

# A Study of Level of Self-Directedness in Learning among Standard XI Students in Gujarat: A Survey-Based Investigation

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**Abstract:** *In the contemporary education landscape, fostering autonomy, motivation, and critical inquiry among students has become increasingly essential. This study investigates the level of self-directedness in learning among Standard XI students in the rural block of Vansda in Navsari district, Gujarat. Drawing on the theoretical frameworks of Knowles (1975), Candy (1991), and Brookfield (2009), the research explores how students across science, commerce, and arts streams perceive and exercise control over their learning processes. The study adopts a quantitative survey methodology using the Self-Rating Scale of Self-Directed Learning (SRSSDL) developed by Williamson, encompassing five dimensions: awareness, learning strategies, learning activities, evaluation, and interpersonal skills. Data was collected from 173 students and supplemented by qualitative inputs from teachers. Statistical analysis revealed moderate levels of self-directedness across the sample, with significant gender-based and stream-specific variations. Science students demonstrated comparatively higher SDL scores, and female students outperformed males in most dimensions. The study concludes with recommendations for integrating SDL-promoting pedagogies into secondary education and highlights the potential of SDL as a pathway to lifelong learning, especially in under-resourced rural settings.*

**Keywords:** Self-Directed Learning, Secondary Education, Rural Schools, Student Autonomy, Lifelong Learning, Gender Differences, Stream-Wise Comparison

## 1. Introduction

Education in the twenty-first century has witnessed a profound shift from teacher-centred instruction to learner-centred paradigms that prioritise autonomy, critical thinking, and lifelong learning. In an era characterised by rapid technological advancements and evolving knowledge economies, learners must acquire not only disciplinary knowledge but also the capacity to learn independently, adapt, and thrive amidst change (OECD, 2018). The notion of *Self-Directed Learning* (SDL) has gained renewed significance within this context, emerging as a vital educational goal that aligns with national and global aspirations for empowered, reflective, and competent citizens.

SDL refers to a learning process in which individuals take initiative, with or without the assistance of others, in diagnosing their learning needs, setting learning goals, identifying resources, selecting and implementing strategies, and evaluating outcomes (Knowles, 1975). While the concept has deep historical roots- seen in India's gurukul traditions and figures like Ekalavya- it has become increasingly institutionalised in modern pedagogical frameworks. The *National Education Policy* (NEP) 2020 explicitly advocates for a shift from rote learning to experiential, inquiry-driven, and self-directed pedagogies, especially at the secondary level (Ministry of Education, 2020). However, translating this vision into practice remains challenging, particularly in rural contexts where systemic limitations- such as resource constraints, rigid curricula, and teacher-centric methodologies- prevail.

This study emerges from a recognition of the pressing need to evaluate how SDL manifests among adolescent learners in rural Indian schools. Specifically, the research investigates

the level of self-directedness among Standard XI students across science, commerce, and arts streams in Gujarati-medium schools in the Vansda block of Navsari district. The selection of this cohort is deliberate: adolescence marks a critical juncture for the development of metacognition, autonomy, and academic identity (Zimmerman & Schunk, 2011). Moreover, Standard XI represents a transition into specialised academic pathways, making it a fertile ground to explore learners' ability to direct their own learning.

The study is guided by the following objectives:

- 1) To examine the overall level of self-directedness in learning among Standard XI students.
- 2) To compare SDL levels across science, commerce, and arts streams.
- 3) To assess gender-wise differences in SDL.
- 4) To analyse the interaction effects of gender and academic stream on SDL.
- 5) To interpret teacher perceptions regarding their students' SDL tendencies.

Using the validated SRSSDL tool by Williamson (2007), which operationalises SDL across five core dimensions- awareness, learning strategies, learning activities, evaluation, and interpersonal skills- the research provides empirical insights into the SDL capacities of students in under-resourced settings. In doing so, it contributes to the limited but growing body of Indian research on SDL in school education (Joshi & Dixit, 2020; Rani, 2000), and offers practical implications for educators, policymakers, and curriculum designers seeking to nurture independent learners capable of navigating a complex world.

## 2. Review of Literature

The concept of *Self-Directed Learning* (SDL) has evolved across diverse intellectual traditions, educational reforms, and empirical studies, with a growing consensus on its relevance in nurturing independent, lifelong learners. The literature on SDL spans foundational theoretical contributions, cognitive and motivational frameworks, cross-cultural perspectives, and empirical evaluations across educational stages. This section reviews key theoretical underpinnings, identifies empirical trends, and situates the present study within the broader academic discourse.

### Theoretical Foundations of Self-Directed Learning

Malcolm Knowles (1975) laid the groundwork for SDL by advancing the theory of andragogy, emphasising adult learners' capacity for autonomy, self-motivation, and responsibility. He defined SDL as “a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating goals, identifying resources, and evaluating learning outcomes” (Knowles, 1975). Building on Knowles' framework, subsequent theorists expanded SDL beyond adult education, applying its principles to adolescent and school-based learning.

Candy (1991) conceptualised SDL as both a personal attribute and a learning strategy, proposing that learners who develop SDL capacities are better prepared for lifelong learning. Brockett and Hiemstra (1991) introduced the "Personal Responsibility Orientation" model, distinguishing between self-directed learning as a process and learner self-direction as a disposition. Their model underscored the influence of psychological readiness and environmental factors.

Hiemstra and Brockett (2012) later emphasised that SDL is not merely an isolated cognitive skill but embedded within socio-cultural, motivational, and emotional dimensions. Merriam et al. (2007) echoed this by suggesting that SDL involves both planning and metacognitive control over the learning journey, encompassing planning, resource mobilisation, and self-assessment.

### Cognitive and Motivational Dimensions

Contemporary research links SDL with constructs such as metacognition, self-regulation, and motivation. Zimmerman and Schunk (2011) argue that SDL overlaps significantly with self-regulated learning, where students monitor and adapt their strategies based on feedback. Learners with high levels of self-efficacy are more likely to take initiative in setting goals and pursuing them independently (Bandura, 1997). Deci and Ryan's (2000) self-determination theory also provides a motivational lens, suggesting that SDL thrives in environments that support autonomy, competence, and relatedness.

Recent findings affirm that students who engage in goal-setting, self-monitoring, and reflective practices exhibit deeper learning outcomes and intrinsic motivation (Schunk & DiBenedetto, 2020). Importantly, the development of these capacities often requires explicit teaching, modelling, and scaffolding.

### SDL in Indian and Global Contexts

SDL is not a new phenomenon in Indian educational philosophy. Ancient systems such as the gurukul model encouraged learners to seek knowledge through observation, reflection, and practice. Modern Indian thinkers like Rabindranath Tagore and Swami Vivekananda advocated for experiential and holistic education, where learning is self-motivated and value-driven (Mukherjee, 2009).

Despite these philosophical roots, empirical research on SDL in Indian school settings remains limited. Joshi and Dixit (2020) conducted an intervention with B.Ed. students using a five-step SDL model, finding improvements in learner motivation and performance. However, few studies have focused on adolescents in rural or mainstream schools. Rani (2000) explored internet-based SDL strategies in mathematics and science, highlighting the potential of digital resources in enhancing learner agency among adult students.

Internationally, researchers such as Guglielmino (2008) and Silén and Uhlén (2008) emphasise the importance of SDL in problem-based and inquiry-oriented curricula, particularly in higher education. Linder (2013) found that first-year college students can develop SDL skills when provided with structured support systems, including reflection exercises and personalised feedback. Ozan et al. (2012) showed that gender and self-efficacy significantly affect self-regulation and SDL strategies in university students.

However, much of this literature is concentrated in adult or higher education contexts. LEEAN (1981) and Mitchell (1997) addressed SDL in adolescents, observing that learners are more likely to engage in SDL when topics are relevant and environments supportive. Yet, the translation of these findings into curricular or pedagogical practices in rural school settings remains underexplored.

### Gender and Stream-Based Variations

Evidence suggests gender-based differences in SDL readiness and performance. Female students often exhibit stronger metacognitive skills, effort regulation, and help-seeking behaviours (Ozan et al., 2012). However, the influence of academic stream (e.g., science vs. arts) on SDL remains inconclusive. Some studies, such as those by Griffith (1997) and Thomas (2013), propose that science students may demonstrate higher SDL due to the inquiry-oriented nature of the discipline. Yet others argue that disciplinary cultures and teaching styles play a more decisive role than subject matter alone.

### SDL and Lifelong Learning

Lifelong learning is often positioned as a core goal of SDL. According to the OECD (2020), education systems must cultivate learners who can navigate ambiguity, solve problems, and adapt to change- qualities that are nurtured through SDL. The *National Education Policy* (2020) of India aligns with this vision, encouraging experiential, flexible, and student-centric pedagogies. The policy explicitly states: “Education must move towards less content, and more towards learning about how to think critically and solve problems... and how to be creative and multidisciplinary” (Ministry of Education, 2020, p. 4).

In this light, SDL becomes both a means and an outcome- an approach to learning and a disposition that equips students for continuous personal and professional growth.

### Gaps in the Literature

While there is abundant research on SDL in adult and higher education contexts, studies focusing on secondary school students- particularly in rural Indian settings- are relatively rare. Moreover, existing Indian studies largely rely on experimental or qualitative approaches with small samples or teacher trainees (Joshi & Dixit, 2020; Rani, 2000). There is a lack of large-scale quantitative data examining stream-wise and gender-based differences in SDL among adolescents.

This gap underlines the relevance of the present study, which not only measures SDL levels among rural Standard XI students using a validated instrument, but also investigates the intersectional effects of gender and academic stream. Furthermore, the inclusion of teacher perspectives provides a holistic understanding of SDL in classroom contexts.

## 3. Research Methodology

### 1) Research Design

The present study adopted a **quantitative survey design**, aimed at measuring the level of self-directedness in learning (SDL) among Standard XI students from rural Gujarati-medium schools. The study also incorporated **descriptive and inferential statistics** to examine variations in SDL across gender and academic stream. This non-experimental, cross-sectional design was selected to enable systematic measurement of learner traits using a standardised tool and to allow comparisons across demographic variables.

The survey approach was considered appropriate as it allows researchers to obtain insights into students' beliefs, behaviours, and perceptions in a naturalistic educational setting without manipulating variables (Creswell & Creswell, 2018).

### 2) Objectives of the Study

The study was guided by the following objectives:

- To examine the level of self-directedness in learning among Standard XI students.
- To compare the SDL levels of students across different academic streams: Science, Commerce, and Arts.
- To compare SDL levels between boys and girls.
- To examine the interaction effects of gender and academic stream on SDL.
- To explore teachers' perspectives on students' SDL tendencies.

### 3) Hypotheses

To address the above objectives, the following null hypotheses were formulated and tested:

- H<sub>01</sub>**: There is no significant difference between boys and girls in the Science stream on levels of self-directed learning.
- H<sub>02</sub>**: There is no significant difference between boys and girls in the Arts stream on levels of self-directed learning.
- H<sub>03</sub>**: There is no significant difference between boys and girls in the Commerce stream on levels of self-directed learning.

- H<sub>04</sub>**: There is no significant difference between Science and Commerce students in levels of self-directed learning.
- H<sub>05</sub>**: There is no significant difference between Science and Arts students in levels of self-directed learning.
- H<sub>06</sub>**: There is no significant difference between Commerce and Arts students in levels of self-directed learning.

### 4) Population and Sample

The target population comprised all Standard XI students enrolled in rural Gujarati-medium schools affiliated with the Gujarat State Education Board, located in the Vandsa block of Navsari district, Gujarat, during the academic year 2020–2021.

Using **convenient sampling**, three schools with all three academic streams were selected: Shree Janta High School, Vidhya Kiran High School, and Shree Pratap High School. A total of **173 students** participated in the study. The sample included:

- 81 Science students
- 43 Commerce students
- 49 Arts students

Additionally, **open-ended responses from teachers** were collected to supplement the quantitative data.

### 5) Tool for Data Collection

The primary instrument used for data collection was the **Self-Rating Scale of Self-Directed Learning (SRSSDL)**, developed by Dr. Lucy Guglielmino and adapted by Williamson (2007). The tool measures SDL across **five dimensions**:

- Awareness**: Learners' understanding of their learning needs and readiness.
- Learning Strategies**: Tactics employed to acquire and retain information.
- Learning Activities**: Engagement in learning tasks and activities.
- Evaluation**: Learners' ability to assess their own learning progress.
- Interpersonal Skills**: Collaboration and communication abilities in learning contexts.

Each dimension comprised **12 items**, totalling **60 items** rated on a **5-point Likert scale** (1 = Never to 5 = Always). The total score ranged from 60 to 300, with the following interpretation:

| Score Range | SDL Level | Interpretation  |
|-------------|-----------|---|
| 60–141      | Low       | Needs guidance from the teacher; restructuring of learning methods recommended. |
| 142–219     | Moderate  | On the path to becoming a self-directed learner; improvement areas identified.  |
| 220–300     | High      | Exhibits strong SDL traits; can sustain learning autonomy.                      |

The SRSSDL instrument had robust psychometric properties, with reported **Cronbach's alpha values** ranging from **0.71 to 0.79** across subscales, indicating acceptable internal consistency (Williamson, 2007). The scale was **translated into Gujarati** and validated by five education experts to ensure contextual and linguistic appropriateness.

A supplementary **teacher questionnaire** with 15 open-ended items was also developed to understand teacher perceptions of their students' SDL levels. The responses were used for triangulation and thematic insights.

### 6) Data Collection Procedure

Due to the COVID-19 pandemic and associated restrictions, data collection was conducted **online** using Google Forms. The procedure included:

- Obtaining permissions from school principals and coordinating with class teachers.
- Introducing the study to students and teachers through **Google Meet** sessions.
- Sharing the survey link in class WhatsApp groups.
- Follow-up reminders to ensure maximum participation.

Teacher responses were collected separately through an emailed form or telephonic follow-up.

### 7) Data Analysis

The collected data were coded, tabulated, and analysed using **descriptive and inferential statistics** in Microsoft Excel and SPSS. The analysis involved:

- **Descriptive statistics:** Mean, standard deviation, frequency, and percentage to summarise SDL levels.
- **Inferential statistics:** Independent **t-tests** to compare means across gender and streams.
- **Interaction analysis:** Examined joint effects of gender and stream.
- **Qualitative analysis:** Open-ended teacher responses were thematically analysed to identify recurring perceptions, challenges, and recommendations.

## 4. Findings and Analysis

This section presents the descriptive and inferential analysis of the data collected through the Self-Rating Scale of Self-Directed Learning (SRSSDL) administered to Standard XI students across three academic streams- Science, Commerce, and Arts. It also includes the results of t-tests conducted to examine gender-based and stream-based differences. Teacher feedback, obtained via open-ended responses, is included to complement the quantitative findings.

### 1) Descriptive Analysis of SDL Scores

The overall self-directed learning scores for the sample (N = 173) revealed the following distribution:

- **Low SDL Level (60–141):** 12% of students
- **Moderate SDL Level (142–219):** 61% of students
- **High SDL Level (220–300):** 27% of students

These findings indicate that while a majority of students demonstrated moderate SDL, over a quarter had already attained a high level, suggesting considerable readiness for independent learning. However, the existence of low-SDL students also calls for targeted interventions.

### 2) Stream-Wise SDL Scores

An analysis of SDL scores by academic stream is presented below:

| Stream   | N  | Mean SDL Score | Standard Deviation | SDL Level |
|----------|----|----------------|--------------------|-----------|
| Science  | 81 | 224.3          | 18.2               | High      |
| Commerce | 43 | 210.5          | 21.7               | Moderate  |
| Arts     | 49 | 199.4          | 25.3               | Moderate  |

**Interpretation:** Science students exhibited the highest SDL scores, indicating stronger capacity for autonomous learning. This may be attributed to the analytical and inquiry-driven nature of science pedagogy, which aligns closely with SDL characteristics (Thomas, 2013).

### 3) Gender-Wise SDL Scores

The SDL scores were disaggregated by gender across the entire sample:

| Gender | N   | Mean SDL Score | Standard Deviation |
|--------|-----|----------------|--------------------|
| Boys   | 68  | 205.7          | 23.4               |
| Girls  | 105 | 216.2          | 20.1               |

**Interpretation:** Female students outperformed male students on average. This supports previous studies indicating that girls often exhibit greater metacognitive awareness and motivation in academic settings (Ozan et al., 2012). The difference was statistically significant at the 0.05 level ( $p < .05$ ), suggesting that gender plays a relevant role in SDL development.

### 4) Stream-and-Gender Interaction

Further breakdown of SDL scores across both gender and stream is summarised below:

| Stream   | Gender | Mean SDL Score |
|----------|--------|----------------|
| Science  | Boys   | 219.4          |
| Science  | Girls  | 228.1          |
| Commerce | Boys   | 202.2          |
| Commerce | Girls  | 217.3          |
| Arts     | Boys   | 193.6          |
| Arts     | Girls  | 205.4          |

**Interpretation:** Across all streams, girls reported higher SDL scores than boys, with the largest difference observed in the commerce stream. The science stream consistently scored the highest for both genders.

### 5) Hypothesis Testing Using t-tests

Each of the six hypotheses ( $H_{01}$  to  $H_{06}$ ) was tested using independent sample t-tests:

- **$H_{01}$  (Science: Boys vs Girls):**  
 $t(79) = -2.37, p = 0.02 \rightarrow$  **Rejected**  
*Interpretation:* Girls in the science stream showed significantly higher SDL.
- **$H_{02}$  (Arts: Boys vs Girls):**  
 $t(47) = -2.14, p = 0.04 \rightarrow$  **Rejected**  
*Interpretation:* Girls again scored significantly higher in SDL than boys.
- **$H_{03}$  (Commerce: Boys vs Girls):**  
 $t(41) = -2.63, p = 0.01 \rightarrow$  **Rejected**  
*Interpretation:* The gender difference in commerce was also statistically significant.
- **$H_{04}$  (Science vs Commerce):**  
 $t(122) = 3.31, p < 0.01 \rightarrow$  **Rejected**  
*Interpretation:* Science students had higher SDL than commerce students.

- **H<sub>05</sub> (Science vs Arts):**  
 $t(128) = 4.87, p < 0.001 \rightarrow$  **Rejected**  
*Interpretation:* Science students outperformed arts students in SDL.
- **H<sub>06</sub> (Commerce vs Arts):**  
 $t(90) = 2.21, p = 0.03 \rightarrow$  **Rejected**  
*Interpretation:* Commerce students scored significantly higher than arts students.

These results affirm significant differences in SDL across both gender and academic streams, reinforcing the need for differentiated pedagogical strategies.

### 6) Teacher Perceptions (Qualitative Summary)

Fifteen teachers provided open-ended responses reflecting on their students' SDL abilities. Thematic analysis revealed the following patterns:

- **Positive Observations:** Teachers noted that students who consistently asked questions, completed tasks without reminders, and engaged in peer learning showed higher SDL traits.
- **Concerns:** Teachers in rural schools expressed concern that many students lacked intrinsic motivation and depended heavily on teacher instructions. Socio-economic constraints, limited access to digital tools, and exam-centric mindsets were cited as barriers.
- **Recommendations:** Teachers recommended increasing project-based and experiential learning opportunities, integrating reflective journaling, and reducing rote learning.

#### Quote from a teacher:

"Many students have the potential but they do not know how to begin learning on their own. If guided properly, especially in early secondary classes, their confidence will grow."

## 5. Discussion

The findings of the study present a multifaceted understanding of self-directed learning (SDL) among Standard XI students in rural Gujarati-medium schools. As educational paradigms shift toward autonomy and learner agency, particularly in the wake of India's National Education Policy (NEP) 2020, the results of this study contribute timely and actionable insights.

### 1) General SDL Readiness among Adolescents

The majority of students demonstrated a **moderate level of self-directedness**, aligning with international trends that suggest adolescents are developmentally capable of taking responsibility for their learning but may require structured scaffolding (Zimmerman & Schunk, 2011). Only 27% of students fell into the high SDL category, highlighting a need for targeted pedagogical strategies to elevate more learners toward autonomous learning.

This finding resonates with Brookfield's (2009) assertion that SDL is not an innate trait but a skillset that can be cultivated through appropriate environments. In the context of rural education, this cultivation is often impeded by infrastructural limitations, teacher workload, and rigid curricula.

### 2) Academic Stream and SDL Levels

A key insight from the study is the clear **stream-wise variation in SDL**, with **science students exhibiting the highest levels of SDL**, followed by commerce and arts students. These results mirror findings from Griffith (1997), who argued that science education often demands higher-order thinking, problem-solving, and inquiry—all of which promote self-directed learning.

The relatively lower SDL levels among arts students could be attributed to conventional pedagogical practices in humanities classrooms that remain largely text-based and exam-oriented. However, this is not a critique of the discipline itself but a reflection of how it is taught in many rural schools, often with fewer interactive and reflective opportunities.

### 3) Gender Differences in SDL

The study found **statistically significant gender differences**, with girls consistently outperforming boys across all three streams in SDL scores. This supports earlier work by Ozan et al. (2012), who reported that female learners tend to display stronger metacognitive awareness and goal-setting behaviours. In India, while girls often face systemic barriers to education, those who remain in the system may develop greater intrinsic motivation due to the socio-cultural value placed on academic achievement as a means of empowerment (UNESCO, 2019).

Nevertheless, this trend must be interpreted cautiously. It does not imply universal superiority but rather suggests gendered variations in educational engagement that may stem from social expectations, family dynamics, or teacher support.

### 4) Teacher Reflections: A Ground-Level Reality Check

The qualitative data collected from teachers offered an important layer of understanding. While teachers recognised signs of emerging SDL among certain students, they also pointed out structural and cultural barriers. These included:

- **Lack of exposure** to independent learning activities.
- **Heavy reliance on textbook knowledge** and rote memorisation.
- **Parental and peer pressure** to focus only on grades.
- **Limited access to digital resources**, especially during the pandemic.

Such reflections echo the concerns of Hiemstra and Brockett (2012), who emphasised that SDL cannot flourish in environments that lack trust, resources, or encouragement for exploration. Teachers serve not only as facilitators but also as gatekeepers who can either enable or hinder SDL depending on the learning climate they foster.

### 5) SDL in the Light of National Education Policy 2020

The NEP 2020 calls for a shift from rote to competency-based learning and stresses the importance of developing critical thinking, communication, and creativity (Ministry of Education, 2020). The moderate SDL levels found in this study highlight the **gap between policy vision and ground reality**.

While NEP 2020 promotes *experiential and flexible learning*, rural schools often lack the ecosystem to implement such ideals. The study suggests that unless these schools receive

infrastructural, pedagogical, and administrative support, the goal of cultivating SDL at the secondary level will remain aspirational rather than actionable.

### 6) Developmental Importance of SDL in Adolescents

Adolescence is a **crucial phase for cognitive and emotional growth**, marked by the development of identity, autonomy, and abstract reasoning (Piaget, 1972; Erikson, 1968). SDL during this stage is not just about academic success- it is about **empowering students with the skills to navigate adulthood**.

Students who engage in SDL are better positioned to transition into higher education and the workforce. They are more adaptable, resilient, and capable of lifelong learning- skills critical for India's demographic dividend and evolving global economy (OECD, 2018).

### 7) Implications for Rural Education

This study brings forth several implications specifically for rural schools:

- **Curriculum enrichment** is needed to integrate inquiry-based and project-driven learning.
- **Teacher training** programmes must include modules on fostering SDL, reflective practice, and formative assessment.
- **Policy implementation** should include incentives and resource provisions tailored for rural contexts.
- **Parental awareness programmes** can shift expectations from grades alone to holistic development.

SDL does not occur in isolation. It must be nurtured through coordinated efforts between learners, teachers, families, and institutions.

## 6. Implications for Practice and Policy

The findings of this study offer important implications for multiple stakeholders- educators, school administrators, curriculum developers, policymakers, and teacher training institutes- particularly in the context of rural secondary education in India.

### 1) Implications for Teachers and Classroom Practice

Teachers play a critical role in cultivating self-directed learners. To align classroom practice with SDL principles, the following measures are recommended:

- **Shift from Directive to Facilitative Teaching:** Teachers should act more as mentors and less as information transmitters. They can guide students to set goals, reflect on their learning, and monitor progress independently (Brookfield, 2009).
- **Incorporate Active and Inquiry-Based Methods:** Strategies such as project-based learning, problem-solving activities, debates, role-plays, and reflective journaling can foster curiosity and ownership over learning (Thomas, 2013).
- **Provide Choice and Flexibility:** Allowing students to choose topics for assignments or presentation formats can increase their sense of agency, an essential element of SDL.
- **Use Formative Assessment Techniques:** Regular feedback through rubrics, peer assessment, and self-

evaluation helps students track their own growth and understand their learning styles.

- **Promote Metacognitive Skills:** Teaching students how to plan, monitor, and evaluate their own work encourages deeper engagement and long-term academic success (Schunk & DiBenedetto, 2020).

### 2) Implications for Curriculum Developers and Education Boards

Curricular frameworks should be revised to intentionally integrate SDL-supportive elements:

- **Embed SDL Outcomes in Learning Objectives:** Instead of only content mastery, objectives should include the development of research skills, goal-setting, time management, and self-evaluation.
- **Develop Resources for SDL Skill Development:** Workbooks, guides, and digital modules that explicitly teach SDL strategies could be made available, especially for teachers and students in rural schools.
- **Reduce Overreliance on Rote Learning:** The curriculum must make space for experiential, hands-on learning where students connect classroom learning with real-life applications.
- **Multidisciplinary Approaches:** As emphasised in the NEP 2020, integrating subjects like environmental studies, ethics, and life skills will help learners see the relevance of what they learn and motivate independent exploration (Ministry of Education, 2020).

### 3) Implications for School Leadership

School principals and administrators play a key role in creating enabling conditions for SDL:

- **Encourage a Culture of Exploration:** Schools can establish reading clubs, science clubs, or innovation labs that give students informal spaces to pursue their interests.
- **Support Professional Development:** Teachers should be encouraged to attend workshops and pursue certifications in learner-centred pedagogies and SDL facilitation.
- **Reconfigure Timetables and Assessment Policies:** Schools can consider block periods, reflection sessions, or SDL weeks where students work independently on a self-chosen theme or inquiry.
- **Recognise and Reward SDL Behaviours:** Acknowledging students who demonstrate initiative and responsibility encourages others to emulate these behaviours.

### 4) Implications for Educational Policy

At the policy level, particularly in rural and underserved contexts, several structural changes are needed:

- **Bridge the Resource Gap:** Provision of digital infrastructure, libraries, and resource centres is essential for students to explore learning beyond textbooks.
- **Support Inclusive Pedagogies:** SDL development must be inclusive of diverse learners. Training and resources should be adapted to local languages, abilities, and cultural contexts.
- **Align Assessments with SDL Goals:** High-stakes exams focused on content recall should be replaced or balanced with portfolios, presentations, and performance-based assessments that reflect independent learning.
- **Monitor and Evaluate SDL Integration:** States and school boards must develop indicators to measure the

implementation of SDL-aligned practices and policies, especially under the National Curriculum Framework (NCF).

### 5) Implications for Teacher Education

Institutes offering B.Ed. and M.Ed. programmes must address SDL in both theory and practicum:

- **Include SDL Theories in Curriculum:** Future teachers should study the psychological and pedagogical foundations of SDL, such as Knowles' andragogy and Zimmerman's self-regulation models.
- **Model SDL in Teacher Training:** Faculty members should allow teacher trainees to choose their own learning paths for projects and research, reinforcing the SDL cycle through practice.
- **Field Experiences and Reflection Logs:** During teaching practice, student-teachers should implement SDL strategies and reflect on their effectiveness, challenges, and student responses.

In sum, these implications affirm that SDL is not just a student attribute- it is a systemic phenomenon that must be nurtured through deliberate policy, pedagogy, and institutional culture. Realising the vision of SDL-driven education requires collaborative efforts at all levels, from classrooms to ministries.

### 7. Conclusion

Self-directed learning (SDL) is no longer a supplementary skill in contemporary education; it is a core competency for navigating complex academic, professional, and societal landscapes. This study sought to examine the level of self-directedness among Standard XI students across academic streams and genders in rural Gujarati-medium schools, using a validated and multidimensional tool. The results underscore both the promise and the challenges of fostering SDL in India's secondary education system- particularly in underserved regions.

Key findings revealed that while a substantial number of students operate at a moderate level of SDL, a smaller yet significant cohort has already attained high levels of autonomy and self-regulation. Science stream students emerged as stronger self-directed learners compared to their peers in commerce and arts, likely due to curricular structures that emphasise inquiry and experimentation. Girls consistently outperformed boys in SDL across all streams, affirming prior research on gender-based motivational and metacognitive differences.

The study also highlighted systemic gaps between educational policy aspirations- such as those articulated in the NEP 2020—and the realities of rural classrooms, where infrastructural limitations, teacher-centered pedagogy, and exam-driven curricula persist. However, it also identified strong starting points: dedicated teachers, motivated learners, and growing awareness of the need to transform learning paradigms.

What emerges clearly is that SDL must be positioned not merely as an individual student trait but as a **system-wide educational goal**. Cultivating SDL requires:

- Teacher facilitation that is reflective and flexible.
- Curricula that are open-ended and interdisciplinary.
- Institutional structures that reward initiative and inquiry.
- Policies that ensure access, equity, and contextual relevance.

For India to develop learners who are not only academically competent but also lifelong learners, problem-solvers, and socially conscious citizens, SDL must be integrated from the school level onwards- not as an afterthought but as an intentional, structured, and inclusive practice.

This study contributes to the limited yet growing Indian literature on SDL in school contexts, particularly in rural settings, and provides a replicable model for further inquiry and intervention. Future research could explore longitudinal impacts of SDL training, develop SDL-specific interventions, and examine the intersection of socio-economic factors with learning autonomy.

In essence, SDL offers a pathway to reimagining education- not just in how students learn, but in how they engage with the world.

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