Impact Analysis of Conceive-Design-Implement-Operate (CDIO) Educational Framework – a Longitudinal Study

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***Abstract*—The Conceive-Design-Implement-Operate (CDIO) educational framework is an innovative approach to engineering education that emphasizes the development of practical skills through an integrated curriculum. This longitudinal study examines the impact of the CDIO framework on student outcomes over an extended period of 5 years. The research tracks the progress of students from their initial exposure to the CDIO methodology through to their professional careers, assessing the framework's effectiveness in enhancing technical competence, creativity, and teamwork abilities. Responses for a survey questionnaire have been collected from the students across 5 years (2019 to 2023). Data were collected from multiple cohorts of engineering students of an institution that have adopted the CDIO framework. Statistical analysis of the responses has been done and the results are presented. Analysis of the responses shows a positive impact of the CDIO framework. In addition, the achievements of the students in various activities stand as evidences for the integrity of the CDIO framework. These findings suggest that the CDIO approach not only enhances educational outcomes but also prepares students for the transforming needs of the engineering education**

***Keywords*—CDIO framework, Student improvement, Student Satisfaction Survey, Educational outcomes, Engineering Education**

***ICTIEE* Track*:* Curriculum Development**

ICTIEE Sub-Track: Guidelines for Outcome-Based Education: Strategies for Effective Curriculum Development and Implementation

I. INTRODUCTION

THE rapid evolution of technology and the increasing complexity of engineering challenges have led to a growing demand for engineers who are not only technically proficient but also capable of innovating, collaborating, and adapting to dynamic environments. Traditional engineering education, which has often focused on theoretical knowledge and isolated technical skills, has been criticized for its inadequacy in preparing graduates for the multifaceted demands of modern industry. In response to these challenges, the Conceive-Design-Implement-Operate (CDIO) educational framework has emerged as a transformative approach to engineering education. This framework is designed to produce engineers who are equipped with the necessary technical expertise, practical skills, and holistic understanding required to excel in today's globalized and interdisciplinary work environments.

The CDIO framework, originally developed by a consortium of universities including the Massachusetts Institute of Technology (MIT), has gained widespread recognition and adoption across the globe. It represents a shift from traditional pedagogy to a more integrated and experiential learning process that mirrors the real-world engineering lifecycle. The framework is structured around four key phases: Conceive, Design, Implement, and Operate. These phases encompass the entire engineering process, from the initial conceptualization of a project to its final operation and evaluation. By engaging students in these phases throughout their education, the CDIO framework aims to develop a range of competencies, including technical knowledge, creativity, communication, teamwork, and problem-solving skills.

The CDIO framework is built on several core components that distinguish it from traditional engineering education models. These components include the CDIO Standards and the CDIO-based curriculum. The CDIO Standards are a set of 12 guidelines that provide a framework for implementing the CDIO approach in educational institutions (Chucalin, 2020). These standards cover various aspects of the curriculum, including the integration of CDIO principles, the design of learning experiences, faculty development, and assessment methods. The CDIO framework encourages the development of a curriculum that is structured around the four CDIO phases. This curriculum is typically organized as a series of integrated courses and projects that span the entire duration of an

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engineering program. Each phase of the CDIO process is introduced progressively, with students initially engaging in simpler tasks and gradually taking on more complex challenges with a scaffolded approach.

This research study analyses the impact of the implementation of the CDIO framework in an institution with two different methods: 1) Analysis of Survey questionnaire on the impact of CDIO among students across 5 years and 2) Activities in terms of Patents, Publications and Hackathons by students and faculty members. The responses of the students for the survey questionnaire are statistically analysed and presented. The number of student and faculty activities that shows the problem-solving skills and creativity are compiled and shown as evidence to the impact of the CDIO framework.

II. Literature Survey

Evaluating an educational framework is a critical process with multiple purposes, each aimed at enhancing the effectiveness, relevance, and overall quality of education. Survey questionnaire on the benefits of the proposed educational framework is the common method for evaluating the frameworks (Onyura et al., 2022; Conijn et al., 2021; Grivokostopoulou et al., 2019; Jacobson et al., 2016). Faculty or learner surveys are given as primary components in assessing an educational framework (Onyura et al., 2022). Conjin's research work quantitatively assess the degree to which primary schools and their teachers provide a wonder- stimulating environment with the help of questionnaire (Conijn et al., 2021). The improved performance of the target group has been taken by few research works to assess the impact (Outhwaite et al., 2020). Any educational framework cannot bring a major transformation in the initial years of its implementation (Kahu et al., 2017). Impact analysis is crucial in piloting any such educational framework (Thiruvengadam et al., 2020). Hence this research tabulates the results year wise and find whether a gradual increase happens over the years. As CDIO framework helps in improving the Engineering Education Research Perspective (Edström, 2020), the faculty publications in Engineering Education Research (EER) are accounted for evaluating the framework. Benes & Alperin, (2022) has stated the essentials of teaching falls in three categories: Curriculum, instruction, and assessment. Hence a transformation of educational framework shall measure the progress in terms of these major aspects.

Getting a commitment from the higher management is one of the major influencing factors for the success of newer innovation in education (Tanveer & Usman, 2022). Analysis of financial support provided by the higher management can be considered for the impact analysis as higher the impact, higher the management support. Training the faculty intensely with the CDIO framework is necessary for the successful implementation (Thiruvengadam et al., 2022). Problem based learning with critical thinking skills is essential in CDIO framework and hence curriculum, content delivery mechanisms and assessment needs to be devised in the way (Julius Fusic et al., 2022). This research work assesses the impact of CDIO framework established in the institution with a focus on curriculum design, content delivery and assessment.

III. Research Questions

As per the discussion on the need of this study, the following research questions have been formulated for the research.

RQ1. What is the impact of CDIO framework in terms of curriculum, content delivery and assessment among students in terms of the responses for the survey questionnaire across 5 years and in student achievements?

RQ2. How can the student responses recorded for five years lead to improvement strategies?

IV. Methods and Materials

The research is carried out as an institutional reform practice of introducing a novel education framework, CDIO, for the undergraduate engineering students of an engineering institution that carries a legacy of 67 years. There are many teachers and administrators in the institution who have seen more than 20 batches of students getting passed out of the campus. A blend of conventional and modern age teachers forms the teaching community of the institution. Hence, this type of reforms in educational framework needs phased and patient approach. A group of top leaders from the institution have been trained in this framework through attending many international seminars and conferences. The institution has been accepted as a worldwide member of CDIO initiative and a core committee has been formulated. The members of core committee were trained in the CDIO standards and curriculum, who takes charge of disseminating the same in the respective departments. Institution level training programs are conducted for all the faculty members on the CDIO standards and curriculum. New courses are introduced in the curriculum that steadily builds the culture of CDIO from the 1st year to 4th year as shown in Fig. 1. The curriculum has been introduced in 2018 and applies for the students admitted from 2018 onwards. The courses are designed in a such a way that the Problem based learning is practised from the 2nd year with different courses to exercise their critical and problem-solving skills. These courses are not conventional as all these courses involves periodical reviews of the group projects and no written examination. The courses address interdisciplinary learning and skill development.

Fig 1. CDIO courses in curriculum

Selective training programs for faculty in CDIO courses were conducted once in a year. Project review mechanisms are standardized and review rubrics are uniformly maintained across the programmes for assessing the performance of the students. Creative projects are further encouraged to get converted into Patents, Publication or Hackathon contest nominations. The impact of the paradigm shift in educational framework and the facilities in college are assessed with a survey questionnaire every year from 2019 to 2023 for the different dimensions of the institution. The questionnaire contains 30 different questions that assesses the different facilities provided by the institution including curriculum design, content delivery and assessment. At the end of each year certain reforms are applied as shown in Fig. 2.

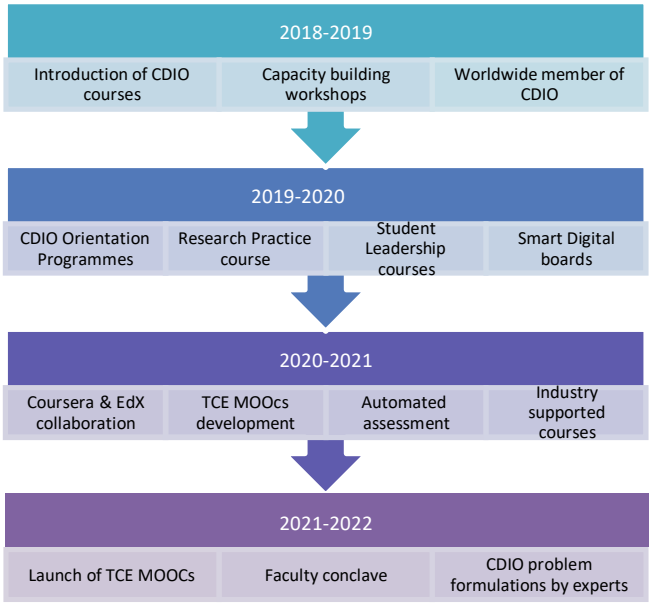

Fig 2. Reforms done after every year in CDIO implementation

A. Research Question 1:

To address RQ1, 12 questions are marked from survey questionnaire questions to represent the impact of curriculum design in CDIO. 6 questions are chosen for content delivery and 5 questions for assessment. Table I shows the subset of the survey questionnaire that reflects the impact of the CDIO framework for curriculum, Table II and Table III shows the questionnaire used for content delivery and assessment respectively. A 4-point Likert scale is used for getting student responses and the responses are converted to a numeric value for a maximum value of 4 with the given equation:

TABLE I
SURVEY QUESTIONNAIRE ELEMENTS FOR CURRICULUM

Q. No	Questions considered for analysis
Q1	The curriculum is well balanced, updated periodically and satisfies the present needs.
Q2	Exposure to industrial practices is provided through industry supported courses/ seminars/ guest lectures/ field visits/ student internships
Q3	The curriculum facilitates interdisciplinary learning through foundation electives and general electives
Q4	The curriculum has adequate number of practical courses / theories cum practical courses/ Project works for skill development.
Q5	The Special Interest Groups (SIG) and programme electives have helped you in specialization of your area of interest.
Q6	The implementation of the Choice Based Credit System (CBCS) has enabled you to enroll in the courses and slots you opted for.
Q7	Adoption of Conceive, Design, Implement, Operate (CDIO) framework in TCE undergraduate curriculum has enriched the technical and professional skills.
Q8	CDIO Skill based courses like Engineering Exploration, Lateral Thinking, Design Thinking, Project Management, System Thinking are facilitating participation in international contests / competitions
Q9	Audit courses like Environmental Sciences, Constitution of India, Professional Ethics etc., created social awareness
Q21	The institute takes active interest in promoting internships / student exchange programmes / field visits opportunities for students.
Q24	Course enrollments, course feedback, tracking of attendance and grades are made easier with the in-house automation software for the academic process.
Q25	A mentoring/tutor system is available to identify your strengths and weaknesses and encourage you with providing the right level of challenges.

TABLE II
SURVEY RESPONSE QUESTIONNAIRE FOR CONTENT DELIVERY

Q. No	Questions considered for analysis
Q10	How much of the syllabus was covered in the class?
Q11	The instructors adopt active and collaborative learning strategies like Think Pair Share, Flipped Classroom, Problem Based Learning etc.,
Q12	The instructors use a variety of ICT Tools and Learning Management Systems like Moodle, Canvas, Google Classroom are effectively used for sharing of resource materials, conducting assignments, discussions and quizzes
Q13	Instructors are readily available for clarification of doubts and for personal mentoring.
Q14	Laboratories are well equipped with appropriate hardware and software for the conduct of practical classes/project works.
Q22	Efforts are made by the institute/ teachers to inculcate soft skills, life skills and employability skills to make you ready for the world of work.

TABLE III
SURVEY RESPONSE QUESTIONNAIRE FOR ASSESSMENT

Q. No	Questions considered for analysis
Q16	The assessment process (CAT / Assignments / Terminal Examinations / Review) at TCE is fair and unbiased.
Q17	The tasks given in assignments have helped in enhancing your problem solving and communication skills.
Q18	The assessments are designed and evaluated appropriately to assess higher order thinking skills
Q19	The assessments provided the right level of challenge and an opportunity for collaborative/co-operative learning,
Q20	Communication, Critical thinking, Collaboration, Creativity are given importance in assessments

The survey responses are analyzed with statistical analysis as follows:

- ANOVA test to find if there are any significant differences between the student responses in the five years
- Paired t-test to find whether there is significant difference between the student responses of year 2019 and 2023.
- Average and standard deviation of responses for each year
- Cohen's D to calculate the effect size

The following activities are considered for CDIO framework as the framework fosters problem solving and creative thinking.

1. Patents
2. Student Publications
3. Hackathons
4. EER Publications

The numbers are compared against the said years to show the impact of CDIO framework.

B. Research Question 2:

Research Question 2 is addressed with the analysis of student scores and their rankings in different years. The ranking of the perception of students in years 2018-2019 is compared with that of 2022-2023. The questions that are moved up are noted and taken as evidence for growth. The question elements that are moved down in the rating are taken for future improvements for CDIO. Also, the scores in the three components are compared against each other and the components that are to be in focus for the next year is determined.

V. RESULTS

This section presents the results of the methods proposed in the previous section. Results of statistical analysis of the responses are tabulated in Table IV. Fig.3 shows the scores as a trend chart for the questions Q1 to Q4. Fig. 4. Shows the scores for the questions from Q5 to Q8. Questions Q9, Q21, Q24, and Q25 are presented in Fig 5. These questions are part of curriculum design.

TABLE IV
RESULT OF STATISTICAL ANALYSIS

Analysis Method	2018 - 2019	2019 - 2020	2020 - 2021	2021 - 2022	2022 - 2023
Average (Curriculum)	3.03	3.10	2.83	3.4	3.46
Average (Content Delivery)	3.08	3.15	3.05	3.49	3.51
Average (Assessment)	3.09	3.13	3.45	3.42	3.51
Standard deviation (Curriculum)	0.19	0.17	0.18	0.20	0.11
Standard deviation (Content Delivery)	0.17	0.14	0.25	0.12	0.09
Standard deviation (Assessment)	0.06	0.05	0.03	0.21	0.02
ANOVA[1]	Curriculum: p-value <0.0001; Significant difference exists Content Delivery: p-value=0.00021; Significant difference exists Assessment: p-value <0.0001; Significant difference exists				
T-test (2018 – 2019 and 2022 – 2023)	Curriculum: p-value <0.0001; Significant difference exists Content Delivery: p-value=0.00013; Significant difference exists Assessment: p-value= .00028; Significant difference exists				
T-test (2018 – 2019 and 2019 – 2020)	Curriculum: p-value : .1865; Significant difference does not exist Content delivery: p-value : . .01159; Significant difference exists Assessment: p-value : .09859; Significant difference does not exist				
T-test (2019 – 2020 and 2021 – 2022)	Curriculum :p-value : .000476; Significant difference exists Content delivery: p-value : 0.00017; Significant difference exist Assessment: p-value : .02086; Significant difference exists				
T-test (2021 – 2022 and 2022 – 2023)	Curriculum:p-value : .1940 ; Significant difference does not exist Content delivery: p-value : .5176 ; Significant difference does not exist Assessment: p-value : .3776 ; Hence significant difference does not exist				
Cohen's D (2018-2019 and 2022-2023)	2.665 indicating a higher effect size in curriculum 3.5796 indicating a higher effect size in content delivery 9.4074 indicating a higher effect size in assessment				

1- ANOVA among all five years

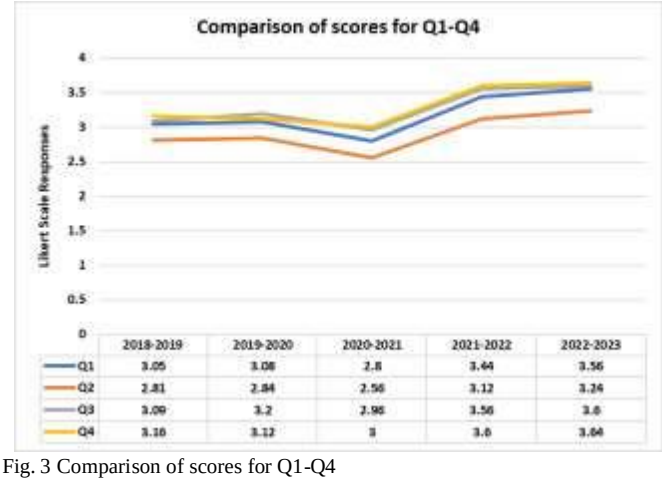

Fig. 3 Comparison of scores for Q1-Q4

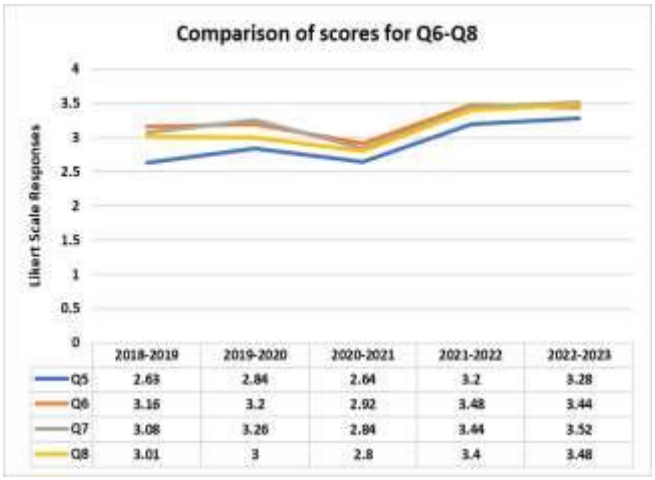

Fig. 4 Comparison of scores for Q5-Q8

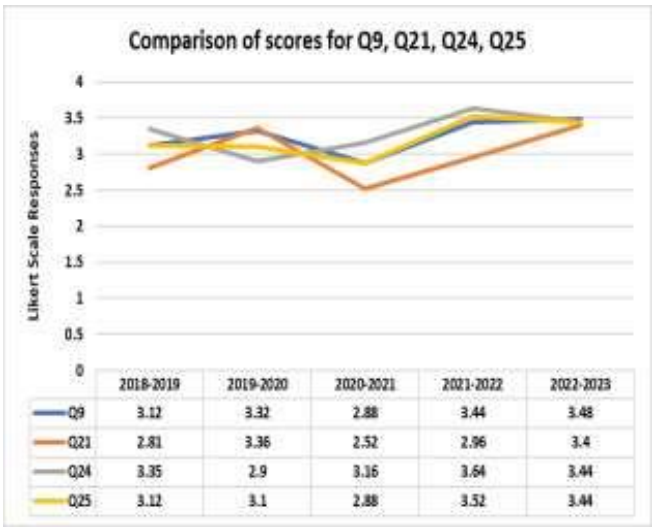

Fig. 5 Comparison of scores for Q9, Q21, Q24, Q25

Figure 6 and 7 shows the comparison of scores for the questions chosen for content delivery and assessment.

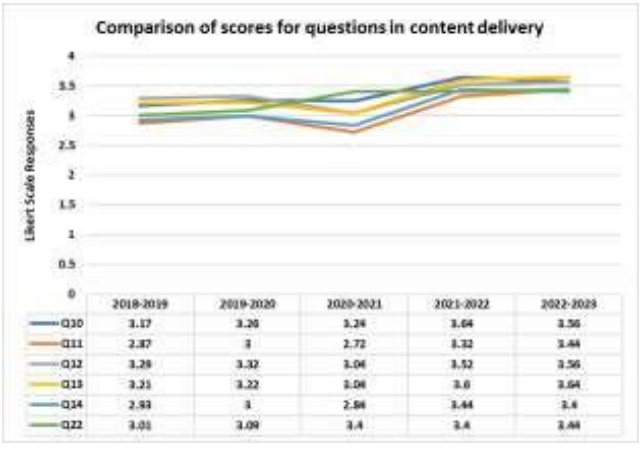

Fig. 6 Comparison of scores for questions in content delivery

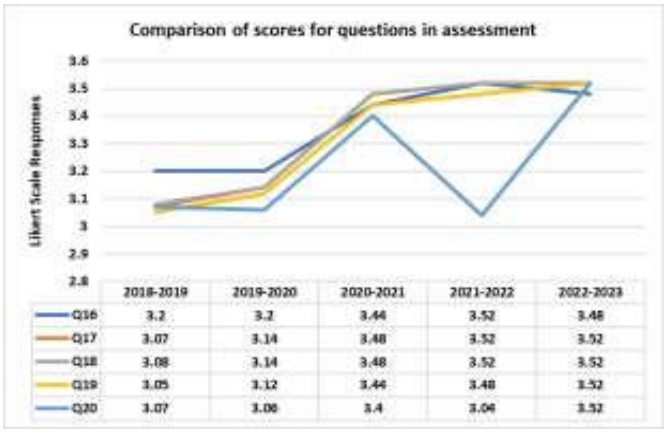

Fig. 7 Comparison of scores for questions in assessment

The difference between the calculated scores of 2018-2019 to 2022-2023 is listed in Table V for the three components.

TABLE V
DIFFERENCE IN SCORES

Question number	Difference in scores	Rank		Difference in Rank
		2018 - 2019	2022 - 2023	
Curriculum Design				
Q1	0.51	8	3	5
Q2	0.43	10	12	-2
Q3	0.51	11	10	1
Q4	0.48	1	8	-7
Q5	0.65	5	9	-4
Q6	0.28	6	2	4
Q7	0.44	2	1	1
Q8	0.47	12	11	1
Q9	0.36	3	7	-4
Q21	0.59	7	4	3
Q24	0.09	9	5	4
Q25	0.32	4	6	-2
Content Delivery				
Q10	0.39	3	2	1
Q11	0.57	6	3	3
Q12	0.27	1	2	-1
Q13	0.43	2	1	1
Q14	0.47	5	4	1
Q22	0.43	4	3	1
Assessment				
Q16	0.28	1	2	-1
Q17	0.45	3	1	2
Q18	0.44	2	1	1
Q19	0.47	4	1	3
Q20	0.45	3	1	2

The average score and standard deviation in each parameter across 5 years is listed in Table VI.

TABLE VI
AVERAGE SCORE AND STANDARD DEVIATION

Question number	Average score	Standard deviation
Q1	3.186	0.31
Q2	2.914	0.27
Q3	3.282	0.29
Q4	3.304	0.30
Q5	2.918	0.31
Q6	3.24	0.23
Q7	3.228	0.38
Q8	3.138	0.29
Q9	3.248	0.25
Q21	3.01	0.37
Q24	3.298	0.28
Q25	3.212	0.26
Q10	3.374	0.21
Q11	3.07	0.30
Q12	3.346	0.21
Q13	3.342	0.26
Q14	3.122	0.28
Q22	3.268	0.20
Q16	3.368	0.16
Q17	3.346	0.22
Q18	3.348	0.22
Q19	3.322	0.22
Q20	3.218	0.22

A list of patents, hackathons, student publications and EER Publications has been given in Table VII for each year:

TABLE VII
ACHIEVEMENTS YEAR-WISE

Student achievements	2018 - 2019	2019 - 2020	2020 - 2021	2021-2022	2022 - 2023	2023-2024
Patents	-	-	-	1	4	4
Student Publications	-	-	1	1	4	15
EER Publications	5	6	9	9	13	20

The authorized institutional pages showing the achievements is given as follows (Links hiding the organization name):
Patents: https://tinyurl.com/ycys73cp
Hackathon: https://tinyurl.com/23vhshjr
EER Publications: https://tinyurl.com/3p8b2f3n

VI. DISCUSSIONS

A. RQ1. What is the impact of CDIO framework among students in terms of the responses for the survey questionnaire across 5 years?

To answer to this research question, this research study takes the analysis of the feedback responses as represented in Results section. Table II shows the steady increase of student positive feedback from 3.03 in 2018-2019 to 3.46 in 2022- 2023 in curriculum delivery. Similarly, content delivery and assessment ratings are increased from 3.08, 3.09 to 3.51 and 3.51 respectively in content delivery and assessment. Also, the standard deviation in scores for curriculum is very less in 2022-2023 (0.11) when compared to year 2018-2019 (0.19). Standard deviation of content delivery has reduced from 0.17 to 0.09 and standard deviation of assessment reduced from 0.06 to 0.02. These results indicate the improvement of student perspective on CDIO framework. However, average, and standard deviation are not sufficient measures to confirm the same. Hence ANOVA is performed among the responses for the five years. ANOVA resulted in a p- value less than 0.05 and confirm that there is significant difference between the responses of the five years in all the three components.

Paired t-test is performed between consecutive years to find the year at which the significant difference exists. As the year 2020-2021 is completely in a newer situation of transforming the education with pandemic, the year is left out in the analysis. When comparing the t-test results of 2018-2019 to 2022-2023 and from the average of these two years it has been proved that there is a significant positive change in the student perspective for CDIO framework. There is no significant difference in the perspectives between years (2018-2019 & 2019-2020) and (2021-2022 & 2022-2023) with an exception of content delivery having a significant difference from year 2018-2019 to 2019-2020. A significant positive difference in the perspective exists between years (2019-2020 & 2021-2022). 2021-2022 is the year in which the first batch of CDIO students passed out of the campus who completely seen a full implementation of CDIO spread across all the semesters. This result confirms the claim of improved student perspectives on the CDIO framework. Also, from the Cohen's D value as listed in Table II, it is observable that the effect size is much larger indicating that our proposed framework has good feedback among students. From Fig.3 , Fig. 4 & Fig. 5 it can be observed that Q2, Q5, Q9 and Q21 stay lower in the respective graphs and can be given attention. Similarly, in Fig. 6 shows a lesser deviated graph. However, the questions Q11 and Q14 stays low. In Fig. 7, Q20 shows an irregular pattern and hence need to be addressed.

To add on to the benefit of CDIO framework, the increase in the number of patents, student publications, Engineering Education Research (EER) publications are tabulated in Table VII. Among various student achievements including hackathons, placements, innovations and societal activities, patents and research publications of students are considered for this research study. Student patents have been taken into consideration as the CDIO framework focuses more on prototype development with the courses: Design thinking, System thinking, Capstone Project. Research publications of students are the direct results of introducing Research Practice course. Clearly, an increasing mark in these student achievements stands as evidence to the successful impact of CDIO framework.

B. RQ2. How can the student responses recorded for five years lead to improvement strategies?

As it is observed that there is a significant positive impact of CDIO on the student perception, it is also necessary to find the effect of the CDIO reforms in improving the responses for individual questionnaire. It is also important to explore the strategies to improve the scores. From Table III, the highest positive impact happens in Q5 (Programme electives have helped you in specialization of your area of interest.) with a difference of 0.65 and the least in Q24 (Easiness of automation software) with a difference of 0.09. Though Q5 shows a maximum difference in scores, it is important to understand the growth of the impact in terms of ranking between the questions.

The ranking of each question is made and tabulated in Table III for both the years. Q1 shows a maximum positive improvement in ranking from 8th position in 2018-2019 to 3rd position in 2022-2023. The curriculum structure is appreciated as a result of CDIO framework. Q6 and Q24 shows the next positive change in ranking moving 4 positions ahead. The implementation of Choice Based Credit System, that enables flexibility in choosing courses in CDIO framework, has been appreciated by the students. Q21, with an increasing rank of 3, supports the institution's mechanisms to improve internships/project experiences. Adoption of CDIO courses and interdisciplinary learning which is mentioned in Q3, Q7 and Q8 have increased their ranking to one position.

The major drop of ranking is for Q4 that records the responses for adequate number of theory cum practical courses/ practical courses/ projects. Hence suitable strategies are to be recommended to address the question element. Next drop in the ranking is from Q5 (Skill development with programme electives) and Q9 (audit courses). From the drop of 4 ranks, it can be understood that the electives are to be updated and refinement of audit courses shall be needed. Q2 (Industry visits/Internships/Industry courses) and Q25 (Mentor System) are the next elements that show a ranking dip of 2. The strategies used for improving the scores in the specified elements are given in Table VIII.

TABLE VIII
REFORMS IN CURRICULUM

Questions	Dip in Rank	Reforms
Q4	-7	More number of Theory cum Practical courses Mini Project in every semester
Q5	-4	Update of programme electives to current trend
Q9	-4	Implementation of audit courses shall be refined with societal problems and problem-based learning
Q2	-2	Internship opportunities to be strengthened Industry supported courses shall be added to build state-of-the art technology TCE Online courses can be developed
Q25	-2	Mentor system needs to be strengthened with automation. Tutor shall be trained to handle students in addressing their academic needs

For the content delivery, Q11(adoption of active and collaborative learning) shows a positive move from rank 6 to 3. This indicates the change in the teaching methods to move towards Problem Based Learning and related teaching strategies. All other rankings of the content delivery parameters have moved forward to one position except Q12 (ICT enabled teaching) which has lowered down one position. From the analysis of content delivery feedback responses, it could be understood that CDIO has prepared the faculty to equip themselves with Problem Based learning through collaborative activities. Table IX lists the reforms to be undertaken for the dipping parameters in content delivery.

TABLE IX
REFORMS IN CONTENT DELIVERY

Questions	Dip in Rank	Reforms
Q12	-1	Though not a big change in ranking, ICT usage needs to be emphasized among the teachers. Training programs are to be conducted for newly joining teachers on ICT usage in teaching learning

In assessment, Q19(Assignment with collaborative activities) has shown a positive progress 3 positions forward and Q17 (Assessmens for problem solving) & Q20 (Creativity/critical thinking problems) have shown 2 positions forward; Only Q16 (Fair and unbiased assessments) has dipped one position down. Hence the recommendation for the same is stated in Table X.

TABLE X
REFORMS FOR THE QUESTION ELEMENTS IN CURRICULUM

Questions	Dip in Rank	Reforms
Q16	-1	Though not a big challenge, every student must feel the assessment to be fair and unbiased. Scheme of evaluation is made mandatory and announcement of the same should be done immediately after the evaluation

Table VI depicts the average scores for each parameter and the respective standard deviation. There are certain parameters in each of the three components which are to be given due attention in the forthcoming years and are listed in Table XI.

TABLE XI
PARAMETERS REQUIRING REFORMS

Components	Question number	Reforms
Curriculum	Q1, Q2, Q5, Q9, Q21	Industry supported course, Interdisciplinary courses, Audit courses and Industry internships shall be crafted with appropriate content, conduct and assessment
Content delivery	Q11, Q14	More awareness on ICT based teaching shall be made with training programs Laboratory facilities shall be improved to accommodate the latest trends
Assessment	Q20	Communication, Critical thinking, Collaboration, Creativity are to be given more importance in assessments

From the discussion of the results, it is evident that the CDIO framework has resulted in higher student achievements, and faculty contributions in effective teaching that resulted in publications and patents. The same has been confirmed with the student responses. The reforms which are identified can be implemented in the forthcoming years to improve the student experience of CDIO framework.

For the successful implementation of any educational framework, faculty training is crucial. The faculty readiness and the challenges for CDIO framework has been analyzed and presented in the given research studies (Thiruvengadam et al., 2020; Anitha et al., 2024).

CONCLUSION

This research work attempts to find the impact of the CDIO educational framework in the perspective of students. The CDIO framework has demonstrated numerous benefits as stated in this paper but its implementation is not without challenges. The challenges shall be with the curriculum design, content delivery and assessment. Institutions that adopt the CDIO framework must be willing to invest in faculty development, infrastructure, and resources to support the integrated and experiential learning approach. Feedback mechanisms need to be devised and must be addressed in regular intervals. The reforms that are required at every periodical assessment must be fulfilled in order to enjoy the benefits of such sophisticated framework.

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