity in educational process because it enables the students to be good communicators, creative thinkers. The study further described by (vi ichezetat2024) that the primary function of critical thinking is to analyze, evaluate, and apply information to solve complicated problems. In recent time the usage of technology and its linkage with the future education and the development of soft skills has become a new topic. Bhute et al. (2021) has recognized the AI tools and its usage in educational sector including distance learning. The platform of AI was significantly revealed through various tools of AI, such as Edmodo, Moodle, and Coursera, these have high capacity to allow students to use the digital of environment (Moon & Ke, 2023; Nakagawa et al., 2019) Particularly, the study of Moon and Ke (2023) observed the AI tools and its advancement significant of the students.

The researchers committed that critical thinking, digital competence, emotional intelligence, communication, are some initial part of students. The other researchers critically said that the practice of AI tools allow the students to enhance their critical thinking capacity (Ganguli et al., 2024; Lybeck et al.,

2023). However, numerous studied has shown different impacts of digitalis for the development of social skills. However, many researchers gave view on the digital and their impact on digitilization and the short coming of their usage (Purnomo et al., 2024; Sato et al., 2021).

Moreover, various researchers have commitment that the usage of AI tools have various negative impacts (Kiener et al., 2023; Soboleski et al., 2024).The approaches of educational has become a important part of critical thinking. It main intention is very important in shaping the education into a new level. However, some global states have adopted the strategies of education many decades ago. The primary purpose of this main concentration was to develop the critical thinking. The countries like the US, UK Singapore and Australia were listed in 2021. The rapid development of AI has been observed one of the crucial parts of education. Its tremendous performance has been seen in the development of curriculum; teachers professional. Both approaches were highlighted by Nagappan, ACARA (2014), and Ferguson Dixon, Moss etc. The value of AI tools not only have the power of the enhancement of critical thinking, but have the potential in severing in all part of educational system at the global level Berliner (2019), Leiman (2015) etc. It is true that the development of critical thinking is crucial in all walks of life due to its high demand including social personal development.

Reflective Theory

Like cognitive skills the non-cognitive skills have their own significant. However, it was basically coined by Jon Dewy an American philosophers, psychologists, and an educational reformer. The basic purpose of this theory was based on learning. According to dewy, learning requires through experiences. Indeed, critical thinking is crucial for both teachers and students at the time of learning.

Thomas and Zeuli well stated that about the teacher that teachers are for the students. Various teaching broad level were introduced in the US including the National commission of teaching and Americas future (1987), the National foundation for the improvement of education (1996), the National staff development council and others have recognized the importance of reflection and inquiry base learning.various models were Recognized , which were based on beliefs, imaginations, and stream of consciousness, but its basic interest component was linked with the reflection. Reflective theory, or reflective practice, . This model follow critical thinking that how it would examine someone own way of thinking, and experience level to understand deep level of understanding something. Its key purpose is included both in action and reflection action. Both were based (thinking while doing and thinking about experience after it has happened). Further, the theorists argued that this process of consciousness increase self-development and skills. Some tools of AI, which have significant role to enhance experience and self-awareness. The theory of reflective theory has closely linked with the soft skills. However, its strategies emphasize on self-learning of awareness, evaluation .and improvement. The soft skills such as teamwork, problem solving, communication, these would be needed to go through the process of thinking to implement someone own behavior and experience. The theory that was introduced by john dewy and later studied by Donair. The main purpose of this theory was that the students must identify their own actions including weakness and strength.

Riff Bot

It is an AI tool that is used to raise question personally in order to strengthen experience process and developing critical thinking including self-development. Secondly ,it enhances the understanding level to

understand and ensure themselves about own learning and self-awareness. No doubt these strategies play crucial role for the development of soft skills.

The initial of Riff bot can be recognized in the approach of soft skills by providing reflection. These skills ,indeed, enhance soft skills, which are included critical thinking, problem solving, self-awareness, .

The main purpose of using this tool is that the users implement their experience through analyzing their own critical thinking.

Ed café

Ed cafe is designed for the purpose of better performance of teachers. It helps the teachers and managers to go through the robust process of content creation assessment and resources management. It delivers more efficient way for the teachers to teach including personalized and engaging.

Grammarly

Grammarly is an initial part of AI. In recent time its significant function has been introduced one of the crucial parts of developing writing skills. It does not only develop students writing skills but also boost up students' self-esteem. Its tremendous function has been adopted as a partner feed backer. It assists the students, whatever the helpful, materials would be asked. Its main assessment is involved to encourage and enhance the critical thinking part in the students. However, the positive impact of grammarly was studied by Oktaviani (2022), according to the research major students use Grammarly due to its positive feedback. Secondly, it is used for the purpose of checking Grammar error especially without taking the suggestion of teachers.

Decision making

Decision making is an effective way of thinking .The primary purpose of decision making means to come up with tremendous conclusion .Its basic strategies are linked with the future planning and objectives .The basic ideology of its frameworks are applied in the fields of management .However in business level ,it is used like how to utilized large small scale of resources .According to (Schoemaker 1993)various tools of decision making are present .According to the model of (Schoemaker 1993) countless decision making are present .According to the model of (Schoemaker 1993) countless strategies are existed and all strategies have their own importance . Various models were established about decision making, but the four steps of decision making were reviewed on the base of intelligence, design, choice, and perspective. However, the main aim of this model was to select the best opinion of decision making.

 It's some strategies were divided into four models. Decision making is one of the important processes and it has its own significant. In recent time, this crucial strategy has been applying in various departments. For instance, department heads and team leaders go through this level in various ways as per in day-to-day base activities. According to (Eisenfubr,2011) ,those who adopt this process that would receive numerous opinions to choose the best for both long and short goals.

Secondly, it's one of the primary functions is involved in different level of thoughts and ideas about ending result. Thirdly, it is considered an imperative part of school administration. However, decision making was identified into two processing of models of rational model and rationality model (March 2010). The study

of (Kepner and Tragos 2005) claimed that the first step of decision making is to identifying of problems. The advancement of AI has been involved to make the things easier. The existence of AI tools has been experienced one of the main parts of both academic and nonacademic level. The contribution of its large scale has inspired by many researchers, CEO, IBM. Ginni Rometty committed that the invention of AI tools has proven the intelligence level of human. Moreover ,various scientists believed that the tools of AI has been providing various negative impacts on students learning

outcome. As the scientist steepen hawking committed that AI could spoil the end of human race (cell jones 2014). Bill gate claimed that the human must be worried about the threat that has raised by AI (Rawlinson 2015).However, individuals have limited information that could lead to slow down their Learning capacity (Eyert and March 19630 and Simon 1955,1983) . While various scientists argued that the information of technology, and its adaptation and utilization play crucial role for the better solution through decision making.

There is no denying the fact that the advancement of AI has emerged a revolution and transformative technology, which help for the better decision making. In present time, its strategies' play crucial role. The process of decision making was introduced by Simon. Later, its process phase was divided into four parts by researchers, which were based on intelligence, design, choice, and implementation. In the phase of intelligence various information were collected by decision makers to understand the root of problems. In second phase a criterion was developed to design the model and analysis it. In third phase, the process of selection and decision was carried out. finally, implementation was done through collecting feedback.

The most importantly, the tools of AI is being applied in industrial sectors for the financial services. The usage of AI is being used in business sector especially how investment would be utilized. On the other hand, this process is being applied continuously in order to see accuracy of analyzing the financial.   The using of wide range of AI tools indeed provides better environment for doing work easily in the market. The present study ensured that the old methods, which are used in an old time, now do not have high value in modern time due the old access. The tools that are invented in various sectors including can invest better flow for the investors. Using AI about decision making can not only ensure the operator to run smother ,but also various ways can be sought out to change the strategies for the better development of economy. (Bond et al., 2024; Sánchez‐García et al., 2024)

Normative Model

Main intention of this model is to support manager to observe the level of participators in the group. Secondly, it motivates the decision makers to go for the best choice according to the distribution of less resources. Moreover, the main strategies were associated with rational roles and norms for guiding better decision making.

 The normative model is linked with the soft skills. Its primary goals have related to the critical thinking, communication observation and decision making. The development of personal skills and its strategies' frameworks have been designed to develop them according to it. (e.g., the main function of normative

model is to meet with the doing of cooperation skills).This model main intention is to support manager to observe the level of participators in the group. Secondly, it motivates the decision makers to go for the best choice according to the distribution of less resources. Moreover, the main strategies were associated with rational roles and norms for guiding better decision making.

 Normative models have close connection with the soft skills. Its main function is related to various cognitive level such as critical thinking ,observation ,decision making ,and critical thinking. The development of personal skills , strategies and framework have been introduced to develop according to their function. (e.g., the initial role of normative model is to achieve the skills of cooperation.

A normative model has emerged as a framework that has been applying in various level. For instance, it is used to compare or assessment. Its strategies were also adopted in various theories regarding decision making such is visitor rooms model .The main aim of applying this model was introduced different level in health sectors in order to guide them through the best way of doing participation.

Descriptive Model

This model has its own importance regarding decision making. However, this model stated that individuals use their internal experiences about decision making. Its basic strategies follow the factors like how people adopt significant strategies to resolve problems according to the situation.

The basic formula of decision making was applied in the field of management. Various views were presented about decision making and its complex firm. As (Cohen, march and Olsen 1972) critically expressed their views about decision making that what happen and why organizations rely on the strategies, tools and frameworks of decision making. Decision making ,indeed ,has many agendas, which flow knowledge in order to influence decision making in a better level.

The students in the field of management are taught the basic concept of decision making related to the courses of statistic courses. The primary purpose of using this method is to recognize the problems through the support of decision making.This model main intention is to support manager to observe the level of participators in the group. Secondly, it motivates the decision makers to go for the best choice according to the distribution of less resources. Moreover, the main strategies were associated with rational roles and norms for guiding better decision making.

The main purpose of this model approach identifies how skills like critical thinking and communication are needed in implementation and assessment. No doubt, soft skills have its own identification. Its strategies would be required at workplace and doing communication. The tools of AI like Disco AI, Canario, AI and Hiring Branch soft skills AI and NLP, these have high scale of capacity to organize training scenarios, feedback of personalization would be given, and assessment of communication will be given for the development of soft skills.

Problem Solving

Problem solving is one of the important parts of non-cognitive skills. Its basic process is given crucial aspects by educators, psychologists, and philosophers. various theories were conducted to identify the basic components of problem. In recent time problem solving is high scale of demands for the curriculum and other sectors. Various theories conducted to know the significant of problem solving. No doubt, all problems have three components: given goal and operations. The basic ideas of given are linked with the facts and information, which are used to describe any problem in detail. Goal is presented to come up with

its end solution. And its final term is significantly is the action to approaching the goal.However, problem solving main importance was mention in the theory of trial and error and second one was the behaviorists theory. Both theories were applied on the context of learning

Trial and Error Theory

Edward Thorn-dike an American psychology, researcher, and an author. His best contribution in the field of leaning is considered his best work .The practice work on animal has enhanced his study, like how learning occupied .It was his extreme believed that teaching and learning practices in schools can be the reason of positive learning environment for the students. As in his experiment on a cat strengthen its research that how learning has happened during the times of various repetition, which later has capable the dog to reached to open the box. Trial and error theory was applied as a experiment form. In this

experimental process, the first time the soft skills were developed., which was applied by dog through doing various attempts. This theory main strategies were linked how someone learns something by doing mistakes. The result, which was received has Cleared that how the soft skills were developed into the shape of problem solving, critical thinking, resilience and self-awareness. Learning of mistakes were achieved through various attempted of mistakes and the process of soft skills were progresses through encouraging and implementing including with other various strategies. The reinforcement method, which was applied by Thorndike method is solely linked with the AI.

The ideology of reinforcement was adopted as a AI machine through the experiment of trial and error theory .The decision making was done by reward Similarly ,the case in AI like game playing ,robotics ,and self-driving cars .The reinforcement ,which was determined as a an agent .So, through the various strategies' including rewards or punishment were recognized as this theory policy .Similarly ,the same perception was applied by the some tools of AI according to the reference of learning .For instance Googles Alpha ,as it is played in learning on the base to defeat human players .Secondly ,Robots ,it promotes the learning platform through learning movement .It does not stop until the succession will not be achieved like the trial error theory repetition. It is true that Terrio and error theory has linkage with the AI in order to enhance soft skills about learning .

Behaviorist

Behaviorist theory was basically introduced by B.f skinner and John Batson .This theory insisted that individuals learn from their environment through communication (According to Miltenberger 2001) behavior strategies are linked with the what people are needed to say or do .The main purpose of this theory is to observe the process of observation and its determination (Good and Brophy 1990).The learning tools and strategies were studies in difference level ..The interest of learning were adopted in the theoretical frameworks of psychologists and educationists

Decision making indeed a unique approach that is applied in addressing to challenge regarding to achieve its outcome. Every human being faces multi-faced issues, so for the encountering those issues, they adopted various strategies and planes to resolve those commitments. For resolving those problems, numerous thoughts and knowledge are used for the solution. Moreover, its components are considered the most significant ones that affect organization and management. Its basic elements have tremendous influence on success and failure. No doubt, the process of decision making is affective strategies for the succession   of life ,but also for other purposes. In recent time various theories were presented to link them with the AI.

indeed, there is no denying the fact that AI and its new modern strategies has been playing various role in both academic and non-academic sectors .

so, among those theories, one of them was the behaviorists theory .It has deeply linked with the development of AI .The theory that was represented on the base of reinforcement and conditioning as like the new model of THESEUD a AI .It is a maze solving mouse .However ,the role of AI has been accepted as a crucial role that is linkage with the behavior. The development of artificial intelligence and its significant function can be recognized to offer countless tools to understand the human behavior including feeling and courage.

Artificial Intelligence Technology

Artificial intelligence technologies have significant role at the global level. Its basic function is involved in performing certain tasks. However, AI technology is a computer science, and its primary function is

performing certain tasks. its name was coined first by john McCarthy in 1956. Meanwhile, the basic idea of Chat GPT has come as a tool also can be used as a research tool .It Is even an imparative for the development of any states structure.

Chat GPT has been being used in various sectors as a language model. Its examination in the sectors of education, health sectors and education are considered the most importance one. With its various merits. countless demerits are associated with it. No doubt the high growth of technologies tools and natural language have become the consequence of advancement of various technology. The AI strategies are rooted in the field of NLP, a area that is the capacity of understanding languages. Moreover, various tools were created in the app of AI to understand the performing tasks including generation, translation, and data analysis.

Critical thinking is one the main and crucial pillar, which is linked with the non-cognitive skills. The basic strategies of critical thinking are not only important in walk of life but also is great focused at workplace including educational sector. The technology like artificial intelligent tremendous impacts can be seen on impacting individuals' activities. It is true that it has both positive and negative affect on learning outcome due to its strong agenda, its tools, frameworks, and strategies are being supported more in educational sectors.

 The significant and its large scale of usages have been debated both in private and public sectors (Hosseini ,Rasmussen and Resnik 2023).The function of AI has been effectively used in organization functions efficiency (palos Sanchez 2002).However ,its one of the important tools is based on modern language technology .Its significant parts has numerous base function that it is high capacity of handling text base questions including questions and answering and other countless difficult questions (land and wang 2003).It is true that the world has changed its direction into another level. Today that changing concept is called the 21s1 century .This nature base technology is introduced in 2022 with its full name (Generative pre trained transformation).As, due to its natural process of language is used in ChatGPT and has other tremendous significant function in questions and answers feedback,accepting mistakes providing feedback about facing challenges and various others (van dis 3003).Its high skills also can play a great role can be recognized in educational sector .

The rapid growth of technology was analyzed in educational sectors through conducting and analyzing by biblio metric (Sanchez et al 2022).While its primary functions can be taken in various level .For instance

,it mimics human language ,have the capacity of designing of new draft ,like stories ,poems and novels ,it also act whatever ,the order will be given (firat 2023).In recent time ,the importance of Chat GPT especially in educational sectors have one of the importance role and tools are introduced in educational into many shaped .

No doubt ,machine learning has been using in different learning level (sandulescu and chiru 2016).The invention of Chat GPT has made a world recording when it was followed by 15million followers because of its output of model (Metz and grant)2022).The data which were put have the high capacity to council ,feedback in creating educational context .It enhances its importance more not only in educational sector but also in non-educational sectors .Its importance strategies and other tools have been predicted that might it will replace teachers .The model of Chat GPT enable the students to learn continuously through machine and deep learning technique (Hosseini and Resnik 2023).

According to (webb,2023) statement, Chat GPT has gain more fame as compare to google, Meta, including others. Its logical and well manner has provided another name when individuals have used it in

different purpose especially in educational sectors and others (tate doroudi 2023 and Norris 2023) .The advancement of technology in various sectors such as in health care (early detection), education (customized teaching aids) customer service (voice assistance chatbots) and transportation (self-driving vehicle) have been improving human daily lives (Beck 2019).

The world has been going through under various transformation in recent time. The rapid development of AI in various sectors including government and non-government sectors have brought countless significant. Like the development of CHAT GPT also Deep Seek have become an important part of educational and industrial sectors. Its advancement by China in last month of 2024 has shocked all the entire nation when its tools were used more than Chat GPT in a week. However ,deep seek is a machine that has the capacity of processing of natural languages ,giving feedback including data savage ,and recommendations .The basic ideology of technology was concerned in 1989.But ,its strategies were demanded when Google was introduced .Deep Seek strategies influence the cognitive level of users save them from the time consuming .Its primary function can promote the competitive level of students regarding decision making ,it helps the educators in thinking independently and collect more information related to courses and other material .The medical sectors in recent time depend on Deep Seek about the medical research in order to develop new outcomes for the better treatment of the patients .

Secondly, its access can measure the competency level of the students. However, it was developed by China and main purpose of this app was to replace traditional technologies, remove many other barriers, which are related to the development of economic .so, it has emerged as a big revolution in financial industry to foster economy efficiency doubts.

Main aim of deep seek was to provide countless opportunities, provide other access for the succession of financial, and related to security including data privacy. Since the world has entered in a new century, various changes were recognized including different tasks, enhancing social value. The daily base usage of AI has changed the learning styles of both teachers and students. Due to the invention of technologies and its large scale of new tools ,a competition area has been emerged. The higher education level of educational sector has been receiving the Privilege of AI. Indent, it has designed with wide range of applications in order to perform various tasks including to understand natural languages. Is primary function can be recognized in differences level such as language integration, information retrieval, learning and research, according to one the reports of United Kingdom, the application of Deep Seek has encompassed with wide

range of parameter that cover various strategies and framework. However, the study further reveled its capacity in natural language function is become a high level of decision among scholars and researchers.

Musico

With the changing of the world, various unexpected thoughts and ideas have come into the real shape. The coming of AI in modern science has totally changed the shape of the global. Its invention in the field of education as emerged a serious revelation that has brought countless changes such as Musico. It is a app that has designed with some especial and tremendous frameworks .The primary function of this is to support the people ,who have high demand and focuses of learning language or doing communication .

Udemy's

Education was a far distance and a dream in 20th century, but AI has opened various ways for the distance education . So, from those tools ,one of them is Udemy's, an online learning platform where its

significant is to provide the platform of learning courses. The aim of its goal is to develop the individuals' personal skills.

Roleplay

A learning activity that the users select characters and play according to related to real life situation. It, indeed, plays significant role; in this game the students play different role in order to act according to life real character of teacher and doctor .

AI and its Performance at Academic Level

AI has significant efforts and great contribution in various academic level. For instance, the CHATGPT tools and its framework have tremendous support in research articles. Its primary functioning in academic level was totally recognized in various parts of educational institutions. According to the study of, Nature Review Urology, the crucial role of AI has been observed in enhancing of writing in academic level. No doubt, the advancement of technology has made everything easier in the educational sector in order to set the complex process of database. The capacity of computer, robots and other advancement tools, have increased the cognitive level. The learning platform has been provided high level, including decision making ability and other adapt abilities. According to the study of Devedic (2004), whatever, the approaches and changes occupied, those all were due to the invention of AI.

The discovery of smart phones and other devices have become an important part of human lives. Similarly, the usage of AI large scale of applications, frameworks and tools in the landscape have taken into the shape of revolution. In other side ,numerous access of AI have been introduced because of its setting and context Alam(2021).According to the study of Timms (2016),the main capacity of AI was observed in the academic level especially linked with the administration .The study further explored by Sharma (2021) that the wide range of AI and its performance has been applied to reduced heavy load and an enable teachers to involve themselves with other activities .

Adaptation of AI tool provided various capacities level to the computers and robots to perform their tasks.Its applications allow to respond the users without acquiring any supervision. However, its large scale has been

being used by many industries including health care, fast food ,commerce ,education and many others .The most importantly , it links with the human .On the other hand, it links the consumers regarding communication and responding, like whatever, the ideas and information would be required. In recent time, the researchers, anti-classicists, writers' journalists, and organizations use unlimited participation in decision and engagement.

Secondly, the invention of language tool has proven a new modern method of learning any language. The input of objectives have imperative function .However ,its inter-nation access have shown the indication of positive aspects for the people .Similarly ,the tools of AI were significantly adopted in educational sectors and major of them have been still applying in numerous sectors of educational institutions .For instance ,the main strong capacity of CHATGPT have been identified in data analysis literary survey and the cooperation with the context of academic .The process of Chat GPT potential about data process method and its visualization have been observed through various assessment and its access . Furthermore, data utilization, numerous information, those were collected related to research papers exploration and research gap.

In modern time AI has been playing crucial in higher education, its large scale of advancement is leaving positive impact on student's academic level. the influence of AI has been rising both opportunities and challenges (Edtech2020). According to the study of (Holmes 2019) the tools of AI have strong capacity to address the requirement of learners .However ,the traditional method of teaching at academic level for many years has raised critical questions through the support of AI .The major of questions were based on equity ,accessibility .The approaches ,which were introduced at academic level ,has introduced numerous unique needs especially to overcome the requirement of students learning fulfillment .The advancement of technologies challenged the traditional method of teaching .Various questions has been raised to compare the human and machine base learning .

AI tools in Academic Writing

Academic writing indeed has its own impotence. However, for the writing of research, management and plagiarism checking including others processing methods become more easier due to the tools of AI.No doubts , all tools and strategies have their own privilege. In recent time academic writing is considered one of the main pillars in educational sector. The most commonly, its access have been being used by researchers and educators. The main intention of their research process were to work on argument and logical reasoning. Moreover, the reader receives better level of writing to understand the topic. Secondly, it permits the scholars to analysis the topic and explain the theory including conclusion.

The field of academic writing always face multi challenges during the process of checking. The critics always received through various feedback. An such cases AI is one of the crucial process that the basic grammars and other parts of researcher would be checked according to its accuracy and qualitative level. These tools indeed provide a well qualitative form of writing at academic level.

Challenges and Opportunities

Since the invention of AI tools in the sector of education, it has been recognized one of the important realms for both human and education. The tools that have been designed have high capacity to develop personal learning. With academic achievements, it is also maintained better feedback platform for the students. The using of AI application has high scale of ability to provide better experience about context designing. Additionally, various challenges were observed according to the learning context. Secondly, its inside effect will rise many issues for the tutors. The online learning and assignment indeed can be one of the biggest challenges for the teachers to control it. In addition, AI application can build great trust for the

teachers. The platform of education always is the role to rise reliable and enjoyable environment for both teachers and students. (Kauda, 2022) stated that the whatever applications that have been invented provide pleasant and feedback condition for both teachers and students. On the other hand, the challenges surrounding for the usage of AI have various significant. However, the second side of negative impacts were noted in the research study of (kanalove et ,2023), as he committed that the data that the students will provide will rise issues for the protection of their the privacy . No doubt, the invention of AI tools has been providing great understanding for the students to solve problems including studying at home. So, since the investment in the field of technologies, it is considered one of important trend in educational sector.

METHODOLOGY

Research Design

This study main purpose was to know the role of AI tools regarding the development of non-cognitive skills among graduate learners at the university of turbat Balochistan. Its second aim was to investigate

the integration of artificial intelligence in higher educational settings. The quantitative component was employed empirical analysis of academic performance indicators, including comparative assessment of grade distributions, course completion rates, and longitudinal learning progression metrics between AI-enhanced instructional environments and conventional pedagogical approaches. Complementing this numerical data, the qualitative investigation has incorporated with semi-structured interviews with instructional faculty to elicit professional perspectives regarding AI implementation challenges, pedagogical adaptations, and perceived efficacy. Furthermore, structured classroom observations was conducted to systematically document and analyzed the tripartite dynamics of student-instructor-AI interactions within authentic educational contexts. This methodological framework has ensured both measurable outcomes and nuanced understanding of AI's educational integration.

Data Collection

 The research methodology employed a multi-faceted approach to identify the main role of AI in the sitting of education .Th students were provided questionnaires to collect quantitative data about user experiences, satisfaction levels, and perceived effectiveness of AI tools in the learning process. Semi-structured interviews with (students at the university of turbat) provided deeper insights into implementation challenges, pedagogical adaptations, and observed changes in student engagement and performance. Direct classroom observations document real-time interactions between students, teachers, and AI systems, revealing practical patterns and potential areas for improvement. Analysis of AI-enabled learning platforms complements these methods by providing concrete data on user engagement, learning patterns, and achievement metrics, offering a data-driven perspective on the effectiveness of AI integration in educational environments.

Sample Size

The study has collected its data from 150 participants, (140 for quantitative data and 10 for qualitative data) comprising: the qualitative data were collected through in-person interviews with open ended questionnaires and quantitative data were collected through close handed questionnaires.

Data Analysis

The mix method approach was used in order to full fill the requirement of both qualitative and quantitative data. The AI tools were observed to understand how their approaches and strategies had high capacity to enhance the non-cognitive skills among the graduate students at the university of Turbat. Both techniques were used to explore the attentions of students view regarding the usage of AI tools. Further ,the data collection were done to know students perception about the significant of AI and their usages.

Ethical Consideration

The strict role of ethical consideration was follow in this research .Whatever ,the information ,views and perceptions were collected those were kept under a secret .Indeed ,he primary purpose of this research was to determine the respondents knowledge about the topic tittle .whatever ,the questions were asked if the participants felt unsatisfactory, so at the exact time they could quit or deleted .The collect data were only applied for the purpose of at academic level .

In recent time non cognitive has been adopted an important part of educational system. Its significant role has been recognized both in educational sectors and non educational sectors. The effective strategies of

problem solving, decision making, motivation, confidence, are some major parts of non-cognitive skills that these have high demands in new modern educational system. However ,the primary purpose of this research was to know how the tools of AI have tremendous role in enchanting non-cognitive skills among graduate students in their educational sitting. For further, clarification, a mix method was carried out with different open and close ended questionnaire to collect the experiences of respondents regarding the role of AI tools in enhancing non-cognitive skills.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

The primary purpose of this chapter was based on the data collection and its anallization. The all-data collection was analysised and given attention according to the active respondents. The research was based on mix methodology. In the section of qualitative the response of students were collected through knowing their opinions regarding the role of AI about developing their non cognitive skills and open ended questions were asked through interview . Its second portion regarding quantitative portion like-rt skills was applied with close ended questionnaires. Quantitative questionnaires were distributed among 140 students and qualitative section only 10 open ended questions were asked to the students. Further, the data collection was carried out at the university of Turbat. The all saved data of qualitative were analyisied through the process of thematic and quantitative questionnaires data were analysised through the software of SPSS.

Qualitative Data

Theme 1: To Understand the Numerical and Problem

As some of students committed that they have required the usage of AI when they did not have the ideas of new materials related to their subjects mostly related to physics numerical. So, for understand those numerical and other new topics they have taken the support of AI to collect ideas and knowledge about the numerical.

Theme 2: How to Deal with the Problems

The major of students believed that the usage of AI tools have provided various significant, especially, if they did not understand any problems during the lecture. And it was impossible for them to approach their teachers. Due to facing such numerous issues. In such cases, they have confidently taken the supportive help of AI tools.

Theme 3: Encouragement for Practical Work with their Colleague

Many reviewed that the important of AI tools as an important part and has various encouragement tool for the students. Various students stated over the importance of AI that it has encouraged them in various conditions . The positive response of students said that when the teachers have given any new practical experiments. They have adopted the tools of AI tools to complete their practical works and making their article more effective one.

Theme 4: Provided new and basic concept of ideas

The AI tolls have provided many new ideas to know related to their topics. Various science students committed that the using of AI tools have encouraged their confident like how to prepare their assignment, when any new topic was given by their teachers. Secondly, they stated that whenever, they did not

understand any topics from the teachers, their first option was the usage of AI because of providing ideas related to their topics.

Theme 5: Motivate to Make Assignment and Presentation

Many suggested that they have faced various issues during their study period, especially a new topic was presented by their teachers. And the main solution of knowing this new topic was to use the tools of AI. They also stated that the usage of AI encouraged them which tool is suitable for them to write their assignments and presentation .

Theme 6: Encouragement for the preparation of exam

Many students said that they have used AI to receive proper responded. some students stated that they have uploaded examination questions to make them prepare during the time of exam. Secondly, other responded that during the time of suing AI, various questions were asked to give the questions answers with reasoning.

Theme 7: Making Positive Environment

Many responded clarified that the usage of AI tools a created positive environment for them. Further, their opinion committed that whenever, serious issues were faced, those problems were analysised through the support of AI .And whatever, the answers were provided ,those were given in positive form .Because of such responding ,they have received a positive environment for the usage of AI.

Theme 8: Reduced Stress Working over Project

AI tools motivated them to work over the project with their group. Many students suggested that the significant usage of AI tools have become a mentor for them.In most of short time they did not receive times to approach for the full preparation of project on the exact time .So in such condition AI tools reduced their stress to enhance their learning skill to complete their projects.

Theme 9: The usage of deep-seek

Many students claimed that since the invasion of deep seek they-have referred to use deep-seek due to its deep-thinking capacity and providing deep level of information about any topic. According to them, the portion of deep seek have better capacity, and they used deep seek to solve the questions. So, further committed calmed that other students should use the deep seek.

Theme 10: Motivate solving problems

Many of students appreciated the tools of AI tools as motivating of problem solving. Many told that whenever, any new topics or numerical were not properly understood, they have taken the significant support of AI to solve issues related to problems .

Quantitative Data

The next phase has focused on quantitative analysis after analyzing of qualitative part. Like-rt scale was used to collect data. A statistic result was applied to determine students' perception and agreement regarding the role of AI about enhancing the non-cognitive skills. Whatever, the data were collected those were analysis through the using process of SPSS to find out mean and standard.

*Table **Error! No text of specified style in document.**.1: I believe that AI tools provides strong support for my academic success.*

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	26	18.6	18.6	18.6
Disagree	12	8.6	8.6	27.1
Neutral	29	20.7	20.7	47.9
Agree	44	31.4	31.4	79.3
Strongly agree	29	20.7	20.7	100.0
Total	**140**	**100.0**	**100.0**	

Table 4.1 shows 52.1 percent respondents have shown interest over agree and strongly agree regarding the role of AI about the succession in their academic level. Secondly, 26 have responded over strongly disagree and disagree. While 29 percent has become neutral. The result of this for this statement has received a positive review. the percent of strongly agree and agree more than disagreement which received positive view about the role of AI role in academic and its small portion has become neutral. it expressed that they might not have any acknowledgment about the AI and its tools usage performance in academic level.

*Table **Error! No text of specified style in document.**.2: I feel more confidence in my critical thinking after adopting the tools of AI.*

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	13	9.3	9.3	9.3

Disagree	19	13.6	13.6	22.9
Neutral	44	31.4	31.4	54.3
Agree	40	28.6	28.6	82.9
Strongly agree	24	17.1	17.1	100.0
Total	**140**	**100.0**	**100.0**	

Table no 4.2 stated that regarding the statement of fact and opinions in problem solving, 45.7 percent participants have responded over agree and strongly agree out of 140 participants. On the other hand ,22.9 percent students have committed on disagree and strongly disagree, 31.1percent has showed neutral. The result has shown a positive collection over AI, but the remain part has cleared unsatisfactory view over AI.

*Table **Error! No text of specified style in document.**.3: I can effectively distinguish facts and opinion in a problem by the support of AI.*

	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Strongly disagree	15	10.7	10.7	10.7
Disagree	15	10.7	10.7	21.4
Neutral	43	30.7	30.7	52.1
Agree	47	33.6	33.6	85.7
Strongly agree	20	14.3	14.3	100.0
Total	**140**	**100.0**	**100.0**	

Table no 4.3 showed that 47.9 percent students stated that they can effectively distinguish facts and opinion in problem solving through the help of AI. 21.4 percent expressed disagreement and strongly disagreement. Here it shows that respondents have lack of confidence in such skills. Meanwhile, about 30.7% remained neutral**,** viewed mixed experiences about distinguish facts and opinions by and its support by AI. So, in the third questions, a major participants stated positive views that AI has played positive impacts to differentiate between facts and opinions in a problem.

*Table **Error! No text of specified style in document.**.4: I feel more confident in my learning after using of AI.*

	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Strongly disagree	15	10.7	10.7	10.7
Disagree	21	15.0	15.0	25.7
Neutral	31	22.1	22.1	47.9

Agree	49	35.0	35.0	82.9
Strongly agree	24	17.1	17.1	100.0
Total	**140**	**100.0**	**100.0**	

Table no 4.4 demonstrate that participants have stated positive suggestions. The collected response of 52.1 percentage agreed and strongly agreed over the statement   regarding the feeling of confidence in learning by the usage of AI. Similarly, 25.7 percentage has followed disagree and strongly disagree. However, ending part of neutral with 22.1 percent part were not sure about AI and learning confidently.

*Table **Error! No text of specified style in document.**.5: AI tools have supported me in becoming a better decision maker.*

	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Strongly disagree	15	10.7	10.7	10.7
Disagree	19	13.6	13.6	24.3
Neutral	27	19.3	19.3	43.6
Agree	51	36.4	36.4	80.0
Strongly agree	28	20.0	20.0	100.0
Total	140	100.0	100.0	

The result of table no 4.5 indicated that AI tools helped them to be better decision makers with 56.4 percent of agreement and strongly agreement has followed a wide range of positive view. Secondly, 24.3 percent of participants have expressed disagree and strongly disagree, which was a negative result. However, 19.3 percent responded not having experience of AI tolls and its support to make able students to be better decision maker. Thus, the overall result was based on positive answers about AI to make them to be better decision makers.

*Table **Error! No text of specified style in document.**.6: AI tools enchanted my thinking capacity, allowing me to particulate in academic activities more confidently*

	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Strongly disagree	18	12.9	12.9	12.9
Disagree	20	14.3	14.3	27.1
Neutral	27	19.3	19.3	46.4
Agree	44	31.4	31.4	77.9
Strongly agree	30	21.4	21.4	99.3
12.00	1	.7	.7	100.0

Total	140	100.0	100.0

The results of Table no 4.6 show that most of respondents agreed that the tools of AI have enhance and boost their confidence in the academic participation with the percentage of 31.4 including agreements and strongly agreements, which is a positive response. While 27.2 % responded on disagree, strongly disagree about the statement and it shows negative view about AI and its influence. similarly, neutral opinion has followed 19.3 percent, which indicated that some students do not have any ideas about AI and its influence developing confidence in academic achievement.

*Table **Error! No text of specified style in document.**.7: AI tools have improved my critical thinking skills for problem solving.*

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	14	10.0	10.0	10.0
Disagree	32	22.9	22.9	32.9
Neutral	25	17.9	17.9	50.7
Agree	58	41.4	41.4	92.1
Strongly agree	11	7.9	7.9	100.0
Total	**140**	**100.0**	**100.0**	

The majority of student shown in table no 4.7 has agreed that the tools of AI have improved their critical thing in decision making with 49.3 percent responded over agree and strongly agree which shows positive response. 32.9 percent has clicked on disagree and strongly agree that indicated a negative level about AI tolls and its impact on their critical thinking abilities. On other hand ,17.9 percent neutral was ended with uncertainty. Thus, the result has shown a positive indication. A large participant has suggested the positive impacts of the development and growth of learners critical thinking skills for problem solving.

*Table **Error! No text of specified style in document.**.8: I have used various AI tools to analyze issues for better problem solving.*

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	8	5.7	5.7	5.7
Disagree	28	20.0	20.0	25.7
Neutral	24	17.1	17.1	42.9
Agree	49	35.0	35.0	77.9
Strongly agree	31	22.1	22.1	100.0
Total	**140**	**100.0**	**100.0**	

In this table 4.8 many respondents have ensured that the tools of AI have helped them to analyze issues for the better decision solving. As per this result 57.1percent has responded agree and strongly agree that was a positive impact. While 25.7 percent has followed disagree and strongly disagree. indeed, it was a negative view. in contrast, 17.1 percent remained neutral, expressed that they did not have any ideas about the AI and its role in problem analysis. The result has showed a positive review that AI tolls significant role regarding the development of problem-solving capacities.

*Table **Error! No text of specified style in document.**.9: AI like Deep seek have provided me new direction to apply new ideas in decision making.*

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	14	10.0	10.0	10.0
Disagree	34	24.3	24.3	34.3
Neutral	16	11.4	11.4	45.7
Agree	37	26.4	26.4	72.1
Strongly agree	39	27.9	27.9	100.0
Total	**140**	**100.0**	**100.0**	

Table no 4.9 results show many participants have responded a positive impact of AI and deep seek regarding decision making and providing new direction with 54.3 percent have given response over agreed and strongly agreed that was a positive view. responded positively. As ,34.3 percent were followed by disagree and strongly disagreed, while a small group has followed neutral was 11.4 percent. The result was viewed with mix suggestions, but its large part has indicated toward the positive impacts of AI and deep seek role about providing new direction and applying such new directions in decision making.

*Table **Error! No text of specified style in document.**.10: To what extent do you agree that AI tools enhance your ability to evaluate, evidence, and make informed decision.*

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	14	10.0	10.0	10.0
Disagree	20	14.3	14.3	24.3
Neutral	39	27.9	27.9	52.1
Agree	46	32.9	32.9	85.0
Strongly agree	21	15.0	15.0	100.0
Total	**140**	**100.0**	**100.0**	

Table no 4.10 results identified that many of participants have agreed that AI have develop their inside abilities to evaluate evidence and go for making decisions. However, 47.9 percent agreed and strongly agreed, it is a positive reaction. While 24.3%   have viewed on disagreed and strongly disagreed so 27.9

percent were neutral. The results significantly stated that the half participants have suggested positive response over AI tolls and its important role in developing learners, evaluative and decision making.

Table Error! No text of specified style in document..11: I believe that motivation is essential skills that can be develop through the support of AI.

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	24	17.1	17.1	17.1
Disagree	33	23.6	23.6	40.7
Neutral	27	19.3	19.3	60.0
Agree	30	21.4	21.4	81.4
Strongly agree	26	18.6	18.6	100.0
Total	140	100.0	100.0	

Table no 4.11has shown one third of participants agreed that motivation is an important skill that can be completely boost through the support of AI with the percentage of 40 agreed strongly agreed that was indeed a positive response. While 40.7 percent indicated disagreed and strongly disagreed that directly showed negative expression and the percentage of neutral was 19.3 about the statement. According to the result only some of adopted AI toll as helpful in developing motivation. similarly, the second part committed that its tools only could develop some student's motivation

Table Error! No text of specified style in document..12: What extend do you agree that the daily usage of AI provides you with a strong platform to analyze the root of problems?

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	17	12.1	12.1	12.1
Disagree	25	17.9	17.9	30.0
Neutral	37	26.4	26.4	56.4
Agree	43	30.7	30.7	87.1
Strongly agree	18	12.9	12.9	100.0
Total	140	100.0	100.0	

Table no 4.12 results defined that many of responded has shown positive response regarding the daily usage of AI and providing better plate form to analyze the main root of problems with 43.6 percent (greed and strongly agreed). It is indeed a positive indication. 30 percent committed on disagreed and strongly disagree.

Neutral section with 26.4 % indicates that it is not good view regarding AI and its usage to soughing out the root of problems. Overall, the results suggest that students have given statement different level of AI and its usage about the development and its ability to develop the capacity to analyze problems at their root.

Table Error! No text of specified style in document..13: I use different approaches of AI tools when solving problems.

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	12	8.6	8.6	8.6
Disagree	15	10.7	10.7	19.3
Neutral	32	22.9	22.9	42.1
Agree	53	37.9	37.9	80.0
Strongly agree	28	20.0	20.0	100.0
Total	140	100.0	100.0	

Table no 4.13 statement's result indicated that many respondents agreed over the daily usage of AI has provided a better platform regarding problem solving which shows 57.9 percent. it is indeed a positive respond. Meanwhile, 19.3 percent strongly disagree and disagree while, 22.9 percent did not show any experience related to AI and its influence regarding different approaches about solving problems. Overall, major part of result show that AI has a significant role and contribution to develop the capabilities of problem solving.

Table Error! No text of specified style in document..14: AI have a high capacity to boost my motivation to learn in a better environment

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	26	18.6	18.6	18.6
Disagree	20	14.3	14.3	32.9
Neutral	22	15.7	15.7	48.6
Agree	47	33.6	33.6	82.1
Strongly agree	25	17.9	17.9	100.0
Total	140	100.0	100.0	

The table no 4.14 shows the results of 14 statement that many respondents believed AI has impact to develop their motivation to learn better environment with 51.5 including agree and strongly agree and 32.9 percent selected disagree and strongly disagree. 15.7 percent were neutral. In this result a positive response

has collected from the participants. As many of them stated that the tool of AI is a motivational source that has become the reason behind providing better learning environment but it's one third of participant has indicted AI tolls cannot provide the learning environment to all learners.

Table **Error! No text of specified style in document.**.15: AI has improved my problem-solving strategies, which strengthens my decisions.

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	4	2.9	2.9	2.9
Disagree	30	21.4	21.4	24.3
Neutral	38	27.1	27.1	51.4
Agree	47	33.6	33.6	85.0
Strongly agree	21	15.0	15.0	100.0
Total	**140**	**100.0**	**100.0**	

Table no 4.15 carrying the results of various respondents that the usage of AI has increased the problem-solving strategies including decision making that shows 48.6 percent participants have agreed and strongly agreed that is a positive response over AI and its strategists regarding decision making. On the other hand, 24.3 percent has followed strongly disagree and disagree. The neutral section received 27.1 commitment about the statement.

Table **Error! No text of specified style in document.**.16: AI tolls have reduced the chances of making mistakes in my decision.

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	10	7.1	7.1	7.1
Disagree	22	15.7	15.7	22.9
Neutral	36	25.7	25.7	48.6
Agree	32	22.9	22.9	71.4
Strongly agree	40	28.6	28.6	100.0
Total	**140**	**100.0**	**100.0**	

The result mentioned in table no 4.16 shows many students believed that the tools of AI has provided a platform of avoiding mistakes with 51.5 percent agreed and strongly agreed. secondly, 22.8 percent committed on strongly disagree and disagree. meanwhile, 25.7 percent has become neutral. its more than half respondents have sown trust over AI and its accuracy regarding decision making. However, the neutral part has ensured that some users still did not have any concern and effectiveness regarding AI has reduced their chance of doing mistakes.

Table **Error! No text of specified style in document.**.17: I apply the tools of AI in different situation to come up with better problem solving.

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	16	11.4	11.4	11.4
Disagree	16	11.4	11.4	22.9
Neutral	28	20.0	20.0	42.9
Agree	54	38.6	38.6	81.4
Strongly agree	26	18.6	18.6	100.0
Total	**140**	**100.0**	**100.0**	

The results of this table 4.17 shows many students with 57.2% (agree and disagree) believed that the using of AI tools in different situations to perform over better outcome regarding the problem solving. However ,22.8 percent has chosen negative review. On the other hand, 20 percent respondents showed neutral. It showed that more than half of the individuals has expressed positive impacts of AI and its usage actively to boost their problem-solving skills in numerous levels. The other less part lighted that some users still have no knowledge or confidence applying AI effectively on the problem situation base.

Table **Error! No text of specified style in document.**.18: AI tools encourage me to think critically before finalizing a decision.

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	11	7.9	7.9	7.9
Disagree	23	16.4	16.4	24.3
Neutral	34	24.3	24.3	48.6
Agree	37	26.4	26.4	75.0
Strongly agree	35	25.0	25.0	100.0
Total	**140**	**100.0**	**100.0**	

Table no 4.18 shows several participants believed that AI tools brought encouragement to think critically before a final decision with percentage 51.4 (agreed and strongly agree) indicated that is a positive response. While 24 .3 percent has followed strongly disagree and disagree. In contrast 24.3 percent has calmed neutral. This result has suggested that over half of students have adopted the tolls of AI before finalizing any decision and the neutral using and disagree part both come with this solution that the AI usage and its important yet not have been adopted to finalizing any problems.

Table **Error! No text of specified style in document.**.19: AI tools has increased my motivation to perform better in academic studies

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	19	13.6	13.6	13.6
Disagree	34	24.3	24.3	37.9
Neutral	29	20.7	20.7	58.6
Agree	32	22.9	22.9	81.4
Strongly agree	26	18.6	18.6	100.0
Total	**140**	**100.0**	**100.0**	

The result described in table no 4.19 that the most of students have enhanced their motivation in academic level are agree and strongly agree with 41.5 percent and 24.3 percent has followed the strongly disagree and disagreed forming a native vied. the last part of neutral, has mention only 20.7%. according to the result AI tolls have played significant role motivating students in their academic purposes.

Table **Error! No text of specified style in document.**.20: AI tools help me stay motivated even when learning is challenging.

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	17	12.1	12.1	12.1
Disagree	35	25.0	25.0	37.1
Neutral	39	27.9	27.9	65.0
Agree	31	22.1	22.1	87.1
Strongly agree	18	12.9	12.9	100.0
Total	**140**	**100.0**	**100.0**	

Table no 4.20 shows the result of statement "AI tools help me stay motivated even when learning is challenging" the combined percentage of agree and strongly disagree is 35%. Meanwhile, 37.1 percent

followed strongly disagree and disagree. The last 27.9 percent viewed to be neutral. The result of this statement has finalized mix experience. Some students believed that AI tolls has great contribution regarding the learning difficult tasks, on the other hand its remaining disagree and neutral committed that some student did not taken any benefit or are unsure about its usage.

FINDINGS, RECOMMENDATIONS AND CONCLUSION

FINDINGS

Through the analysis of all data, various experiences had become developed to identify the main function of AI and its intention over the development of non cognitive skills. Indeed, the skills of non-cognitive skills have become an important part of education and other institutions. So, the research was carried out on the base of this purpose .whatever ,the data were collected ,those have mix experiences regarding the usage of AI tools and enchaining of none of non-cognitive skills .But its finding identified that major of students had high scale of interest in the usage of AI related to encouraging ,motivation ,problem solving ,assessment in works ,facing difficulties , identifying issues ,seeking out the problems in root, including other tough academic tasks. According to many participants, the significant impacts of AI has been played an imperative role in their academics. Secondly, some of respondents committed that the tools of AI tools still need effective strategies to develop its influences.

RECOMMENDATIONS

Some following recommendations have been developed, which considered the findings. The main intention of these recommendations means how the AI tools have high capacity of developing non-cognitive skills among students .The research ,which was done at the university of Turbat. Many of graduate students have expressed positive and negative views over AI and its role of enhancing non-cognitive skills.The data ,which were collected have shown mix experiences regrading the role of AI tools about the development of non-cognitive skills .Indeed, it is true that the tools of AI in modern time has been playing various significant role .In recent time the invention of AI tools like Chat GPT and Deep Seek ,grammaerly have been contributing various positive role .Since the starting of 21 century ,the development of non-cognitive has become an essential part of educational and non educational sectors . Further ,its strategies have recognized a significant function of designing curriculum and still researcher have high interest to identify the main function of AI likely how it can develop or boost up students logical competency . Further ,the development of AI and its tools are developed into various.According to a research report ,various students have high interests in the usage if AI tools. so, some of recommendations have been discussed below.

AI supports in academic purpose

There is no denying the fact that AI tools play significant role to develop non cognitive skills. Indeed, in recent time, the skills of non-cognitive skills have been adopted an effective part of educational system. So, if its implement is given high concern a high achievement would be received by students at their academic level.The non-cognitive skills like critical thinking ,confidence ,motivation and others have significant function in academic level for the students ,various students have lack of confidence so ,due to the this ,they cannot develop their competency level in order to face challenges .As many of students do not understand new lecturers or receive new topics as assignment ,which later make them in tense .But The usage of AI ,indeed, can be a one of the best tutors for the students to boost up their knowledge level or build better learning environment for their academic succession.

The use of AI in decision making

The role of AI has been recognized both in academic and nonacademic. However, in recent time several students become an important part of AI and its modern tools. As many students have believed that the usage of AI ha considered a tutor that has provided a relaxation environment for them to take any decision related to any activities over their academic purposes.No doubt ,decision making is one of the important process that identify the capacity of students regrading taking decision .Its importance not only support them at their work place ,but also other successful places .So ,it is very crucial that the students must be

given the training of using AI ,because the usage of AI tools will develop their thinking capacity about taking decision.

Motivate to Reduce Mistakes

Since the invention of CHAT and deep seek. A new revolution has come in education sector. The tools like Grammarly, ChatGpt ,and deep seek ,the learning activities ,doing tasks ,receiving motivation ,proper feedback have become common. Has per the questionnaires, various participants have committed over the positive response of AI and its tolls. On the other hand, many responded declared that the usage of AI tools have provided a positive environment to reduce the chance of doing mistakes in their academic achievement. Indeed ,taking stress is one of the parts of students life related to their education .However ,since the development of AI in this regard,many of students has high scale of interest in the tools of AI The tools of AI such is Chat GPT and Deep seek have provided a relax environment .As various students committed during the time of data collection that ,the usage of AI have reduced their stress ,owing to its high function and strong knowledge related to course and other external materials.

New direction over problem solving

The positive contribution of AI tools has been seen in various form in educational sectors. Its tools are adopted in various students' academic purpose. However, various students believed that the tools of AI have been provided a learning platform. indeed ,many respondent believed that the positive feedback has opened a new direction regarding problem solving. The AI tools and other high level of knowledge has brought a new hope among students. Numerous students use the tools of AI over solving problems. As many students expressed that the tools of AI have been used in the solving problem for the numerical ,projects designing ,other teaching and learning assessments .So ,in this regard,the tools of AI can provide a brilliant environment for the new genrtaon to adopt the tools of AI to introduce new ideas.

Motivation in learning challenge

The role of AI has been recognized a wonderful role in the education sector since its invention. However, various students believed that AI tools is still required the better strategies to influence its significant awareness among students.Like positive impacts ,a wide range of negative points have expressed that various students did not have any interest in the using of AI tools .The views were mixed with different students.

CONCLUSION

In recent times, AI tools have been playing crucial role in modern education .However, developed nations have adopted a wide range of its access for better educational structure. No doubt, its large scale of frameworks and application can bring various positive impacts in educational sectors . Many students believe that the development of AI has brought a positive contribution in their academic success.The tools like ChatGpt and Deep Seek ,and their large number of contribution including critical thinking

confidence ,problem solving ,motivation ,proper positive way of feedback can determine much potential among students in order to develop their competency level .However ,various strategies of AI can be developed to enhance the non-cognitive skills among students .Non-cognitive skills indeed are some important skills that are considered to be an comparative part of students educational and social life . The social skills of communicating with colleague , receiving confidence ,motivation about doing activities , problem solving issues , and critical thinking are the basic requirement of students .So in such condition ,the tools of AI can strengthen socio emotional learning among the students.Moreover , the statement of the students committed that the tools of AI created a positive environment for the academic succession of

the students . As many students before the invention of AI tools have faced numerous challenges .However ,the development of AI tools and other its new application has created a new learning environment for their learning activities . The challenges such as lack of confidence , motivations ,feedback ,the capacity of problem solving ,critical thinking and others have become such sobering ,but those are resolved through the high support of AI tools.Moreover ,due to the presence of AI access ,students become more active in order to build better bright future .

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Appendices

Quantitative Research Questionnaire for students

Demographics

1. Age: □ 13-14 □ 15-16 □ 17-18

2. Gender: □ Male □ Female □ Prefer not to say

3. Grade Level: □ 9th □ 10th □ 11th □ 12th

Instructions

· Please read each statement carefully and mark your level of agreement

· There are no right or wrong answers

· Your responses will be kept confidential

· Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Questionnaire Items

Self-Management and Organization

1. Using AI educational tools (like learning apps) helps me manage my study time better. □ 1 □ 2 □ 3 □ 4 □ 5

2. AI-powered learning platforms help me set and track my academic goals. □ 1 □ 2 □ 3 □ 4 □ 5

3. I feel more organized when using AI tools to plan my schoolwork. □ 1 □ 2 □ 3 □ 4 □ 5

Motivation and Persistence

4. AI-powered feedback makes me more motivated to improve my work. □ 1 □ 2 □ 3 □ 4 □ 5

5. I am more likely to keep trying when AI tools provide encouraging responses. □ 1 □ 2 □ 3 □ 4 □ 5

6. Using AI learning tools makes me more interested in challenging topics. □ 1 □ 2 □ 3 □ 4 □ 5

Social Skills and Collaboration

7. AI tools help me communicate better with my classmates during group projects. □ 1 □ 2 □ 3 □ 4 □ 5

8. I feel more confident sharing my ideas in class after practicing with AI tools. □ 1 □ 2 □ 3 □ 4 □ 5

9. Using AI platforms has improved my ability to work in teams. □ 1 □ 2 □ 3 □ 4 □ 5

Emotional Intelligence

    10. AI feedback helps me understand how others might feel about my actions. □ 1 □ 2 □ 3 □ 4 □ 5

    11. I better recognize my emotions when using AI tools for self-reflection. □ 1 □ 2 □ 3 □ 4 □ 5

    12. AI-powered activities help me manage stress during difficult assignments. □ 1 □ 2 □ 3 □ 4 □ 5

Critical Thinking and Problem-Solving

    13. AI tools encourage me to think deeply about problems before solving them. □ 1 □ 2 □ 3 □ 4 □ 5

    14. I consider different perspectives more often when using AI learning platforms. □ 1 □ 2 □ 3 □ 4 □ 5

    15. AI-powered exercises have improved my decision-making skills. □ 1 □ 2 □ 3 □ 4 □ 5

Cultural Awareness and Adaptability

    16. AI tools help me learn about and respect different cultural perspectives. □ 1 □ 2 □ 3 □ 4 □ 5

    17. I adapt better to new learning situations with AI support. □ 1 □ 2 □ 3 □ 4 □ 5

Digital Citizenship and Ethics

    18. Using AI has made me more aware of responsible technology use. □ 1 □ 2 □ 3 □ 4 □ 5

    19. I think more about ethical implications when using AI tools. □ 1 □ 2 □ 3 □ 4 □ 5

Overall Impact

    20. Overall, AI technologies have positively influenced my personal growth beyond academic skills. □ 1 □ 2 □ 3 □ 4 □ 5

Thank You

Thank you for participating in this research study. Your responses will help us understand how AI technologies can better support student development.

Qualitative research questionnaire for Parent

Introduction

Thank you for participating in this research study. This interview aims to understand your perspectives as a parent regarding how artificial intelligence (AI) technologies influence your child's personal and social development. Please share your honest thoughts and experiences.

Participant Information

    · Parent's Name: _____

    · Child's Grade Level: _____

    · Date of Interview: _____

Interview Questions

    1. Awareness and Usage

    o   Could you describe what you understand about the AI technologies your child uses for learning? What are your general observations about how your child interacts with these technologies?

    2. Social Development

o How has your child's social behavior and interaction with family members and peers changed since they started using AI-powered learning tools? Please share specific examples if possible.

3. Emotional Growth

o Have you noticed any changes in how your child manages their emotions or handles stress since using AI learning technologies? Could you describe any specific incidents?

4. Motivation and Independence

o In what ways, if any, have AI technologies influenced your child's motivation to learn and ability to work independently? How does this compare to their previous learning habits?

Time Management and Organization

o How has your child's ability to manage their time and organize their studies changed with the introduction of AI learning tools? Could you provide examples?

Cultural and Ethical Awareness

o What changes have you observed in your child's cultural awareness and ethical understanding through their interaction with AI technologies? How do they approach digital citizenship?

Challenges and Concerns

o What concerns or challenges have you observed regarding your child's use of AI technologies for learning? How have these affected their personal development?

Parent-Child Interaction

o How has the introduction of AI learning technologies affected your interaction with your child regarding their education? Has it changed how you support their learning?

Future Outlook

o What are your thoughts about the long-term impact of AI technologies on your child's personal and social development? What potential benefits or risks do you foresee?

RECOMMENDATIONS

o Based on your experience as a parent, what suggestions would you offer to schools or educational technology developers to better support children's non-cognitive skill development through AI?

Quantitation Research of teachers and Educator

Demographic Information

1. Years of Teaching Experience: □ 1-5 □ 6-10 □ 11-15 □ 16-20 □ 20+

2. Subject Area(s): _____

3. Grade Level(s) Taught: □ 9th □ 10th □ 11th □ 12th

4. Experience with AI Educational Tools: □ None □ Basic □ Intermediate □ Advanced

Instructions

· Please rate your level of agreement with each statement based on your observations and experience

· Consider your experience with AI educational technologies in your classroom

· Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Student Engagement and Motivation

1. AI technologies have increased student engagement in learning activities. □ 1 □ 2 □ 3 □ 4 □ 5

2. Students show more persistence in completing difficult tasks when using AI-powered tools. □ 1 □ 2 □ 3 □ 4 □ 5

3. AI learning platforms have improved student initiative in learning. □ 1 □ 2 □ 3 □ 4 □ 5

4. Students demonstrate greater curiosity and exploration when using AI tools. □ 1 □ 2 □ 3 □ 4 □ 5

Social Skills and Collaboration

1. AI technologies have enhanced student collaboration in group activities. □ 1 □ 2 □ 3 □ 4 □ 5

2. Students show improved communication skills when using AI-supported learning platforms. □ 1 □ 2 □ 3 □ 4 □ 5

3. AI tools have helped students develop better peer support systems. □ 1 □ 2 □ 3 □ 4 □ 5

4. Students demonstrate enhanced leadership skills in AI-supported learning environments. □ 1 □ 2 □ 3 □ 4 □ 5

Self-Management and Organization

1. Students show improved time management skills with AI-powered planning tools. □ 1 □ 2 □ 3 □ 4 □ 5

2. AI technologies have helped students better organize their learning materials. □ 1 □ 2 □ 3 □ 4 □ 5

3. Students demonstrate greater self-discipline in completing assignments with AI support. □ 1 □ 2 □ 3 □ 4 □ 5

Emotional Intelligence and Resilience

1. AI tools have helped students better manage their academic stress. □ 1 □ 2 □ 3 □ 4 □ 5

2. Students show improved emotional awareness when using AI-supported learning activities. □ 1 □ 2 □ 3 □ 4 □ 5

3. AI technologies have enhanced students' ability to handle academic setbacks. □ 1 □ 2 □ 3 □ 4 □ 5

Critical Thinking and Problem-Solving

1. Students demonstrate enhanced analytical skills when using AI tools. □ 1 □ 2 □ 3 □ 4 □ 5

2. AI technologies have improved students' decision-making abilities. □ 1 □ 2 □ 3 □ 4 □ 5

Cultural Awareness and Ethics

1. Students show greater cultural sensitivity when engaging with AI-powered learning materials. □ 1 □ 2 □ 3 □ 4 □ 5

2. AI tools have helped students develop stronger ethical decision-making skills. □ 1 □ 2 □ 3 □ 4 □ 5

Overall Impact

1. AI technologies have positively influenced students' overall personal development. □ 1 □ 2 □ 3 □ 4 □ 5

2. The integration of AI tools has enhanced the development of students' non-cognitive skills more effectively than traditional methods alone. □ 1 □ 2 □ 3 □ 4 □ 5

Additional Comments

Please share any additional observations about how AI technologies have influenced student non-cognitive skill development:

It provides countless opportunities for the students and its strategies enhance students' confidence including engagement, motivation. Several positive impacts are existed, which define the role of building career and academic performance. With the development of educational institutions, various high concern was given in the development of non-cognitive skills in academic level. For instance, the socio emotional primary role has been given a tremendous focus in 21st century. The part of problem solving, critical thinking teamwork, adaptability, and communication have been adopted for building good career of students. further. these skills help the educators to design better curriculum for the better future of students. Still, many researchers seeking out like how non cognitive skills have high capacity to differentiate students' socio economic, cultural, and linguistic background to handle barriers for the succession of academic career. In recent time soft skill has been receiving much importance like cognitive skills. With the passing of centuries, education has adopted its important one of the crucial parts of human life. It does not only develop bright future for the students, but also ensures equality among the people. therefore, it is very important that the educators should adopt critical thinking their curriculum. However, cognitive skills have been adopted one of the important parts in educational sectors for many decades, but since the turning of centuries, non-cognitive skills have accepted an imperative part for educational and business sectors. However, both skills have their own differences.

The ideology of critical thinking was discovered by an American philosopher Jon Dewy. The main purpose of this non cognitive skill was to assist the individuals in the time of assumption, argumentation including the process of information evaluation main role of critical thinking is to help the students to analyze, evaluate, and interpret information. However, critical thinking has its own importance in educational sectors. the significant of critical thinking not only describe to know the reason of thinking capacity, but also capable to apply describe to apply these laws in real life problems. Applying the power of critical thinking not only prove your knowledge but also allows you to allow your own opinion ideas and make you more open minded to respect the other emotion including values and ideas