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A.1: Overview of Big Data Analytics in the Learning Environment

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Overview of Big Data Analytics in the Learning Environment

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Abstract – Big data analytics have drawn a lot of attention in a number of industries, including education. Due to the abundance of data, educational institutions now have the chance to apply big data analytics to raise student outcomes and academic achievement. This research paper offers an organized evaluation of the literature on the use of big data analytics to raise academic performance in the field of education. As the Education field operates under pressure ina more cutthroat climate, big data analytics applications are becoming much more well-known. Big data is seen as a crucial component of innovation, and it has in recent times drawn considerable notice from academics and practitioners. Given the importance of the education field, today a trend is towards investigating big data'sinvolvement in the education field. No traditional data management systems can effectively keep or process thisdata due to its size and complexity. Big data is just data that is really large. The enormous volumes of data that educational institutions produce offer a chance for big data analytics to boost students' academic achievement. This article offers a thorough analysis of studies that have looked into whether big data analytics could help students perform better academically. The review examines the condition of the subject at the moment, the issues that need to be solved, and the potential gains that can be made by implementing big data analytics in the educational field. The intention of this manuscript is to investigate the use of big data analytics in academic settings. The main applications of big data analytics in advanced study, both at the managerial and academic levels, are outlined in this study. Optimizing big data analytics for learning and decision-making is the ultimate goal.

Keywords **– Big Data, Education, Predictive Analytics, Visualization, Learning**

I. INTRODUCTION

Big data analytics are being used more and more frequently across a wide range of industries lately. The field of education is one where it has the potential to have a substantial impact. Big data analytics can be used to enhance student academic performance and results thanks to the enormous volumes of data that educational institutions collect, including data on student performance. The goal of this paper is to provide a thorough assessment of the creative writing on the use of big data analytics to boost students' academic performance [1].

The assessment will evaluate the current state of the area, pinpoint the issues that need to be solved, and go through any potential advantages that big data analytics could bring to the education industry. The evaluation will specifically look at the application of big data analytics to issues including student retention, individualized instruction, and educational decision-making [2].

Technology advancement, combined with a variety of data methodologies, has now created a mechanism to deal with a wide range of challenges that arise throughoutthe data gathering process, as well as while working with enormous volumes, variety, and velocity of data. All of the challenges in the education field can be solved with big data analytics.

Big data analytics gives teachers the chance to make data-driven decisions that will enhance student outcomes. This essay offers an organized evaluation of the literature on the use of big data analytics to raise academic performance in the field of education. In order to guide future research and practice in the area of educational big data statistical analysis, the review intends to identify the potential advantages, obstacles, and issues related to the use of big data analytics in learning environment [3].

II. STAGES FOR ANALYSING BIG DATA IN EDUCATION FIELD

The key phases concerned in evaluating Big Data can be categorized as acquisition, extraction, integration, analysis, modelling, and interpretation, depending on the nature of the data [4]. The Fig. 1 shows different stages of big data analysis.

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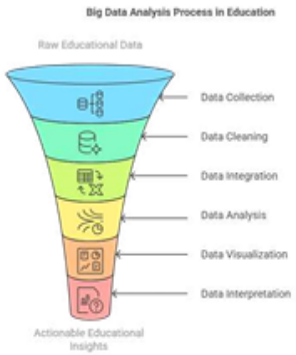

Fig. 1 Big Data Analytics in Education: Stages

A. Data Collection and Data Cleaning

The amount of data created by these resources may be massive, on the scale of petabytes. Finding the relevant data in such a large amount is a difficult process. To collect the essential details gleaned from the data resources and display it in appropriate structural way for investigation, information extraction is required.

B. Data Integration and Data Analyzing

Data integration is important because dissimilarity in data structure and semantics must be conveyed in a computer-readable format. The process of obtaining, recognizing, comprehending, and citing data must be totally automated for a successful outcome. Even though the data is noisy, there may be crucial information that may be extracted. Interconnected Big Data provides information redundancy, which aids in the resolution of missing data issues, the verification of conflicting cases, and the discovery of hidden relationships.

C. Data Visualization

There are different types of charts like pie chart, bar chart, scatter chart, box plot chart etc. that can be used to display graphical visualization of data. Tabular data can also be used to as graphical view.

D. Data Interpretation

Big Data analysis is useless if an administrator or user doesn't comprehend the data correctly. The analysis process entails going over all of the assumptions made and recreating the steps of the study.

III. APPLICATIONS OF BIG DATA IN EDUCATION FIELD

Big data use in learning environment has the potential to change how pupils learn, teachers impart knowledge, and educational institutions run. The following are some of the main uses of big data in the academy:

Fig. 2 – Applications of Big Data in Education

A. Personalized Education:

Big data analysis can be used to examine student data and pinpoint each student's unique learning preferences, aptitudes, and deficiencies. This data can be utilized to personalize learning experiences for each student by adjusting instruction and resources to their requirements [5].

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B. Early Alert Mechanisms:

Big data can be used to spot children who are struggling academically or at risk of dropping out. These details can be used to offer these pupils the assistance andinterventions they need to succeed.

C. Predictive Analytics:

Big data can be used to forecast student behavior and results, such as the likelihood that a student willgraduate on time or their success in a certain course or program. Decision-making and resource allocationcan be made with the use of this information.

D. Development of Curriculum:

Data on student performance can be analyzed using big data to spot areas in which the curriculum may needto be updated or improved. The utilization of this data canhelp students perform better and guarantee that the curriculum meets their needs [6].

E. Evaluation of teacher preparation:

Teacher Big data can be used to assess teacher effectiveness and pinpoint areas that may require further coaching and assistance. The effectiveness of teachersand student outcomes can both be enhanced by using this information.

F. Operating Effectiveness:

Big data can be used to plan lessons and distribute workers and equipment to make the most use of available resources. This can make educational institutions more cost-effective and efficient to run. Big data has a wide range of uses in the subject of education, in general. Educational institutions may increase teaching and learning, improves student results, and run more smoothly by utilizing the potential of big data. However, it's crucial to make sure that the use of bigdata is moral, open, and respectful of students' and teachers' rights to privacy [7].

IV.POSSIBLE OUTCOMES OF BIG DATA IN EDUCATION FIELD

Statistics of big data with regard to education could offer a number of advantages.

Fig. 3 which is given below shows some possible outcomes of big data in education field.

Fig. 3 – Possible Outcomes of Big Data in Education Field

A. Increased student retention rates:

Increased student retention rates are one important advantage. Educational institutions can identify students who are at danger of dropping out and take early actionby analyzing student data.

B. Personalized learning:

Personalized learning is a possible advantage of big data analytics in education. Teachers can recognize unique learning preferences and modify instruction to fit the needs of each student by analyzing student data. It hasbeen demonstrated that using this strategy enhances academic performance and student involvement.

C. Enhanced Learning Experience:

The educational field aspires to advance student experience, educationalist efficiency, and deliver suitable, proficient, and effective teaching and learning environments that are well-matched to the learner's talents and resources. Learners, educators, and administrators benefit from Big Data because it improves communication and accessibility.

D. Matching Students to Programs:

Supports parents and students in selecting the finest educational facility.

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E. Matching Students to Employment:

Students can search and compose applications for employments. Candidate employees and companies can locate alternative and more efficient tools to use big data to qualify their skills.

F. Efficient System Administration:

Big data analytics can also help with decision- making in education. Teachers can use student data analysis to find trends and patterns that might guide decisions about curriculum creation, teacher preparation, and resource allocation.

As per the above outcomes big data can play vital role in the field of education [8] [9].

V. CO-RELATION BETWEEN APPLICATIONS AND POSSIBLE OUTCOMES

Here, correlation is used to determine the relationship between applications and outcomes for decision making in learning environment. This correlation of applications and outcomes helps leaders in making more impactful predictions based on data. This technique can help leaders for processes, direction, and perform accordingly which results to improve management, better students and teacher's experience [10], [11].

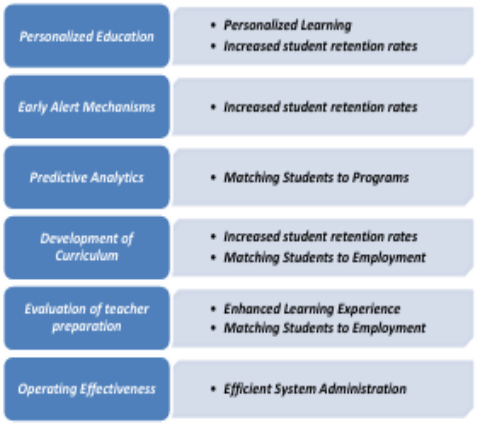

Fig. 4 – Correlation between Applications and Possible Outcomes

VI. CONCLUSION

The applications of big data analytics in the education sector offers a chance to enhance student outcomes and academic performance. This research has found the potential advantages of adopting big data analytics in areas including student retention, personalized learning, and educational decision-making through a thorough evaluation of the literature. This studyhas emphasized the difficulties that must be overcome if big data analytics are to be fully utilized in the field of education. The technical infrastructure and knowledge required to gather, clean, integrate, and analyze huge amounts of data must be developed by educational institutions. Big data analytics has the ability to transformthe educational landscape by giving teachers the resources they need to make data-driven decisions that enhance student outcomes. To guarantee that student data is protected and that the use of big data analytics is open and moral, it is crucial to address the difficulties and worries related to its usage.

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REFERENCES

[1] B.Tulasi Assistant Professor Department of Computer Science Christ University Bangalore,India. "Significance of Big Data and Analytics in Higher Education" International Journal of Computer Applications (0975 – 8887)Volume 68– No.14, April 2013.

[2] Jiangbo Shu', Xu Wang, Li Wang, Zhaoli Zhang, Rai Liu, Qianqian Ru, Min Zhi, National Engineering Research Center for E-Learning, Central China Normal University, Wuhan, China. "Exploration on College Education Big Data Open Service Platform". 2017 the 2nd IEEE International Conference on Cloud Computing and Big Data Analysis.

[3] Joshi, A. (2015). Predicting student success using big data analytics. Journal of Educational Technology & Society, 18(3), 115-127.

[4] Greenberg, J. (2019). Using big data to inform curriculum development. Educational Researcher, 48(2), 88-96.

[5] Lynch, M. (2016). Personalized learning improves academic performance. Journal of Educational Technology & Society, 19(1), 143-154.

[6] Manohar, A. Gupta, P. Priyanka, V. and Uddin, M. (2016). Utilizing big data analytics to improve education. Retrieved April 14, 2017, from http://eer.uri.edu/wp- uploads/asee2016/167-539-2-DR.pdf.

[7] https://www.somametrics.com/top-six-big-data-challenges-education/https://www.somametrics.com/top- six-big-data-challenges-education/

[8] ARCHANA RAO P N, KISHORE BAGLODI, Department of Computer Science and Engineering, Srinivas School of Engineering, Mukka, India. "ROLE OF BIG DATA IN EDUCATION SECTOR: A REVIEW". International Journal of Advances in Science Engineering and Technology, ISSN(p): 2321 – 8991, ISSN(e): 2321 –9009 Vol-6, Iss-1, Spl. Issue-1 Feb.-2018, http://iraj.in

[9] MERVAT A. BAMIAH, SARFRAZ N. BROHI, BABAK BASHARI RAD. "BIG DATA TECHNOLOGY IN EDUCATION: ADVANTAGES, IMPLEMENTATIONS, AND CHALLENGES". Journal of Engineering Science and Technology Special Issue on ICCSIT 2018, July (2018) 229 - 241 © School of Engineering, Taylor's University Big data technology in education: Advantages, implementations, and challenges (researchgate.net)

[10] Xinguo Yu National Engineering Research Center for E-learning Central China Normal University Wuhan, China 430079 xgyu@mail.ccnu.edu.cn, Shuang Wu National Engineering Research Center for E-learning Central China Normal University Wuhan, China 430079 shuangwu@mails.ccnu.edu.cn. "Typical Applications of Big data in Education". 2015 International Conference of Educational Innovation through Technology

[11] Faisal Kalota. "Applications of Big Data in Education". World Academy of Science, Engineering and Technology International Journal of Educational and Pedagogical Sciences Vol:9, No:5, 2015.

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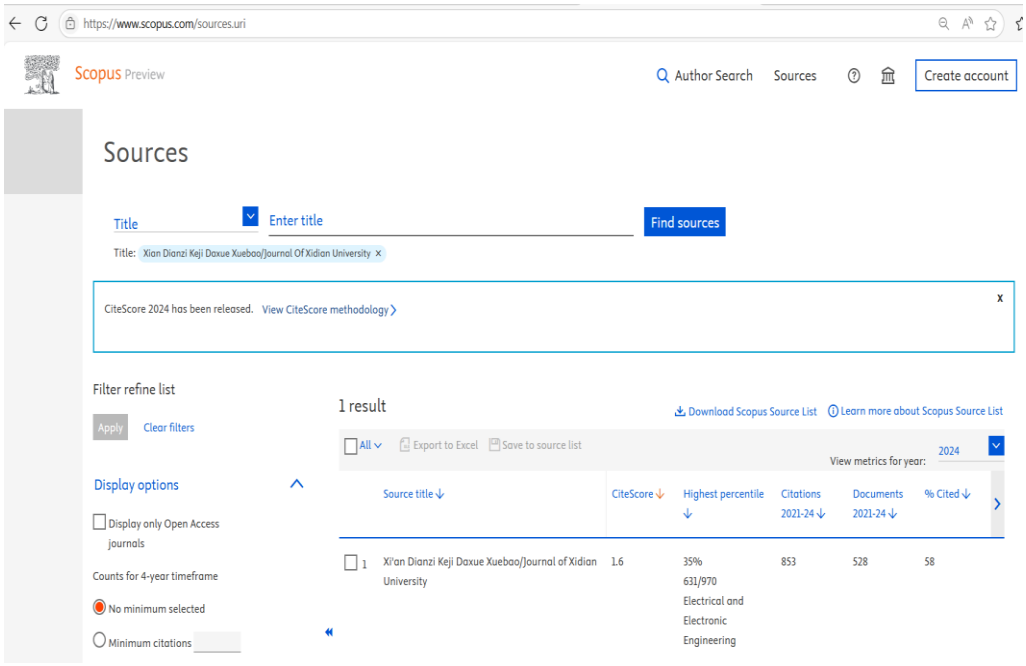

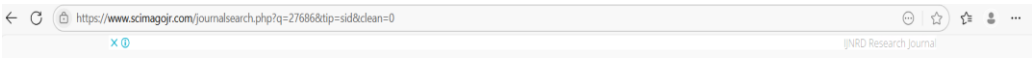

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B.1: Physical Health Improvement in First Year Undergraduate Students under Mentoring Scheme

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Physical Health Improvement in First Year Undergraduate Students Under Mentoring Scheme

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***Abstract* - For first-year undergraduate students, making the move from high school to college entails major changes in their academic, social, and personal lives. The preservation of physical health frequently takes a backseat among these modifications. Many academic institutions have implemented mentorship programs designed to help students completely in order to solve this issue. This study examines whether mentorship programs may improve the physical health of first-year college students. This study uses a mixed-methods approach to evaluate the association between mentorship programs and improvements in physical health by combining quantitative surveys and qualitative interviews. Through the use of a questionnaire, information was gathered to assess changes in physical health-related behaviors including exercise frequency and nutritional preferences. Results show that mentorship programs have a beneficial impact on first-year undergraduate students' physical health. Data from the survey show that participants' participation with healthy lifestyle choices has significantly improved, including their frequency of exercise and dietary habits. Mentorship may improve one's quality of life while also helping first-year undergraduate students succeed by boosting their physical wellness.**

Index Terms* - *Mentor, Mentee, NEP 2020, SDGs, Physical Health, Undergraduate Students

I. INTRODUCTION

For young individuals, the journey from high school to college is a turning point in their life. In addition to academic difficulties, first-year undergraduate students go through major changes in their general well-being throughout this time. Their physical health is a crucial component of their well-being since it may have a significant influence on their capacity to learn, their emotional stability, and their general quality of life [1].

A rising number of people are interested in determining how mentorship programs affect students' life in general, including their physical health. A viable approach to address these issues and advance the physical wellbeing of first-year students is the use of mentorship programs.

This study intends to investigate and assess the value of mentorship programs in enhancing first-year undergraduate students' physical well-being. Through a thorough examination of current mentorship initiatives and their effects on students' physical health. This study will look at the many elements and tactics used in mentoring programs that lead to good physical health results. We will think about important issues as we explore this study to see how mentorship might support first-year students' healthy lifestyles [2].

II. HYPOTHESIS

- Hypothesis 1 (H1). Mentoring positively and significantly affects students' food habits in context to physical health.
- Hypothesis 2 (H1). Mentoring positively and significantly affects students' physical health awareness.
- Hypothesis 1 (H1). Mentoring positively and significantly affects students' exercise habits in context to physical health.

III. MENTORING SCHEME

The phrase "mentor" has been around for over 250 years. Levinson, Darrow, Klein, Levinson, and McKee (1978, p. 97) highlighted the significance of a mentor as "an individual with greater experience and prestige." a professor, advisor, or patron" in their ground-breaking work on professional development. A life coach is a person who can guide, advice and educate you. They often invest the time to learn about you and the difficulties you're experiencing before using what they've learned and their own experiences to assist you. An excellent mentor is conscious of the significance of being dependable, concerned, genuine, and sensitive to the expectations of the mentee. It is possible for mentors to develop into lifelong companions [3].

Mentors are those who work with their mentees to help them grow and who have greater knowledge or expertise in a certain field. The mentor provides assistance to the mentee as they work together to create and accomplish their goals. A mentor may be very helpful for enhancing one's abilities in the areas of interpersonal communication and professional development [4].

For research purpose, a study is to be conducted with undergraduate students studying in first year of college. The process starts with allocation of mentor. Once mentor is assigned, each referencing students will be interviewed one by one personally in a friendly environment. Mentor tries to develop a comfort so that mentees can talk freely. Interview will be conducted in multiple phases including survey, observation and personal meetings. During each phase, mentor will try to improve bond with mentee and hence can guide him/her to a desired direction in a progressing manner. During data collection, students will be asked for problems they are facing in having nutritional food along with difficulties in maintaining physical well-being. Based on the data collected, mentor will guide the students for acquiring better stage in both the aspects. As a part of mentorship, the

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mentor will keep records of all allocated students in order to track the progress throughout the whole first year.

IV. QUALITIES OF MENTOR

Some crucial traits are present in the finest mentors. Anyone with whom you are considering forming a mentor-mentee relationship should exhibit these qualities.

Fig. 1 Qualities of Mentor

A. Openness to receiving and providing feedback:

A quality of a good mentor is someone who shows openness towards receiving positive or negative feedback from students/mentees. Not only receiving but also providing appropriate feedback to students / mentees wherever and whenever required, which can improve the communication bridge between students and mentees, and also leads to the growth of students in career and life [5].

B. Excellent communication and listening abilities:

In order to effortlessly interact with students and advise them appropriately regarding the issue, mentors must maintain exceptional communication skills within themselves. Communication skills are necessary, but so are listening skills. If the mentor doesn't pay attention to and comprehend the issue raised by the pupils or mentee, it could result in bad advice and a poor solution to the issue [6].

C. Sound counselling techniques:

As was already established, a mentor's main responsibility is to help, encourage, and counsel pupils whenever and wherever they need it. Among the most crucial characteristics that a mentor must possess are effective counselling techniques if they are to offer advice, support, and assistance. For them to be able to offer appropriate guidance and assistance, mentors should also be able to counsel students extremely well [7].

D. Trustworthiness:

To build trustworthiness in their students, mentors must be effective. The types of topics a mentee wants to discuss will alter as the mentor and mentee's level of trust increases. Frequently, the problems get more complicated, demanding, or persistent. This development is frequently an indication to a mentor indicating trust has grown to the point where the mentee feels confident bringing up these more delicate topics during mentoring discussions [8].

E. Empathy:

Although a mentor had already been in the protégé's position, protégés wanted empathy from mentors. Because they have shared a comparable experience in the past, a mentor can relate to a mentee's current feelings by connecting with a period when they felt the same way. The ability of mentors to genuinely empathize with a mentee can help to solidify their relationship [9].

V. PROCESS

A. Allocation of mentor

When a student takes admission in the first year, it takes about 15 days to allocate a mentor to them. The mentor should first give his/her introduction. After that, the general talks to the student to become more familiar. They talk about their own nature and try to know the nature of the student. Try to spend time with the student more often.

B. Relationship development

There are both interpersonal and professional interactions between the mentor and the mentee. Every mentor-mentee relationship has a certain function that varies depending on the situation. However, the main objective is to help the mentee accomplish his or her personal and professional objectives.

There are some characteristics that any mentor-mentee relationship should have:

Fig. 2 Mentor – Mentee Relationship

1) Willingness to support one another:

An important component of mentor-mentee interactions in the educational field is the willingness to help one another. This calls for a shared commitment on the part of the mentor and mentee to foster each other's personal and professional development, as well as a readiness to devote time, energy, and resources to the partnership. The mentor is person who is eager to impart the information and abilities they have to the mentee, offering advice on career development, classroom leadership, and successful instructional and educational strategies. The mentee, on the opposite hand, is someone who is eager to pick up knowledge from the mentor and proactively looks for chances to advance professionally. They are open to using the mentor's advice and suggestions for improvement in their educational and instruction methods. With this dedication, mentor-mentee partnerships in educational institutions can be quite successful in fostering educators' career growth [10].

2) Provide true details as required:

Giving accurate information is a crucial component of mentor-mentee partnerships in the educational field. This entails being open and truthful with one another about one's objectives, areas of progress, and strengths and limitations. It's critical to give your mentee honest comments on their methods of instruction and learning as a mentor within the educational field. This entails pointing out potential improvement areas and providing helpful feedback to aid in their development [11]. Giving accurate information also entails being upfront and truthful regarding your personal achievements and domains of expertise, and communicating what you know and have learned to the person you are mentoring in a simple and easy-to-understand manner.

3) Actively listen and communication:

In the field of education, effective mentor-mentee relationships depend on careful listening as well as interaction. Effective interaction requires attentive listening on both ends, articulating one logically, and being receptive to critiques and comments. It's crucial for mentors working in the education sector to pay close attention to their mentees in order to grasp their objectives, worries, and potential areas of need. This necessitates paying attention to what the mentee is saying, seeking clarification, and paying close attention to their physique expression and other behavioural indicators. Parallel to this, it is crucial for mentees in educational institutions to pay close attention to their mentors in order to understand their advice, suggestions, and observations. This necessitates being receptive to input and positive criticism as well as being ready to inquire about matters and request explanations when necessary [12].

4) Showing empathy for one another:

Establishing confidence, cultivating respect among peers, and creating a helpful and happy atmosphere for education are all dependent on mentor-mentee relationships in the educational field. Both mentors and mentees can build strong, lasting connections and collaborate to accomplish their educational objectives by demonstrating empathy [13].

The mentor can develop a relationship with the mentee by doing as much as possible meetings. In this meeting, mentor starts to know about the day-to-day activity of the student. Thus slowly the mentor knows daily schedule including what the student does for how many hours of the whole day. At last, mentor is a person who looks up to and respects individuals. The mentor can use their skills to help their mentee achieve their goal because they possess knowledge that the mentee doesn't really. A mentor is available to help their mentee at all times. They help the mentee generate ideas, get past challenges, accomplish career objectives, and enjoy victories [14].

VI. DATA COLLECTION METHODOLOGY

Data can be gathered using a variety of conventional (traditional) techniques, including as document examination, observation, surveys, one-on-one interviews, and focus groups. If the mentor mentee relationship is developed, then the data collection can be easier. The survey and observation of personal meeting for data collection can be taken into account. In this research survey method is used to collect data from undergraduate students.

A. Survey

The form for the survey can be filled after a little relationship of mentor with the student is good because only if the relationship is good then only student fills more correct data. Data is collected personally by survey from the students of undergraduate program. Different questions related to daily routine and food habits were asked to the students by their mentor. Some questions like when does student wake up in the morning? What and when student prefers in their breakfast or lunch? What is the routine life of a student?

B. Data analysis

Data were collected from 742 students in the form of survey. The following table shows questions which were asked to know basic routine life and food habits of students. Student has to fill all the answers either in yes or no. Here in the table, ration of yes and no is indicated in percentage for particular question filled by the students in survey.

TABLE I.

Sr. No	Questions	Answer (y) %	Answer (n) %
1	Are you staying in the hostel?	42.86	57.14
2	Do you wake up before 6 a.m. in the morning?	25.71	74.29
3	Do you exercise?	20.00	80.00
4	Do you drink milk, tea or coffee?	47.14	52.86
5	Do you have breakfast in the morning?	37.14	62.86
6	Do you have breakfast during break at college?	32.86	67.14
7	Do you bring breakfast from home?	14.29	85.71
8	Do you bring hard food for breakfast?	11.43	88.57
9	Do you eat everything for lunch?	42.86	57.14
10	Are you used to eat something in the evening?	30.00	70.00
11	Do you eat any fruit during the week?	15.71	84.29

It can be observed from the above table that percentage for NO is noticeably higher than YES. More percentage of NO shows that food habits and daily routine of students is not as good as it should be which can lead to more beneficial for their physical health.

Fig. 3. Answers before mentoring

The above chart graphically represents data of the provided table. In this chart, result is clearly visible that before mentoring undergraduate students are not much conscious about their physical health. At this point one decision can be made that importance of physical health regarding mentoring is required in undergraduate students.

Applied Mann-Whitney U Test on the above data

$$U1 = n1n2 + n1\,(n1+1)/2 - R1$$

One tailed hypothesis

- The U-value is 0.
- The critical value of U at $p < .05$ is 34.
  - Therefore, the result is significant at $p < .05$.
- The z-score is -3.9399.
- The p-value is .00004.
  - The result is significant at $p < .05$.

C. Guidance

1) Initial guidance

With today's hurried lifestyle and electronic devices, maintaining a healthy lifestyle has become very challenging. A mentor has to give idea about the value of health and explains why it's crucial to remain healthy. Maintaining a healthy routine is essential to learners who must balance classes, sports, passions, and friendships.

A mentor guides students that lifestyle should include a commitment to good health. A healthy lifestyle can aid in the prevention of chronic diseases and debilitating conditions. Student's self-esteem and self-image depends on how mentor truly feel regarding mentees and how well mentee can take good care of their physical and mental well-being.

Nutritious eating is crucial for sustaining overall health and wellbeing, thus its significance cannot be understated. Food that is nourishing gives the body the vital nutrients, vitamins, minerals, and energy it needs to function properly [15].

The human body receives the nutrients it needs from healthy foods to perform at its best. Energy generation, tissue repair, and immune system function all depend on essential nutrients such carbs, proteins, lipids, vitamins, and minerals [16].

For students, nutritional eating is crucial since it promotes normal growth and development. Building strong bones, muscles, and organs diet of nutrients including calcium, protein, and vitamins [17].

2) Follow-up

During follow-up meet, mentor asks mentee about changed habits and can suggest solutions if any problem is being faced in implementation.

3) Record keeping with frequent personal meeting

The mentor maintains different records for each meeting from which the mentor realizes how many changes have taken place in the mentee and how many changes are still possible.

VII. RESULTS

A. Importance of Mentoring

The impact that mentoring has had on the healthcare industry is immense. This endeavor has been strengthened and people abilities have been improved thanks to the growth of mentorship channels.

Mentor gives initial guidance for better physical health to students then taking regular follow up for the same and also keep records to observe change in their routine.

TABLE II.

Sr. No	Questions	Answer (y) %	Answer (n) %
1	Are you staying in the hostel?	42.86	57.14
2	Do you wake up before 6 a.m. in the morning?	50.00	50.00
3	Do you exercise?	52.86	47.14
4	Do you drink milk, tea or coffee?	75.71	24.29
5	Do you have breakfast in the morning?	87.14	12.86
6	Do you have breakfast during break at college?	78.57	21.43
7	Do you bring breakfast from home?	74.29	25.71
8	Do you bring hard food for breakfast?	72.86	27.14
9	Do you eat everything for lunch?	75.71	24.29
10	Are you used to eat something in the evening?	47.14	52.86
11	Do you eat fruit during the week?	81.43	18.57

In the above table a rise can be noticed in ratio of YES as compared to percentage of NO. More percentage of YES shows that food habits and daily routine of students is changed by mentoring.

Fig. 4. Answers after mentoring

The above chart graphically represents data of the provided table. In this chart, result is clearly visible that after mentoring undergraduate students are somewhat more aware about their physical health. At this point one decision can be made that importance of physical health regarding mentoring can change routine life of undergraduate students.

As the relationship between the mentor and the mentee improved, the food habits gradually changed according to the survey questions. As the student became more conscious of physical health, the health became better which increased the urge to study.

Applied Mann-Whitney U Test on the above data

$$U1 = n1n2 + n1\,(n1+1)/2 - R1$$

One tailed hypothesis

- The U-value is 11.5.
- The critical value of U at $p < .05$ is 34.

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- Therefore, the result is significant at $p < .05$.

- The z-score is 3.18475.
  - The p-value is .00074. The result is significant at $p < .05$.

VIII. DISCUSSION

Questionnaires were utilized in this research to evaluate the value of mentoring assistance, the mentoring relationship, and the mentoring procedure for first-year learners. In this study, review of 742 students were collected. Mentors get their responses through survey. Students are amused while receiving physical health mentorship. Regular follow up maintained by the allocated mentor of students. Mentors can help students for their psychological growth. Gradually mentor guides to students to change their food habits to improve physical health [18].

For mentees pursuing the SDGs, a mentor can serve as a guide or promoter for social transformation. Personal and societal poverty, a decent education, hunger, excellent health and well-being, gender equality, decreased inequality, sustainable cities and communities, peace and justice, and attaining climate justice are all issues that mentors may assist their mentees with addressing. All people of all ages are to enjoy healthy lifestyles and to promote wellbeing, according to Goal 3. At every phase of a person's life, beginning at birth, health and wellbeing are crucial.

According to National Education Policy 2020 1.9 health and family welfare, mentoring can help in student's health and also in the health of their family members. 4.44 point in the NEP 2020 states that teachers are responsible to develop students in different areas by their guidance. As students are more connected to their teachers, teachers can easily guide them for physical health. This can be helpful to the family of student and finally to the healthy society. So a role of a teacher is more significant towards the society.

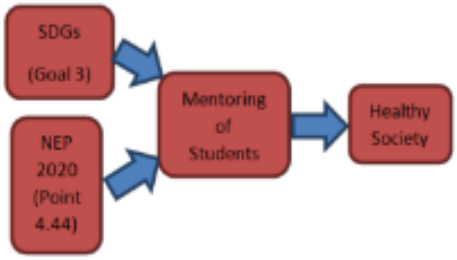

Fig. 5. Healthy society as per SDG and NEP 2020

IX. CONCLUSION

This study has shown that mentoring programs have a considerable favorable effect on first-year undergraduate students' physical health. The results highlight the crucial part mentoring relationships play in encouraging healthier lifestyles, lowering stress, and ultimately helping to improve academic achievement and general wellbeing. Mentoring programs designed to improve physical health are a significant resource for educational institutions working to offer their students all-around support. This study underlines how crucial it is to fund and scale up such programs in order to guarantee the holistic development of first-year college students. A promising strategy for promoting a healthier and more successful student population is the relationship between mentorship and improvements in physical health among first-year undergraduate students. We can improve the student experience and contribute to the growth of healthier, more resilient, and academically successful people by including mentoring programs that prioritize physical well-being within the framework of first-year college students.

REFERENCES

[1] Palmer, R.J.; Hunt, A.N.; Neal, M.; Wuetherick, B. Mentoring undergraduate research, and identity development: A conceptual review and research agenda. Mentor. Tutoring Partnersh. Learn. 2015, 23, 411–426. [CrossRef]

[2] Jiao, X.; Kumar, R.; Billot, J.; Smith, R. Developing research skills and capability in higher education: Combining collaborative research with mentoring. J. Educ. Leadersh. Policy Pract. 2011, 26, 42–55.

[3] Li, Zheng. (2015). The Analysis of the Influences of Student's Narcissistic Personality Traits to Negative Mentoring Experiences. Creative Education. 6. 350-358. 10.4236/ce.2015.63033.

[4] Pryce, J., Kelly, M. S., & Guidone, R. S. (2013). Mentor and youth matching. In D. L. DuBois & M. J. Karcher (Eds.), Handbook of Youth Mentoring., (pp. 427- 438). SAGE Publications.

[5] Heeralal, Prem Jotham Heeralal. (2014). Student Teachers' Perspectives of Qualities of Good Mentor Teachers. The Anthropologist. 17. 243-249. 10.1080/09720073.2014.11891434.

[6] Cho, Christine & Ramanan, Radhika & Feldman, Mitchell. (2011). Defining the Ideal Qualities of Mentorship: A Qualitative Analysis of the Characteristics of Outstanding Mentors. The American journal of medicine. 124. 453-8. 10.1016/j.amjmed.2010.12.007.

[7] Grogan, Paul & Eviner, Valerie & Hobbie, Sarah. (2013). The Qualities and Impacts of a Great Mentor—and How to Improve your own Mentoring. Bulletin of the Ecological Society of America. 94. 170-176. 10.1890/0012-9623-94.2.170.

[8] Holmes III, David & Warnes, Carole & O'Gara, Patrick & Nishimura, Rick. (2018). Effective Attributes of Mentoring in the Current Era. Circulation. 138. 455-457. 10.1161/CIRCULATIONAHA.118.034340.

[9] Fallon, Meghan. (2023). A Graduate Student's Mentorship Pedagogy for Undergraduate Mentees. Biomedical Engineering Education. 10.1007/s43683-023-00121-7.

[10] Karcher, Michael & Hansen, K.. (2013). Mentoring activities and interactions. 10.4135/9781412996907.n5.

[11] Liang, B., Spencer, R., Brogan, D., & Corral, M. (2008). Mentoring relationships from early adolescence through emerging adulthood. A qualitative analysis. Journal of Vocational Behavior, 72(2), 168–182. https://doi.org.proxy.lib.ncsu.edu/10.1016/j.jvb.2007.11.005

[12] Spencer, R., Gowdy, G., Drew, A. L., & Rhodes, J. E. (2019). "Who knows me the best and can encourage me the most?": Matching and early relationship development in youthinitiated mentoring relationships with system-involved youth. Journal of Adolescent Research, 34(1), 3-29. https://doi.org/10.1177/0743558418755686

[13] McClanahan, W. S. (1998). Relationships in a career mentoring program: Lessons learned from the Hospital Youth Mentoring Program. Public/Private Ventures.

[14] Parra, G. R., DuBois, D. L., Neville, H. A., et al. (2002). Mentoring relationships for youth: Investigation of a process-oriented model. Journal of Community Psychology, 30, 367– 388. https://doi.org/10.1002/jcop.10016

[15] Glazzard, Jonathan & Rose, Anthea & Ogilvie, Paul. (2019). The impact of peer mentoring on students' physical activity and mental health. Journal of Public Mental Health. ahead-of-print. 10.1108/JPMH-10-2018-0073.

[16] Smith, Laureen & Petosa, Rick. (2016). A Structured Peer-Mentoring Method for Physical Activity Behavior Change Among Adolescents. The Journal of School Nursing. 32. 10.1177/1059840516644955.

[17] Smith, Laureen. (2011). Piloting the use of teen mentors to promote a healthy diet and physical activity among children in Appalachia. Journal for specialists in pediatric nursing : JSPN. 16. 16-26. 10.1111/j.1744-6155.2010.00264.x.

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B.2: Enhancing Education for Undergraduate Students of Computer Science through Mentoring: A Big Data Analytics Approach

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Research Article

Educational Administration Theory and Practice

Enhancing Education for Undergraduate Students of Computer Science through Mentoring: A Big Data Analytics Approach

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ABSTRACT

In the arena of computer science tutoring at the undergraduate level, mentorship programs have become an essential tool for professional and academic growth. This study examines the critical role that mentoring plays in improving computer science students' educational experiences and offers a cutting-edge strategy that makes use of big data analytics to maximize these mentorship programs. Educational institutions can obtain deeper insights into mentoring's impact on pupils' learning outcomes, skill development, and motivation by gathering and evaluating large amounts of data, including academic performance measures, program participation, and qualitative feedback. This data-driven strategy provides a road map for enhancing mentorship programs and, eventually, raising the standard of undergraduate computer science education, guaranteeing that students are equipped to tackle the demands of a quickly changing field. Sustainable Development Goal (SDG) 8 has also relevance with the enhancing education for students.

Keywords—mentoring; big data; SDG; students; education; big data analytics

INTRODUCTION

Nowadays, there is a period of extraordinary expansion and invention in the arena of computer science. For undergraduates seeking computer science degrees, this dynamism offers great potential, but it also brings with it several difficulties. A thorough and organized educational strategy is necessary to guarantee that these pupils are ready for the demands of the industry. Offering mentorship is one of the best ways to improve undergraduate computer science education.

Higher education mentoring programs are becoming more widely acknowledged as essential tools for assisting students in navigating their academic paths and settling into careers. Mentoring is far more important when it comes to computer science education. With technology changing so quickly and computer science becoming more and more diverse. It could be challenging for students to stay up to date on the newest advancements and gain the skills they need to compete in a highly competitive employment market. Thus, mentoring becomes a guiding light that provides both academic assistance and opportunities for personal and professional growth.

This study explores how mentorship plays a crucial part in improving undergraduate computer science education. It emphasizes the substantial effects mentoring programs can have on students' academic achievement, skill growth, and motivation in this sector. Moreover, it presents a novel mentoring approach viewed via the prism of big data analytics. Educational institutions can enhance their mentorship programs and better address the unique requirements and obstacles encountered by computer science students by utilizing data-driven insights. To highlight the potential of big data analytics to further improve this crucial component of undergraduate education, this study attempts to present a thorough understanding of the symbiotic link between mentoring and the computer science educational experience.

SIGNIFICANCE OF MENTORING FOR UNDERGRADUATE STUDENTS

A. Academic and Career Guidance

Academic mentoring guarantees learners receive assistance with course selection and academic scheduling. Career mentoring helps pupils get ready for internships and job opportunities by guiding them through the complexities of the job market.

1) ***Course Selection:*** Mentors help students select courses and career pathways that will best suit their academic and professional objectives.
2) ***Study Strategies:*** Mentors offer advice on organizing time, productive study methods, and tools that can help learners succeed in their computer science classes.
3) ***Problem-Solving:*** Learners may talk about difficult academic issues, look for clarification on confusing ideas, and develop a deeper understanding of the subject matter through mentoring.
4) ***Industry Insights:*** Since mentors frequently have practical experience in the computer science field, they can provide insightful advice on current trends, market demands, and possible career paths.
5) *Internship and Job Placements:* Mentors can help learners find and apply for co-ops, internships, and jobs. By giving them hands-on knowledge, such possibilities will improve their employability.
6) ***Networking:*** Professional organizations can benefit from mentoring relationships as they give students access to professionals in the field, enable them to investigate career options, and establish important industry contacts.

B. Skill Development

Critical thinking, problem-solving, and technical skills are all developed by mentors and are essential to the computer science field.

1) ***Programming Proficiency:*** Students can become skilled developers with the help of mentors who can offer practical guidance in programming languages, algorithms, and coding methods.
2) ***Problem-Solving:*** Mentors help students apply their knowledge to practical issues and hone their problem-solving abilities by providing them with circumstances of solving problems in reality.
3) ***Technology Mastery:*** Mentors ensure that learners are adequately prepared to adjust to developments in the industry by providing them with the most recent tools, frameworks, and software as technology advances.
4) ***Teamwork and Collaboration:*** In an industry where collaboration is the norm, mentors play a crucial role in helping learners build the interpersonal skills necessary for collaborative tasks and teamwork.
5) Project Development and Management: Mentors assist students in developing the skills necessary to organize, carry out, and complete software projects successfully by guiding them by means of the process.

C. Encouragement and Motivation

Mentoring lowers attrition rates in computer science programs by giving learners emotional support and motivation.

1) **Personalized Support:** Based on each student's particular needs and difficulties, mentors give them individualized attention while providing them with emotional support and guidance. This kind gesture can be a very effective motivator.
2) **Setting Realistic Goals:** Students can set realistic career and academic goals with the assistance of mentors. These objectives serve as motivators by giving people a feeling of purpose and direction.
3) **Overcoming Challenges:** Students studying computer technology frequently run into challenging issues and obstacles. Mentors help students overcome obstacles by providing direction and counsel, avoiding discouragement from failures.
4) **Confidence Building:** Mentors help pupils develop their sense of self-worth by reassuring and validating their skills. Gaining self-assurance can be crucial in conquering self-doubt and imposter syndrome.
5) **Professional Development:** By talking with students about their long-term professional goals, mentors can assist them in seeing the wider picture. This proactive strategy encourages motivation by linking academic achievement to future achievement.

BIG DATA ANALYTICS IN EDUCATION

A. Role of Big Data Analytics

Student data analysis may increase decision-making and enrich educational experiences. Big data analytics is altering the education sector by giving data-driven insights.

1) ***Improved Matching of Mentors and Mentees:*** Schools are better able to match students with mentors who have appropriate experience and shared interests when they analyze data on students' academic goals, hobbies, and learning styles. This guarantees a more fruitful and successful mentoring encounter.
2) ***Personalized Mentorship Plans:*** Big Data analytics enables mentors to design unique mentoring programs for every mentee. Mentors can adapt their guidance and support to meet particular obstacles and goals by monitoring each student's progress and requirements.
3) ***Early Intervention and Support:*** Students who could be at risk of performing poorly or having difficulties can be identified using big data analytics. This information can be used by mentors and

organizations to offer early intervention and support, helping students remain on course both psychologically and intellectually.

4) ***Feedback* Analysis:** The efficacy of the mentorship program can be determined by analyzing comments from mentors and mentees with the aid of big data analytics. This analysis's results may result in best practices and program enhancements.

METHODOLOGY

A. Data Collection

Use a survey form to collect student data from computer science undergraduates at a private university.

- Academic transcripts
- Involvement in mentoring programs

The act of obtaining, documenting, and preserving information, facts, or observations for analysis, investigation, or decision-making is known as data collecting. It is a crucial stage in research, business, and many other domains since it offers the foundation for coming up with ideas, choosing wisely, and drawing conclusions.

1) A couple of crucial steps are usually involved in data collection:

a) ***Defining Objectives:*** Clearly state the aims and purposes of the data-gathering procedure. What data is required, and how will it be put to use?

b) ***Selecting Data Sources:*** Ascertain the source of the data. Surveys, interviews, observations, papers, databases, sensors, and other methods can all be used as data sources.

c) ***Designing Data Collection Instruments:*** Make the equipment or procedures required for data collection. This may entail creating questionnaires, observation checklists, interview protocols, surveys, or data collection forms.

d) ***Data Gathering:*** Gather information from the selected sources. This could entail gathering data from records or databases, and performing surveys, interviews, or observations.

e) ***Data Entry and Management:*** For additional processing, data might require to be input into electronic databases or spreadsheets. Storage, cleaning, and quality assurance are all part of data management.

B. Data Analysis

Use machine learning algorithms to find relationships between academic achievement and guidance. Examine mentor and student responses to determine the qualitative effects of mentoring.

"Data analysis" is the act of looking through, organizing, analyzing, and interpreting data to find patterns, trends, and insights that are important. To extract useful knowledge from data that may be utilized for research, problem-solving, or making educated decisions, a variety of approaches, methods, and tools are employed. Numerous data kinds, such as numerical, textual, category, or visual data, can be subjected to data analysis.

1) Important elements of data analysis consist of:

a) ***Data Cleaning:*** This process entails locating and fixing data mistakes, outliers, missing numbers, and anomalies to guarantee accuracy and dependability.

b) ***Data Transformation:*** To prepare data for analysis, transformations are frequently applied. Data aggregation, summarization, and format conversion are a few examples of this.

c) ***Qualitative Data Analysis:*** Qualitative data analysis techniques, such as content evaluation or theme coding, are used to draw conclusions from unstructured data, which is textual or non-numerical in nature.

d) ***Big Data Analysis:*** Big data has led to the usage of specialized tools and technologies, such as distributed computing, NoSQL databases, and data processing frameworks like Hadoop, for managing and analyzing huge amounts of data.

C. Result

TABLE I. FEEDBACK

Total	Boys	Girls	Total
Weekly-yes	11	12	23
Weekly-partially	6	1	7
Bi-weekly-yes	5	0	5
Bi-weekly-partially	7	7	14
Monthly-yes	1	1	2
Monthly-partially	10	5	15

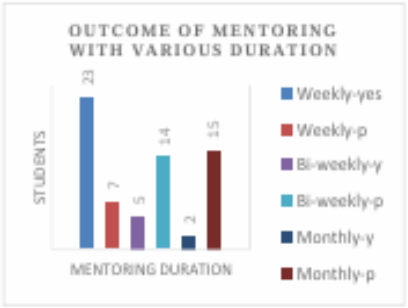

Fig. 1. Outcome of Mentoring

The above chart depicts that improvement can be noticed in more number of students who have attended mentoring sessions on weekly basis as compared to bi-weekly and monthly basis. In total, 66 students opted for mentoring session out of which 30 students chose weekly mentoring, 19 candidates gave priority to bi-weekly sessions, and 17 learners attended monthly mentoring.

Relevance between SDG and Mentoring

The endeavor to progress the study of computer science for undergraduate learners through mentorship utilizing a Big Data Analytics methodology is directly related to the United Nations Sustainable Development Goal (SDG) 8, "Decent Work and Economic Growth."
This is the way they are related to one other:

A. ***Skill Development for Employability:*** Improving undergraduate computer science education is to provide students with the essential information and skills to flourish in the workforce. This is in line with the objectives of SDG 8, which encompass both efficient functioning and full employment, Great work for everyone, and sustained, inclusive, and sustainable economic growth. This effort helps to lower unemployment rates and create decent career possibilities by increasing the employability of computer science graduates.
B. ***Career Guidance and Readiness:*** In order to adequately prepare students for their future occupations, mentoring is essential. It supports individuals in making well-informed choices regarding their career and academic paths. The mentoring process may be made more efficient by using big data analytics, guaranteeing that students receive career-aligned counsel and support that is specifically suited to them. This strengthens SDG 8's emphasis on encouraging youth employment by facilitating a smoother transition from school to the workforce.
C. ***Reducing Skills Mismatches:*** The gap in the workforce's capabilities and the demands of the labor market is one of the obstacles to decent work and economic progress. Through the use of Big Data Analytics, mentorship programs and educational institutions can learn more about the talents that the computer science industry requires. By using this data, the curriculum may be more closely aligned with industry demands, which will lessen skill gaps and promote economic expansion.
D. ***Fostering Innovation:*** The vanguard of innovation is the field of computer science. Learners are encouraged to think creatively and provide innovative answers to issues that they face in the real world by using Big Data Analytics and mentoring to improve education. By advancing technology, which is necessary for countries and industry to stay competitive in the global market, this promotes economic growth.
E. ***Building a Skilled Workforce:*** SDG 8 highlights how crucial a workforce that is knowledgeable and flexible is to sustaining economic growth. The mentoring strategy contributes to the development of a pool of knowledgeable, flexible, and highly educated computer science workers who are also well-versed in the needs and trends of the industry, making them marketable hires.

Future Scope

Subsequent investigations ought to concentrate on executing the suggestions for improving the mentoring program and evaluating their influence on academic results. Furthermore, one intriguing area for additional research is the application of machine learning and artificial intelligence to offer more individualized mentoring experiences.

Conclusion

An essential part of the undergraduate computer science curriculum is mentoring. Institutions can better comprehend the needs and advantages of mentorship programs by utilizing big data analytics. This study has demonstrated the beneficial effects of mentorship on students' motivation, skill development, and academic

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achievement. Educational institutions can further improve the efficacy of their mentorship programs and offer more specialized help to their computer science students by utilizing big data analytics.

The application of big data analytics in combination with mentorship programs has unlocked a multitude of insights, opportunities, and game-changing possibilities in the quest to improve undergraduate computer science education. Recognizing the value of skill development, encouragement, inspiration, and advice for both academic and career goals, this study work set out to investigate the complex dynamics of mentoring within the field of computer science. We have examined how mentoring affects undergraduate students' educational experiences using a mix of data from mentorship programs, academic records, and qualitative comments.

REFERENCES

[1] Anderson, T., & Elloumi, F. (2004). Theory and Practice of Online Learning. Athabasca University Press.
[2] Bandura, A. (1977). Social Learning Theory. Prentice-Hall.
[3] Becker, S. A., et al. (2017). NMC Horizon Report: 2017 Higher Education Edition. The New Media Consortium.
[4] Chickering, A. W., & Gamson, Z. F. (1987). Seven Principles for Good Practice in Undergraduate Education. American Association for Higher Education Bulletin, 3-7.
[5] Dweck, C. S. (2006). Mindset: The New Psychology of Success. Random House.
[6] Felder, R. M., & Brent, R. (2009). Active Learning: An Introduction. ASQ Higher Education Brief, 2(4).
[7] Kuh, G. D., Kinzie, J., Schuh, J. H., Whitt, E. J., & Associates. (2010). Student Success in College: Creating Conditions That Matter. John Wiley & Sons.
[8] Marzano, R. J., Pickering, D. J., & Pollock, J. E. (2001). Classroom Instruction That Works: Research-Based Strategies for Increasing Student Achievement. ASCD.
[9] National Center for Education Statistics. (2021). Digest of Education Statistics, 2020. U.S. Department of Education.
[10] National Science Foundation. (2020). Women, Minorities, and Persons with Disabilities in Science and Engineering. National Center for Science and Engineering Statistics.
[11] Tinto, V. (1993). Leaving College: Rethinking the Causes and Cures of Student Attrition. University of Chicago Press.
[12] Wang, X. (2015). Mentoring and Retention in Online Higher Education. Journal of Online Learning and Teaching, 11(1), 18-28.
[13] Zheng, M., Styles, I., & Burbury, B. (2017). Higher Education and the Fourth Industrial Revolution: Rethinking the Role of the University in Developing Work-Ready Graduates. Higher Education Quarterly, 71(3), 317-330.
[14] DeBoer, J., Ho, A. D., Stump, G. S., & Breslow, L. (2014). Changing "Course" Reclaiming the Potential of the College Classroom. Change: The Magazine of Higher Learning, 46(2), 6-13.
[15] Finkel, E. (2015). With a Little Help From My Friends. Chronicle of Higher Education.
[16] Johnson, W. B., & Ridley, C. R. (2004). The Elements of Mentoring. Palgrave Macmillan.
[17] Kram, K. E. (1985). Mentoring at Work: Developmental Relationships in Organizational Life. University Press of America.
[18] Lopatto, D. (2007). Undergraduate Research Experiences Support Science Career Decisions and Active Learning. CBE-Life Sciences Education, 6(4), 297-306.
[19] Lou, Y., Abrami, P. C., & d'Apollonia, S. (2001). Small Group and Individual Learning with Technology: A Meta-Analysis. Review of Educational Research, 71(3), 449-521.
[20] Lue, L., & Sherer, D. (2007). The Role of Peer Support in the Development of Discipline-Specific Knowledge. Studies in Higher Education, 32(1), 5-20.
[21] National Academies of Sciences, Engineering, and Medicine. (2018). How People Learn II: Learners, Contexts, and Cultures. The National Academies Press.
[22] Pascarella, E. T., & Terenzini, P. T. (2005). How College Affects Students: A Third Decade of Research. Jossey-Bass.
[23] Rogers, C. R., & Freiberg, H. J. (1994). Freedom to Learn. Prentice Hall.
[24] Zimmerman, B. J. (2002). Becoming a Self-Regulated Learner: An Overview. Theory into Practice, 41(2), 64-70.

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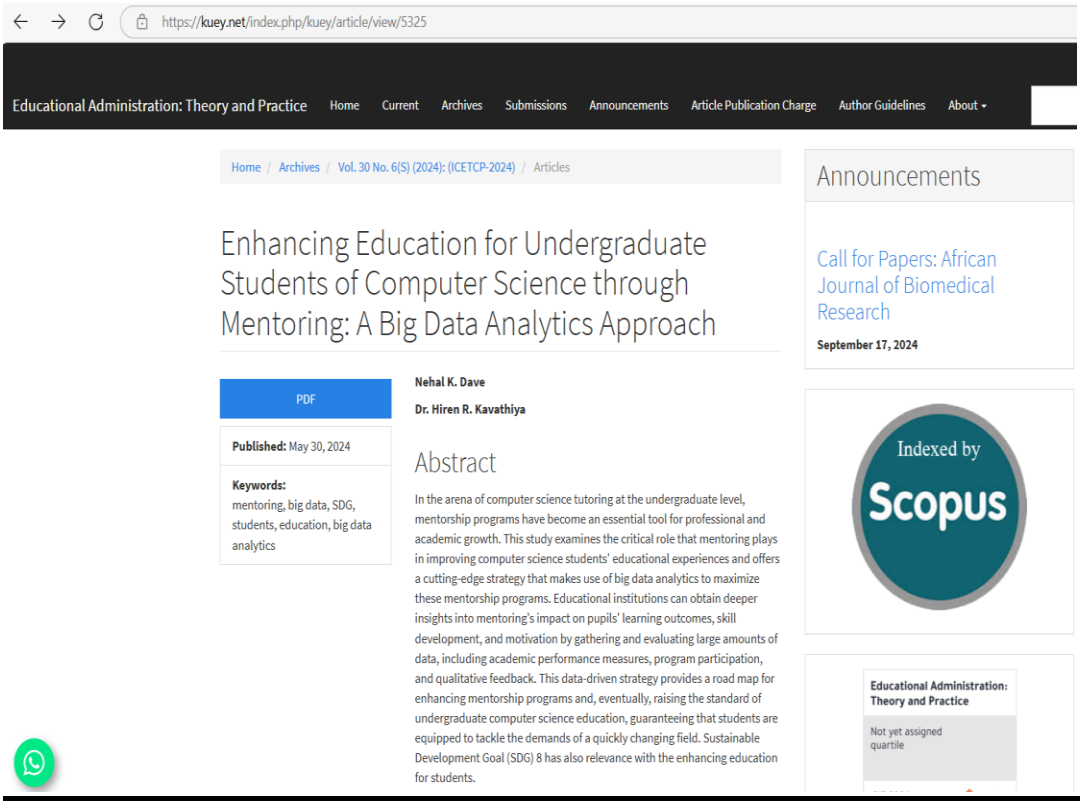
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Enhancing Education for Undergraduate Students of Computer Science through Mentoring: A Big Data Analytics Approach
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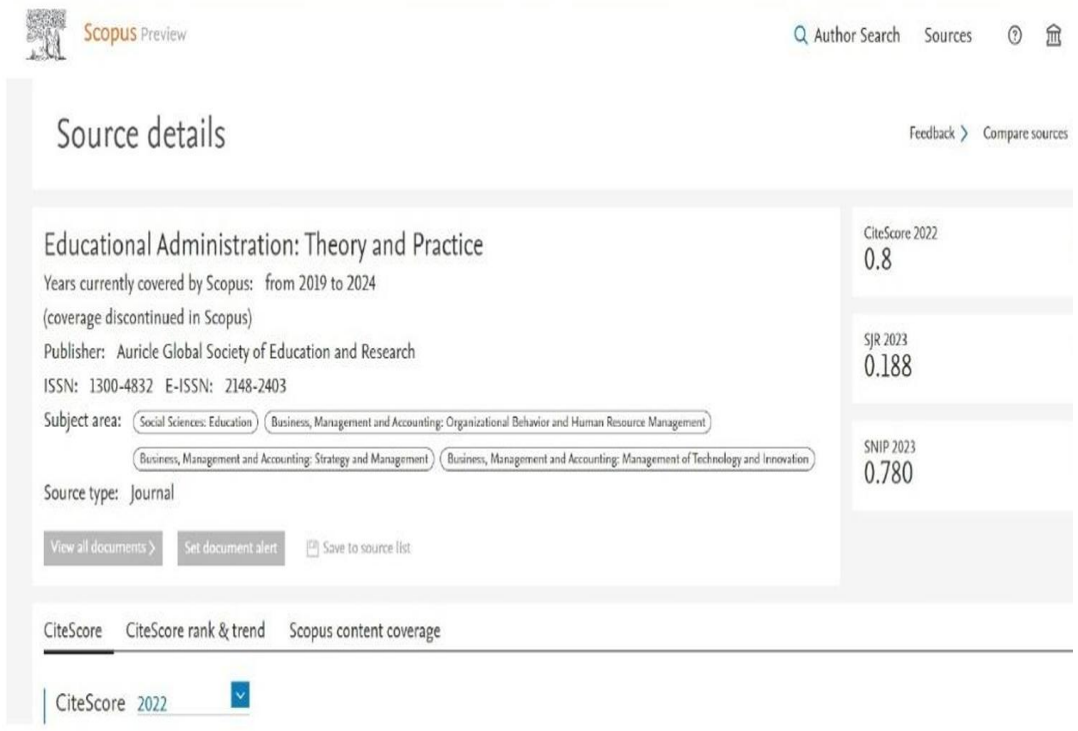
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C.1: A Research Study on Role of a Mentor in Personal Growth of Undergraduate Students

Chapter 4
A Research Study on Role of a Mentor in Personal Growth of Undergraduate Students

Nehal Dave and Hiren Kavathiya

1 Introduction

Personal development, also denoted as self-improvement, or "personal growth", is the ongoing process of improving one's abilities, traits, attributes, and mind-set in order to realize one's full potential and live a more fulfilling life. It entails making an intentional and conscious effort to better oneself in a number of ways, both inwardly (such as improving one's emotional well-being, mentality, and beliefs) and externally (such as improving one's abilities, routines, and behaviours). Personal development is a continuous process that begins at a young age but is mainly influenced by their parents, teachers, and surroundings. Consistent self-reflection, being aware of oneself, and willingness to effect beneficial transformation are all parts of growth as an individual [1].

College pupils must strike the right equilibrium between the demands of their studies and their growth as individuals, as well as plan and achieve professional objectives and build life skills. The mentoring relationship, which is characterized by guidance, support, and honest feedback, emerges as a powerful accelerator in this endeavour. This study will examine the various ways that mentors enhance the satisfaction, growth as individuals, and self-discovery of college pupils with the goal to gain a deeper understanding of the numerous dimensions of mentoring.

The current research attempts to provide a comprehensive understanding of the mentor's significance on the bachelor journey via a discussion of the various facets of mentoring, such as expert advice, tutoring, as well as private assistance. To illuminate the nuances of these connections and their revolutionary potential, the research will

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examine real-world situations and document the experiences of both mentors and students.

Consider every constructive shift in their beliefs, actions, or religion to be an act of growth. Learning stuff is not sufficient; mentees must put it into practice for it to eventually become ingrained in their identity. To achieve personal growth, it is essential to have encouragement, the ambition to ameliorate oneself, and the determination to mark alterations. Additionally, one must be willing to take risks and sometimes do things that may seem difficult, but are ultimately beneficial. Furthermore, open-mindedness and the capacity to acquire and rise are also essential.

Self-improvement is the process of personal growth. However, the fundamental idea of human progress goes beyond just improvement and development. It undergoes a change as well. The transformation to which we speak is largely the conversion of their potentially negative habits into chances for constructive change. Mentees are still mentees, but now they can become healthier. Mentees may strengthen his/her sense of self and stop trying to fit into someone else's mould of who mentees should be [2].

The current learning explores the complex relationships that exist between mentors and undergraduate students, illuminating the significant influence guides can have on their mentees' overall growth as well as their individual advancement.

2 Mentoring

Mentoring, a more close-knit and mutually beneficial connection, allows the faculty mentor to support the professional and personal development of their students [3, 4]. In a mentoring connection, mentees view the mentor as an inspiration for learning new things or acquiring new abilities. In addition to providing the mentee with expectations and incentive, the mentor models the necessary abilities [5]. Professional networking, skill development, professional attitudes and values, and confidence are all provided by mentoring [3, 6]. The primary objective of mentoring, despite the variety of ways, is for the teacher to act as an invaluable role model for the mentee's development. Enhancing skills and talents is the main goal of mentoring, which calls for meeting different expectations and interpersonal styles [7]. Jacobi [8] Mentoring has been defined as three things: (1) emphasizing personal development and success; (2) broad support (e.g. professional and career growth); and (3) personal and peer-to-peer mentorship. We both agree that mentoring is connected to all facets of life where individuals want to develop and interact with others. Mentoring helps new teachers advance their careers, develop their personalities, and increase their knowledge, according to several studies [9].

A mentor can help mentees discover ways in which they prerequisite to becoming more competent and can also offer to help them reach their objectives. By sharing their own experiences and ideas, mentors may offer insightful viewpoints and counsel that can help an individual overcome obstacles and advance in their growth. The mentees' self-efficacy and confidence for ongoing development and progress

may increase as a result. To support skill development and help people realize their maximum potential, mentoring may be a useful technique. Mentoring enhances research abilities by offering direction, encouragement, and criticism during the investigation process [10].

The dynamic and complex attachment that exists between a mentor and mentee is known as guidance, and it has a significant impact on undergraduate students' growth as individuals. Within the academic realm, guiding transcends the boundaries of conventional teaching and involves a comprehensive strategy that develops not only cognitive abilities but also emotional fortitude, social competencies, and self-awareness.

Mentoring reaches into the personal aspects of a student's journey, taking it outside the walls of the classroom. Mentors frequently act as friends, giving mentees a secure environment in which to voice worries, hopes, and doubts.

3 Significance of Personal Growth in Student's Life

Personal growth is a direct outcome of mentees' attempts to better themselves, whether that improvement is in his/her intellect, morals, physical health, or all of the above. Personal development is the process of improving one's habits, behaviours, actions, and responses. It is also known as self-realization or self-growth.

Students can realize their full potential in their studies as well as their lives by embarking on the revolutionary journey of personal growth. It helps them to be resilient, to learn throughout their lives, and to live happy, meaningful lives by preparing them for the possibilities and difficulties waiting forward. A learner's personal development is extremely important because it affects not only their academic performance but also their general health and opportunities for future success. Cognitive ability, feelings for others, and excellent communication abilities are all facilitated by personal growth. These attributes improve a student's capacity to establish and preserve happy connections with instructors, fellow students, and potential employers.

Individual growth can take several forms: Personal development is an investment in oneself that has long-term advantages in many areas of life. It is a path that calls for commitment, self-awareness, and the readiness to push themselves past his/her comfort zone, setting themselves up for a more fulfilling and meaningful life journey by putting personal improvement first. Personal development is crucial for many reasons, including how it affects happiness, success, and general quality of life.

With that, I present the following theories:

- Hypothesis 1 (H1): Mentoring has an impact on a learner's growth and development in context of a sense of direction
- Hypothesis 2 (H2): Mentoring has an impact on a learner's growth and development in context of boosts motivation

Fig. 1 Personal growth

- Hypothesis 3 (H3): Mentoring has an impact on a learner's growth and development in context of builds their self-confidence

The following are some important justifications for why personal development is important (Fig. 1).

3.1 A Sense of Direction

When mentees are more self-conscious, they are more conscious of what they want out of life. Deciding what to do Mentees' much easier. Mentees list of to-do's no longer includes things that took up most of their time before. Mentees know that they are not worth their time since they do not help reach their goals. Setting personal growth objectives might give mentees a sense of purpose in their professional life. Mentees can rank tasks that advance their goals in priority once they have decided what they want to work towards. We then go into how learning exercises that come from this theoretical integration might be created to help students become more self-aware and grow personally [11, 12]. For instance, a copywriter can take the steps required to become a grammar expert if they wish to advance to the position of senior copywriter [13].

3.2 Boosts Motivation

When learners get the clearer idea of targeted achievement, the journey becomes easier for follow progressing steps. Even if mentees are uncomfortable with the task, they will still be more likely to take action if they can see the benefits. The proverb "Where there is a will there's a way" is true. When mentees have a strong sense of self-development, they have the necessary will. We conclude that our tests provide some evidence of better motivation and collaboration. It has been exceedingly difficult to evaluate the potential impact on academic achievement thus far. It has been exceedingly difficult to evaluate the potential impact on academic achievement thus far [14].

Therefore, it is critical for organizers to comprehend both the individual and collective aspects impacting involvement and engagement in educational activities [15].

3.3 Builds Mentee's Self-confidence

Personal development may be impacted by emotional intelligence in both direct and indirect ways [16]. Mentees self-esteem can be enhanced by recognizing that they can do things that they thought were impossible, which can help mentees repeat the process and progress in different areas of their life. Mentees can learn how to develop SMART agendas, which are specific, measurable, attainable, relevant, and time-based, by consistently pursuing personal growth [17]. The results of the research demonstrated the personal growth initiative, as well as the favourable relationship between self-esteem and academic accomplishment. It was also shown that different aspects of personal growth have a strong and favourable relationship with academic accomplishment, total personal growth, and academic achievements [18].

4 Methodology

4.1 Data Collection

Data are collected by interviewing the students of the undergraduate program, and during the interview, the following questions were asked related to personal growth. Researchers often use Likert scale to understand the views and perspectives towards mentoring.

1. Current status of mentee's life
2. The thing that amazed the mentee lately
3. The highest priority in the mentee's life
4. An unpleasant event of the mentee's life
5. Having a sharing partner in the mentee's life
6. Mentee's intensity of risk-taking in life
7. Frequency of self-appreciation by mentee
8. Mentee's ability to hear ill about self
9. Preference by the mentee between health and money

5 Data Analysis

All 93 individuals were enrolled in professional programs at a reputable institution in Gujarat, India, with 61 (65.6%) men and 32 (34.40%) women. All 93 students were enrolled in a three-year undergraduate computer science program; of these, 31 were in their first year, 31 in their second year, and 31 in their third year. These pupils are between the ages of 18 and 21. All first-year students were without a mentor, whereas second-year students enjoyed the benefit of mentoring for a full academic year, and third-year students enjoyed close mentorship and fair mentor supervision. All students were asked the aforementioned 15 questions about their personal growth during personal interviews, and based on the discourse analysis, the reflection of the stories and reviews of the students were transformed into quantitative data/statistics on a measure of 1–5, where 1 represents the bottommost rank and 5, the uppermost rank.

Table 1 depicts the responses of undergraduate students in terms of percentage for 9 questions asked to understand their current thinking and mental level. It can be observed from the table that 9.68% of students were not aware of the current status of their lives as they did not have any mentor whereas 6.45% were able to say about the things that amaze them. The ratio ranges between 15 and 50% for the questions regarding priority, remembering unpleasant events, and the presence of a special person in life. The remaining criteria like risk-taking, encouraging own work, or the capability to hear bad about oneself from others account higher portion of students who are not doing well ranging from 9.68 to 32.26%. The percentages surge to 35.48% when it is about prioritizing health or money which indicates that the majority of students are not aware of setting preference. The absence of a mentor can be noticed when very few undergraduates can give the rate 5 for most of the questions.

Table 1 Rating by first-year students

S. no.	Question	1	2	3	4	5	Standard deviation
1	Current status of life	9.68	22.58	35.48	25.81	6.45	11.94
2	The thing amazed you lately	38.71	29.03	22.58	6.45	3.23	15.03
3	The highest priority	48.39	16.13	9.68	19.35	6.45	16.67
4	An unpleasant event	38.71	35.48	25.81	0.00	0.00	18.86
5	Having a sharing partner	32.26	25.81	19.35	16.13	6.45	9.78
6	Risk-taking	16.13	22.58	25.81	25.81	9.68	6.99
7	Self-appreciation	9.68	9.68	25.81	32.26	22.58	10.05
8	Ability to hear ill about self	29.03	32.26	25.81	6.45	6.45	12.58
9	Health or money	35.48	32.26	16.13	12.90	3.23	13.57

Table 2 illustrates the improvement in the life of second-year students of an undergraduate program in form of percentages as each of them have been allotted a mentor from the first year. It can be noted that more than 50% of students are able to state current status of life and that is why having the highest ration in rating 3 and 4. A consistent improvement can be observed when the data are compared to first-year students (Table 1) as more students are able to recognize the amazement, can set priorities, or remembering any unpleasant event because the result is ranging from 0.00 to 35.48%. The remaining set of questions such as having a special person or a sharing partner or calculative risk-taking willingness has also faced a makeable hike starting from 12.90% to approximately 36% for the rating 3 and 4. It can be noticed from the table that after having one year of mentoring, 61.29% of students can appreciate themselves for their deed. Moreover, the number has jumped from 6.45 to 25.81% for hearing something low about self, and the ratio is dramatically reduced for prioritizing health or money to 16.13%.

Table 3 denotes the feedbacks of third-year undergraduate students in form of percentage for a set of questions asked to understand the effect of mentoring. It can be observed from the table that after mentoring of two years, only 3.23% of students were not aware with the current status of their life. The ratio falls between 6.45 and 32.26% for the questions regarding amazing things, priority, remembering unpleasant event, and the presence of a special person in life to share things. The remaining criteria like risk-taking, encouraging own work, or capability to hear bad about self from others account higher ratio as through mentoring they could feel improvement in perspective. The percentage drops to 0.00% and 16.13 in rating 1 and 2 when it is about prioritizing health or money which indicates that majority of students is now aware about setting preference. The presence of mentor in their life can be clearly noticed when very few undergraduates can give the rate 1 for most of the questions.

Table 2 Rating by second-year students

S. no.	Question	1	2	3	4	5	Standard deviation
1	Current status of life	6.45	16.13	29.03	38.71	9.68	13.57
2	The thing that amazed you lately	32.26	22.58	16.13	16.13	12.90	7.70
3	The highest priority	9.68	22.58	12.90	25.81	29.03	8.35
4	An unpleasant event	35.48	29.03	22.58	12.90	0.00	13.95
5	Having a sharing partner	29.03	19.35	22.58	16.13	12.90	6.20
6	Risk-taking	12.90	25.81	29.03	25.81	6.45	9.78
7	Self-appreciation	12.90	16.13	25.81	35.48	9.68	10.55
8	Ability to hear ill about self	6.45	22.58	32.26	25.81	12.90	10.30
9	Health or money	16.13	12.90	38.71	29.03	3.23	13.95

Table 3 Rating by third-year students

S. no.	Question	1	2	3	4	5	Standard deviation
1	Current status of life	0.00	3.23	6.45	25.81	64.52	26.83
2	The thing amazed you lately	9.68	12.90	16.13	29.03	32.26	10.05
3	The highest priority	6.45	16.13	19.35	25.81	32.26	9.78
4	An unpleasant event	29.03	25.81	32.26	6.45	6.45	12.58
5	Having a sharing partner	19.35	16.13	16.13	25.81	22.58	4.21
6	Risk-taking	6.45	29.03	25.81	29.03	9.68	11.03
7	Self-appreciation	9.68	16.13	29.03	32.26	12.90	10.05
8	Ability to hear ill about self	0.00	16.13	19.35	25.81	38.71	14.13
9	Health or money	3.23	9.68	16.13	29.03	41.94	15.54

6 Outcomes

A mentor can help mentees discover areas in which they need to become more competent and can also offer resources and support to help them reach their objectives. Mentorship can remarkably increase self-awareness in students. A growth can be expected in a sense of direction for mentees. Moreover, learners can be expected to have improved focus and a higher level of motivation. Under guidance of a mentor, students can achieve next phase of resilience and become able to set goal for betterment of life. Lastly, the most vital parameter for personal growth is self-confidence which can be elevated through mentorship.

Table 4 exhibits improvement in rating after mentoring for first-year to third-year students. During the first year, 28.67% of students gave an overall poor rating to their ability about various situations mentioned in the given questionnaire and only 7.17% of students fell under the best category. Talking about second-year students, improvement can be noticed and the poor rating reduced to 17.92 as they were under the guidance of a mentor for one year whereas a rise can be noticed in the best rating to 10.75%. However, a plunge can be noticed in poor ratings with 9.32% as third-year students were under a mentor's guidance and a hike can be observed in best ratings with 29.03%.

This research's data analysis directly relates to NEP 2020. In NEP 2020, point number 14 is "Equity and Inclusion in Higher Education". 14.4.2 "Steps to be taken by all HEIs" is subpoint in NEP 2020 point number 14. In 14.4.2, step number (j) is "Provide socio-emotional and academic support and mentoring for all such students through suitable counselling and mentoring programmes", which demonstrates the value and effectiveness of mentoring for undergraduate students. Undergraduate student mentorship can assist students achieve all of the aforementioned

Table 4 Improvement in rating after mentoring

Poor Rating To Best Rating		
	Poor	Best
F.Y.	28.67	7.17
S.Y.	17.92	10.75
T.Y.	9.32	29.03

goals and have a positive impact on their personal lives as well as their personal growth.

7 Conclusion

This research provides insight into the crucial and complex role mentors play in determining undergraduate students' personal development. The results highlight how important mentoring is as a transforming factor in the undergraduate experience. As mentors and advocates, mentors support students not only in their academic endeavours but also in developing their identities, mental health, and readiness for the demands of the working world. The mentor–mentee connection develops into an active interaction that creates an atmosphere in which personal development is welcomed and even expected as a necessary component of learning. The results of this study highlight the significant influence that mentoring has on a variety of aspects of personal development. Through mentoring, students can reflect on their strengths and faults in a supportive setting. The importance of mentoring is further highlighted by the part it plays in developing students' adaptability, self-assurance, and resilience. Mentorship emerges as a crucial factor of both personal progress and academic performance as NEP 2020 also suggested the same.

References

1. Jain C, Apple D (2015) What is self-growth? Int J Process Educ 7:41–52
2. Cai J, Lian R (2022) Social support and a sense of purpose: the role of personal growth initiative and academic self-efficacy. Front Psychol 12. https://doi.org/10.3389/fpsyg.2021.788841
3. Johnson WB (2007) Student-faculty mentorship outcomes. In: Allen T, Ebby L (eds) Blackwell handbook of mentoring: a multiple perspectives approach. Blackwell, London, pp 189–210
4. Bhatnagar V, Diaz S, Bucur PA (2020) The need for more mentorship in medical school. Cureus 12:e7984

5. Palmer RJ, Hunt AN, Neal M, Wuetherick B (2015) Mentoring, undergraduate research, and identity development: a conceptual review and research agenda. Mentor. Tutoring Partnersh. Learn 23:411–426
6. Speer JE, Lyon M, Johnson J (2021) Gains and losses in virtual mentorship: a descriptive case study of undergraduate mentees and graduate mentors in STEM research during the COVID-19 pandemic. CBE-Life Sci Educ 20:14 [PubMed]
7. Jiao X, Kumar R, Billot J, Smith R (2011) Developing research skills and capability in higher education: combining collaborative research with mentoring. J Educ Leadersh Policy Pract 26:42–55
8. Jacobi M (1991) Mentoring and undergraduate academic success: a literature review. Rev Educ Res 61:505–532
9. Saranya C, Dhuli R, Guduru R (2023) The role of a mentor in students' personal growth, academic success, and professional development, vol 22, pp 35–46
10. Atkins K, Dougan BM, Dromgold-Sermen MS, Potter H, Sathy V, Panter AT (2020) Looking at myself in the future": how mentoring shapes scientific identity for STEM students from underrepresented groups. Int J STEM Educ 7:42
11. Ugur H, Constantinescu PM, Stevens MJ (2015) Self-awareness and personal growth: theory and application of Bloom's taxonomy. Eurasian J Educ Res 60:89–110. https://doi.org/10.14689/ejer.2015.60.6
12. Roeser RW, Peck SC (2009) An education in awareness: self, motivation, and self-regulated learning in contemplative perspective. Educ Psychol 44:119–136. https://doi.org/10.1080/00461520902832376
13. Mohanty A, Pradhan R, Jena L (2015) Curiosity and meaning of life leading towards personal growth: the role of emotional intelligence. J Ind Acad Appl Psychol 41
14. Bernelo M, Honsberg S, Järelöw A, Blennow J, Peterson L (2023) Focus on student's personal development can lead to better motivation, better academic performance and better collaboration in engineering programs
15. Sorinola O, Thistlethwaite J, Davies D (2013) Motivation to engage in personal development of the educator. Association of Course Organisers: The Official Journal of the Association of Primary Care Educators; National Association of General Practitioners Tutors; World Organisation of Family Physicians, vol 24, pp 226–229. https://doi.org/10.1080/14739879.2013.11494178
16. Kobylarczyk M, Ogińska-Bulik N (2017) Assessing resiliency and personal growth in a group of adolescents experiencing negative life events: the mediating role of emotional intelligence. Curr Issues Pers Psychol 5:1–10. https://doi.org/10.5114/cipp.2017.68341
17. Schippers M, Morisano D, Locke E, Ad, Scheepers, Latham G, de Jong E (2019) Writing about personal goals and plans regardless of goal type boosts academic performance. Contemp Educ Psychol 60:101823. https://doi.org/10.1016/j.cedpsych.2019.101823
18. Yasin G, Malik N, Shehzadi H (2013) Personal growth initiative and self esteem as predictors of academic achievement among students of technical training Institutes HumairaShahzadi, pp 435–446

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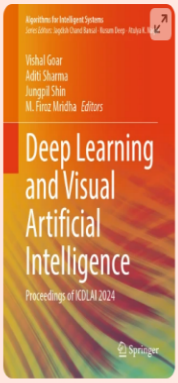

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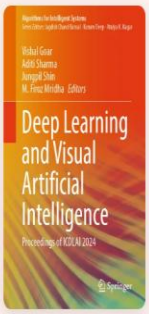

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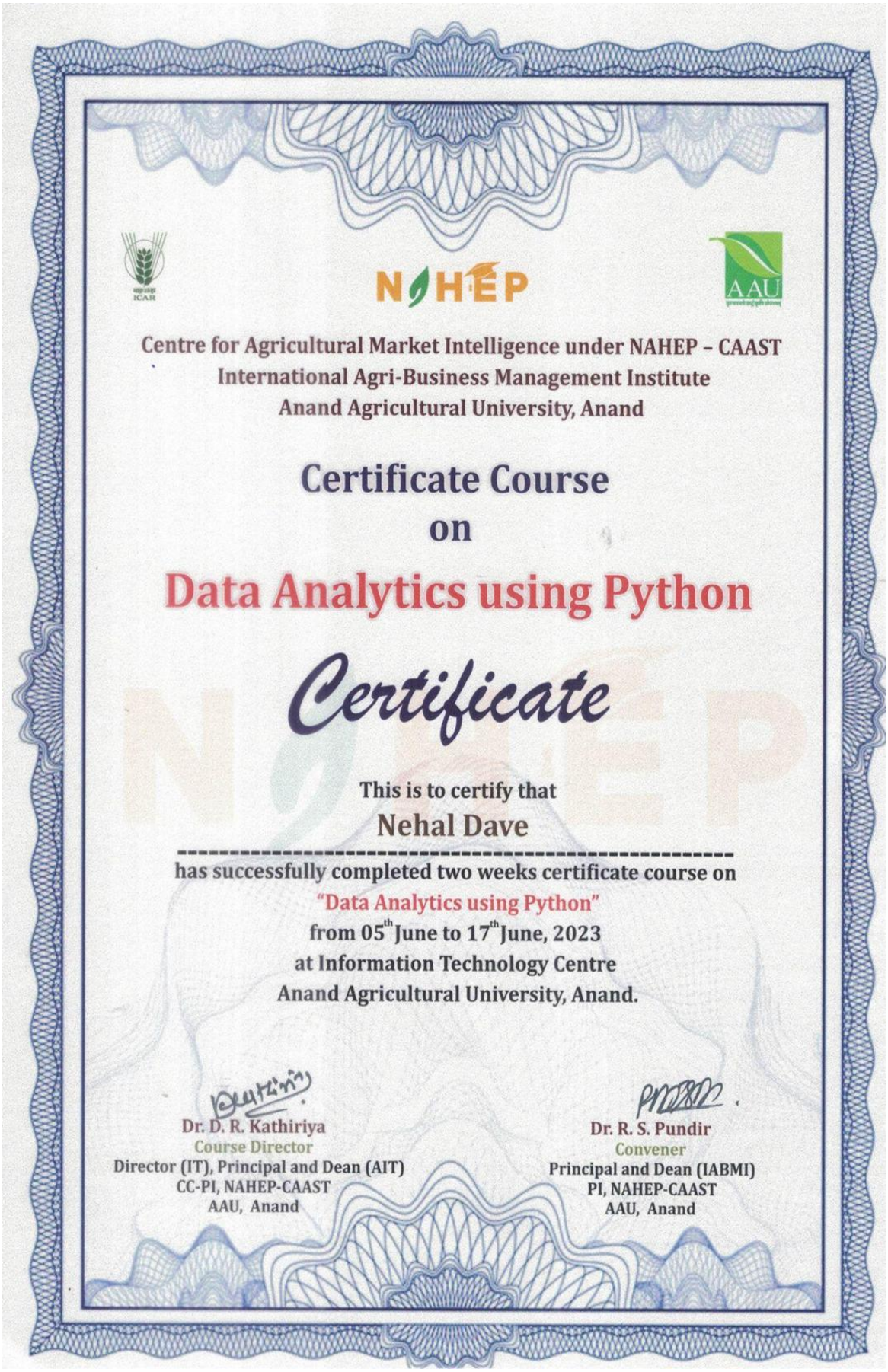

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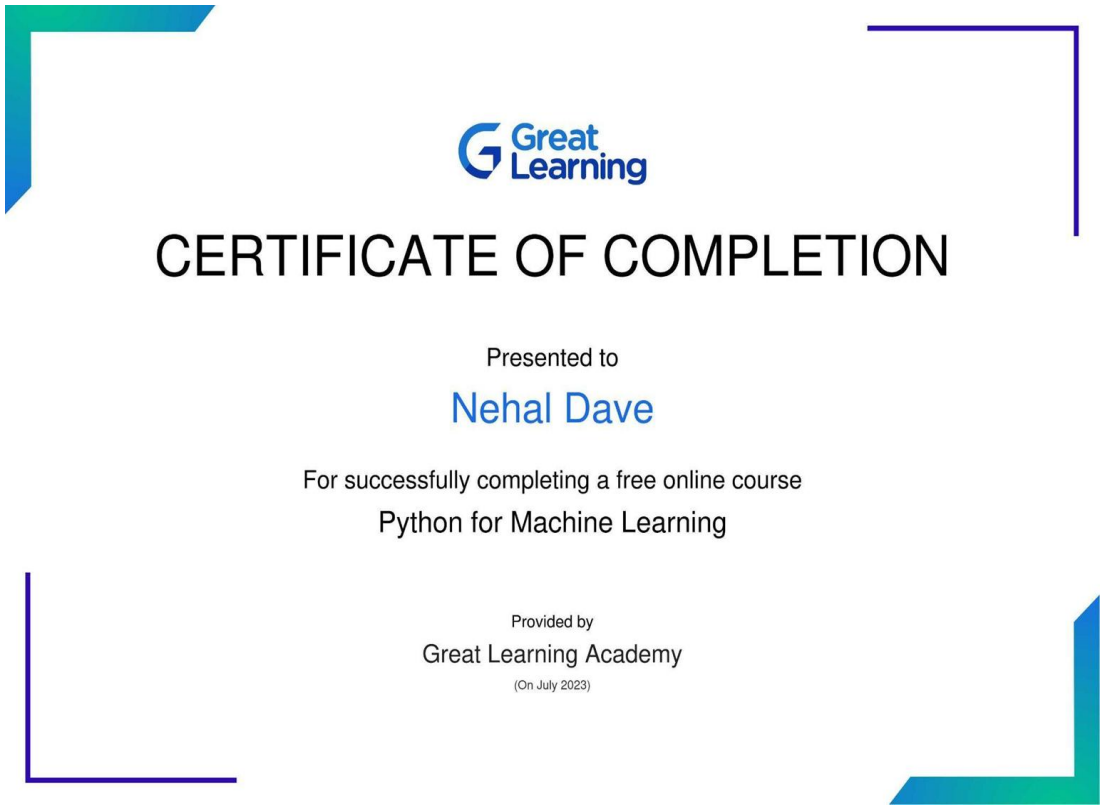

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- Think algorithmically to analyze problems and implement them as computer processes.
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- Understand the role of a programmer in the software development process.
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- Use the potential of Python in everyday applications, including IoT and DIY activities.
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OF PARTICIPATION

This is to certify that

Nehal Kiritkumar Dave

participated 5 Day's Online International Level Faculty Development Program on
Data Science using Machine Learning
organized by Pravara Rural Engineering College in Collaboration with ExcelR
Date: 2nd January 2023 to 6th January 2023

Dr. S. M. Gulhane
Principal PREC Loni

Code: 10180/12012023/EXCELR

Ram Tavva
CEO, ExcelR Solutions

EDL
Everyday Learning

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Hemchandracharya North Gujarat University

ATMIYA UNIVERSITY

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CERTIFICATE

This is to certify that Prof./Dr./Mr./Ms. NEHAL KIRITKUMAR DAVE

of ATMIYA UNIVERSITY , RAJKOT has

participated in the **International Workshop on Algorithms, Complexity and Some Recent Advances in Graph Theory-2023** organized at Atmiya University, Rajkot, Gujarat (India) in association with Hemchadracharya North Gujarat University, Patan, Gujarat (India) on 8th February, 2023.

Dr. D. D.Vyas
Registrar
Atmiya University

Dr. Rakhimol Isaac
Organizing Secretary
Atmiya University

EXCELR
Raising Excellence

CERTIFICATE
OF PARTICIPATION

This is to certify that

Nehal Kiritkumar Dave

Participated in 5 Days Online International Faculty Development Program on Data Analytics using Power BI organized by the Department of Information Technology, G Narayanamma Institute of Technology and Science (for women) in Collaboration with ExcelR.

Date: 20th March 2023 to 24th March 2023

Dr. I Ravi Prakash Reddy
HOD-IT GNITS

Dr. K Ramesh Reddy
Principal, GNITS

Ram Tavva
CEO, ExcelR Solutions

Certificate Code: 40531F/EXLR/28032023

EDL everydayLearning

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Five Days International workshop
on
Application of Machine Learning and Artificial Intelligence in Research and Innovations
(IWMLAI-2023)

REGIONAL COLLEGE
a unit of deepshikha group of colleges

Certificate of Participation

Ref. No. RCERT/IWMLAI/1162

This is certify that Miss. Nehal Dave of Atmiya University has participated in the five days International workshop on "Application of Machine Learning and Artificial Intelligence in Research and Innovations " held from 2nd - 6th May 2023 at Regional College for Education Research & Technology, Jaipur.

Mr. Madhumay Sen
Coordinator, IWMLAI

Dr. Anshu Surana
Vice Chairman, RCERT

Dr. Pramod Sharma
Principal,RCERT

FoCA
Marwadi University
Marwadi Chandarana Group

Certificate of Participation

This is to certify that Mr./ Ms. Nehal Dave has attended the Student Empowerment webinar on Introduction to Big Data - Hadoop with Pig organized by Faculty of Computer Applications Marwadi University, Rajkot on 06th May, 2023

We wish him/her all the very best!

Dr. R. Sridaran
Dean, Faculty of Computer Applications,
Marwadi University, Rajkot

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STAR INTERNATIONAL
Foundation for Research and Education
(Registered Under Indian Trust Act, ISO Certified and 12AA & 80G Approved Organisation)
Tiruchengode-637211, Namakkal-Dt, Tamil Nadu, India

SIFRE

e-Certificate of Recognition

This is to certify that Prof/Dr/Mr/Ms Nehal Dave, Assistant professor of computer science, Atmiya University , has actively participated in " 7 DAYS NATIONAL LEVEL FDP ON PYTHON " organized by Star International Foundation for Research and Education on 19.03.2024 to 25.03.2024.

Dr.S. Sekar
Founder / Managing Trustee

Certificate ID DKDTHQ-CE000984

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Certificate Of Participation

Awarded To

Nehal Dave

has participated in One Week Online National Faculty Development Program on
"Data Visualization Using Tableau"
conducted on 1st to 5th April, 2024
organized by Department of Computer Science and Engineering, Mohan Babu University, Tirupati, Andhra Pradesh & EXCELR EDTECH PVT. LTD.

Cert No: EXCELR-FDP-69710/10042024

Ram Tavva
CEO,
ExcelR Edtech Pvt. Ltd.

Dr. B. M. Satish
Dean,
SoC & SoE

Dr. M. Sunil Kumar
HOD,
Computer Science Engineering