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Value Added Courses: A Sustainable Approach to Education of Students  
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**Abstract**

The concept of value-added courses in education is rooted in the idea of supplementing the core curriculum with additional learning opportunities that go beyond standard academic subjects. Secondary stage of education should emphasize on optimal learning based on the cognitive development of students through experiential and hands-on experience by incorporating value added courses in the curriculum. Today, while the world has become globalised with limited resources, colleges and universities should pay more attention in preparing students to be sustainable both in act and behaviour. The preparation of the students for the industry should begin from the secondary stage. So, the policy makers should contemplate and pay attention towards the pedagogy to meet the needs of the future. The conceptual framework underlying value-added courses emphasizes their role in supplementing the core curriculum, providing students with practical skills and competencies essential for holistic development. Also, the sustainability of behavioural changes induced by value-added courses is contingent on several factors. The goal is to make access to an expansive repertory of knowledge for the growth of professional skills. This study is an attempt to find out the sustainability and the challenges of incorporating value-added courses in the Secondary School curriculum.

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**Keywords:** Value-Added Courses, Secondary School Curriculum, Sustainability, Skill Development, Behavioural Changes, Pedagogy

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## 1 Introduction

India's education system increasingly emphasizes holistic student development, prioritizing cognitive growth over traditional rote learning. National Education Policy (NEP) 2020 advocates a comprehensive approach to foster cognitive, emotional, and social development. Mahatma Gandhi's vision of education aimed at the comprehensive development of body, mind, and spirit aligns with this approach. Consequently, teacher training incorporates new methodologies to enhance education quality [1] and supports research to develop students' creativity and logical thinking. A sustainable education approach utilizes multidisciplinary subjects to advance communication, collaboration, and empowerment skills, essential for equitable social transformations. This approach integrates values and attitudes that promote critical and creative thinking [2] alongside cognitive learning outcomes, targeting holistic sustainable development. With the world's resources being finite and the global landscape demanding sustainability, higher education institutions focus on preparing students from the secondary stage, aligning pedagogies with future needs [3]. Value-added Courses (VAC) integrate into the curriculum to enhance industry understanding, bridge industry gaps, increase employability, and develop entrepreneurial skills. Mandatory for Classes XI and XII, these courses are split into 60% theory and 40% practical sessions, conducted during weekends or vacations to maximize time utilization. A minimum attendance of 75% is required, with schools responsible for regular session conduct and certification issuance, contributing to human capital development [4]. The detailed course plan outlined below is based on findings from interviews with faculty and staff members. Table 1 provides a clear breakdown of the schedule for value-added courses across different classes:

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Table 1: Course Plan

Class	Day/Timings	Duration	Per Week	Theory	Practical
9	Saturday/ After school	30 hrs	2 hrs	18 hrs	12 hrs
10	Saturday/ After school	30 hrs	2 hrs	18 hrs	12 hrs
11	Saturday/ After school	30 hrs	2 hrs	18 hrs	12 hrs
12	Saturday/ After school	30 hrs	2 hrs	18 hrs	12 hrs

Sustainability in teaching requires teachers to work outside their areas of expertise, incorporating cooperative learning to leverage interdisciplinary and experiential knowledge [5]. The Ministry of Small, Micro and Medium Enterprises (MSME), established in 2006, serves as a catalyst for economic growth, leading to equitable development. A key benefit is the generation of employment opportunities in rural areas, significantly strengthening the rural economy. The Coir Board, established under the Coir Industry Act of 1953, oversees the growth, promotion, and development of the local market. It plays a crucial role in the employment sector, facilitating 90% of the total enterprises and thus boosting the country's economy. This infrastructure has been pivotal in adapting to recession and surviving severe economic crises during the pandemic [6]. This study aims to find out the sustainability and the challenges of incorporating value-added courses in the Secondary School curriculum.

## 2 Related Work

Value-added courses in secondary education have emerged as a transformative approach to enriching students' learning experiences, equipping them with skills beyond the traditional curriculum. This literature review delves into the existing body of knowledge, exploring the conceptual underpinnings, benefits, challenges, and sustainability aspects of value-added courses in secondary schools, with a specific focus on the Kamrup district. The concept of value-added courses in education is rooted in the idea of supplementing the core curriculum with additional learning opportunities that go beyond standard academic subjects. These courses are designed to impart practical skills, foster critical thinking, and enhance students' overall competencies [7]. Barton (2008) defines value-added courses as supplementary learning opportunities designed to enhance students' practical skills and overall competencies. Extensive research highlights the myriad benefits associated with the incorporation of value-added courses in secondary education. These courses contribute to skill diversification, fostering creativity, problem-solving abilities, and teamwork [8]. Moreover, they play a pivotal role in increasing student engagement, motivation, and a sense of personal accomplishment [9]. The literature emphasizes the positive impact of value-added courses on both academic and non-academic aspects of students' lives. Despite their evident advantages, the literature acknowledges certain challenges in implementing value-added courses. Issues such as resource constraints, varying levels of teacher preparedness, and integration into the existing curriculum pose practical challenges [10]. Addressing these challenges requires a strategic and collaborative approach involving educators, administrators, and policymakers [11]. Resource constraints and varying levels of teacher preparedness are significant challenges in implementing value-added courses [10]. The sustainability of value-added courses in secondary education involves considerations of long-term impact and adaptability. Sustainable implementation requires continuous teacher training, robust infrastructure, and alignment with evolving industry needs [12, 13]. The literature emphasizes the role of collaboration between educational institutions, local industries, and community stakeholders in ensuring the enduring relevance and success of value-added courses [14].

The secondary stage of education should emphasize "life aspirations, greater flexibility, and student choice of subjects," as outlined in NEP 2020. Students have the option of exiting after Class X to pursue vocational education or other courses available in the Grade XI and XII curriculum. This stage should also focus on optimal learning based on cognitive development. Educators are tasked with identifying a set of skills and values for integration into the curriculum, making learning experiences meaningful and closely connected with industry and local resources. The motivation of students remains a significant challenge. Project-Based Learning, as discussed by Savery (2015), empowers students to conduct research by integrating ideas and training, applying their understanding and skills to devise solutions to real problems. Biggs (1996) suggests that curriculum design should align with the expertise, skills, attitudes, and competencies that relate to different learning outcomes, facilitating context-based learning where students are motivated to apply knowledge in real-life situations. Research indicates that participation in value-added courses is linked to positive behavioral changes among students, such as improved self-efficacy, increased motivation, and a proactive attitude towards learning [8]. These courses enhance students' communication skills, teamwork, and problem-solving abilities, contributing to positive shifts in their behavioral patterns. Value-added courses play a pivotal role in nurturing soft skills, influencing students' interpersonal and intrapersonal behaviors [15, 10]. The acquisition of these soft skills is crucial for shaping positive behavioral changes, promoting adaptability, and preparing students for diverse social and professional contexts. The sustainability of behavioral changes induced by value-added courses depends on several factors. Sustainable implementation requires continuous reinforcement of learned behaviors, alignment with evolving industry needs, and a supportive educational environment [13]. Collaborative efforts between educational institutions and industries contribute to the enduring impact of value-added courses on students' behavior [14]. The literature reviewed establishes the foundational concepts, benefits, challenges, and sustainability aspects of value-added courses in secondary education.

It also demonstrates that value-added courses significantly impact behavioral changes among students. These courses contribute to positive shifts in self-efficacy and motivation [? ], as well as soft skills development, fostering a proactive and adaptable attitude [16]. To ensure the long-term sustainability of these behavioral changes, continuous reinforcement and collaboration between educational institutions and industries are crucial [17]. Further research in this domain can provide nuanced insights into the specific behavioral outcomes and the mechanisms through which value-added courses influence students' conduct. It is thus required to move away from a "one size fits all" approach, stressing the need to make secondary education a means of future professional prospects. The goal is to provide access to an expansive repertoire of knowledge for the advancement of specific professional skills. Building on this knowledge, further research and localized studies in the Kamrup district can offer tailored insights for the effective implementation and sustainable integration of value-added courses in secondary schools, fostering a holistic and skill-centric approach to education.

### 3 Methods

This study employed the Descriptive Survey Method in ten Government Secondary Schools within Kamrup district. The quantitative nature of the research allowed for the collection of both primary and secondary data. Primary data were gathered through questionnaires utilizing a 5-point Likert Scale, and secondary data were sourced from published books, research journals, and websites. Participation was voluntary, with a total of 118 responses collected from teachers and students—89 male and 29 female respondents. Data collection was achieved using simple random sampling. The variables considered for the study were Value Added Courses (VAC) as the independent variable, and behavioral changes as the dependent variable. A total of 114 Government Secondary Schools are present in the entire Kamrup district; however, only 10 schools were selected based on their geographical area using Judgmental Sampling to represent the entire geographic region of the district. The following tables detail the sample size and distribution by expected versus actual responses, and by age and gender of the respondents.

Table 2: Sample Size Overview

Expected Response	Actual Response Received
136	118

\*Note: 18 responses were considered bad samples and were excluded from the analysis.

Table 3: Distribution by Age and Gender

Age (in yrs)	Responses (in nos.)	Male Responses (in nos.)	Female Responses (in nos.)
15	30	24	6
16	25	22	3
17	28	18	10
18	35	25	10
<b>Total</b>	118	89	29

## 4 Results

### 4.1 Descriptive Statistics and Regression Analysis

The study utilized descriptive statistics to analyze the impact of Value Added Courses (VAC) on various dimensions of behavioral changes in students. The measures including mean, standard deviation, kurtosis, and skewness are summarized in Table 3.

Table 4: Descriptive Analysis of VAC and Behavioral Changes

Descriptive Statistics	Ethical infractions	Moral responsibility	Values and Judgement	Innovation Judgement	Sustainability Judgement	Behavioural changes
Mean	2.31	2.77	1.78	2.03	2.28	2.51
Standard Deviation	0.782	0.852	0.736	0.889	0.761	1.001
Kurtosis	0.760	-1.135	0.332	0.632	-0.319	-0.334
Skewness	0.799	0.300	0.677	0.623	0.562	0.443

Regression analysis was then performed to quantify relationships between VAC and specific behavioral changes, as detailed in Table 4.

Table 5: Results of Regression Analysis

Variables	Coefficient	Standard Error	t Value	p Value
Constant	0.383	0.203	1.924	-
Ethical infractions	0.207	0.071	2.913	0.004
Moral responsibility	0.772	0.086	8.972	0.001
Values & Judgement	-0.072	0.106	-0.678	0.498
Innovation Judgement	-0.087	0.102	-0.854	0.394
Sustainability Judgement	0.066	0.084	0.786	0.432
Model Fit	R	R Square	Adjusted R Square	
Values	0.711	0.516	0.583	

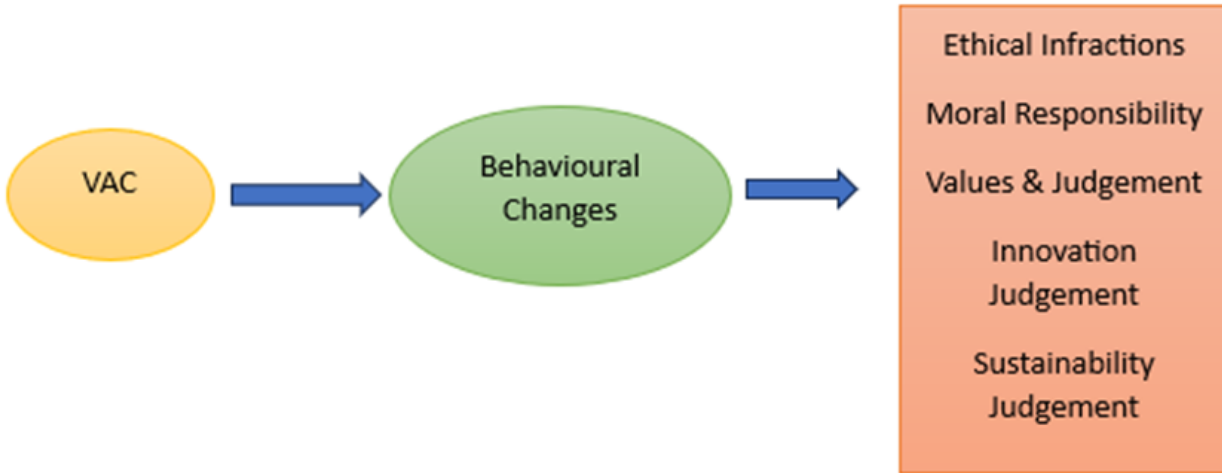


Figure 1: VAC and Behavioral Changes

## 4.2 Hypotheses Testing

Based on the regression outputs, the study examined the following hypotheses:

- **H0 1:** Rejected - significant influence of VAC on Ethical infractions.
- **H0 2:** Rejected - significant influence of VAC on Moral Responsibility.
- **H0 3, H0 4, and H0 5:** Not rejected - indicating no significant impact of VAC on Values & Judgement, Innovation Judgement, and Sustainability Judgement.

## 5 Discussion

The significant results for ethical infractions and moral responsibility can be contextualized through Kohlberg’s Theory of Moral Development, which suggests that educational settings significantly influence moral reasoning. The integration of Value Added Courses (VAC) effectively stimulates ethical thinking, crucial for moral development among adolescents. Conversely, the lack of significant effects on values & judgement, innovation judgement, and sustainability judgement may be elucidated by the Cognitive Load Theory. This theory posits that if educational content does not align with learners’ pre-existing knowledge structures or exceeds their cognitive processing capacity, optimal learning outcomes may not be achieved. VAC may require better integration of these concepts with students’ existing knowledge bases or a reduction in cognitive overload through improved instructional design. These findings underscore the necessity for educational practitioners to design VACs that not only focus on ethical and moral dimensions but also effectively incorporate elements of innovation and sustainability. Employing instructional strategies aligned with Constructivist Learning Theories, which emphasize active learning through experience and reflection, might enhance the effectiveness of VAC in these less impactful areas. Future studies should explore the longitudinal impacts of VAC to determine if the observed changes are enduring and if additional instructional support is necessary to cement these gains. Further research could also experiment with different pedagogical approaches, such as Problem-Based Learning (PBL) and Inquiry-Based Learning (IBL), to enhance the effectiveness of VAC across all targeted behavioral dimensions.

## 5.1 Teacher Training and Development

To effectively deliver Value Added Courses (VAC) and address varying levels of teacher preparedness, specific strategies and training modules are essential. These include goal-oriented training to help teachers understand and align with the objectives of VAC, enhancing their ability to support student learning. A learner-centric approach is also vital, designing educational strategies that focus on student needs identified through formal and informal interactions with students and their guardians. Furthermore, promoting active engagement within the curriculum facilitates easier knowledge transfer from teachers to students. Existing training modules from organizations like UNICEF, UNESCO, and Edu bridges provide frameworks that can be adapted to local needs. Customized modules should consider area-specific requirements, available natural resources, and the local economic context to ensure that students are well-prepared and industry-ready.

## 5.2 Behavioral Changes and Educational Impact

The introduction of VAC has been linked to several positive behavioral changes in students, including enhanced problem-solving skills, improved time management, increased engagement and motivation, better communication skills, and heightened ethical and social responsibility. These changes are critical as they contribute significantly to a student's ability to succeed in professional environments and personal life.

## 5.3 Sustainability and Long-term Viability

For VAC to be sustainable and have a long-term impact, forming partnerships with local businesses and industries is vital. Effective strategies should include utilizing existing school and community resources to reduce costs and enhance sustainability, training local instructors and facilitators who can deliver courses sustainably, collaborating with industries and businesses for financial support and to align the curriculum with market needs, and establishing long-term strategies for funding, such as securing grants from government and non-profit organizations. This helps reduce dependency on external sources and ensures the sustainability of the courses.

# 6 Conclusion

This study explored the implementation of value-added courses (VAC) as a sustainable educational approach within secondary schools in the Kamrup District, highlighting a multifaceted landscape of opportunities and challenges alongside behavioral changes in students. The research aimed to illuminate the conceptual foundations, benefits, challenges, and sustainability aspects of integrating VAC into the curriculum, recognizing their potential to enrich students' learning experiences beyond traditional education. The conceptual framework for VAC underscores their role in supplementing the core curriculum by providing students with practical skills and competencies essential for holistic development, aiming to prepare students for industry-specific professional roles. The literature review substantiates that VAC contribute to skill diversification, foster creativity, enhance problem-solving abilities, and boost overall student engagement. Despite these benefits, the implementation of VAC faces significant challenges including resource constraints, varied levels of teacher preparedness, and difficulties integrating with existing curricula. Addressing these challenges necessitates a strategic and collaborative effort involving educators, administrators, and policymakers. Sustainable implementation of VAC requires continuous teacher training, robust infrastructure, and alignment with evolving industry needs, as identified by earlier researchers. Furthermore, collaboration between educational institutions, local industries, and community stakeholders is crucial in ensuring the enduring relevance and success of these courses. Given the focus on the Kamrup District, obtaining localized insights into the educational landscape is essential. Tailoring VAC to meet the specific needs and aspirations of learners in these secondary schools is crucial for their effective integration and long-term impact. This study advocates for a comprehensive and sustainable educational strategy through VAC, recognizing their potential to empower students, enhance employability, and contribute to community development. The findings provide a foundation for further research and policy initiatives aimed at refining and expanding the implementation of VAC in secondary education within the unique context of Kamrup District.

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## Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

## Consent to Participate

Informed consent was obtained from all individual participants included in the study.

## Author Contribution

**Aruna Dev Roy:** Conceptualization, Methodology, Investigation, Visualization, Writing - original draft, review and editing. **Baishalee Rajkhowa:** Investigation, Visualization, Resources. Both authors read and approved the final manuscript.

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