Auro Scholar

Sri Aurobindo Society

Prepared by: KPMG in India

June 2023

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Content

1. Executive Summary

With consistent efforts over the previous years, there has been significant improvement in children's access to school at all levels[1]. However, there are challenges that continue such as last - mile access, stagnation in gross enrollment, drop-outs, performance of students. Amongst these, low learning outcomes of children have emerged as an area of huge concern as evidenced by the ASER 2018 report and NAS 2021 survey.

Amongst the multiple levers, lack of student motivation to learn, teacher's lack of access to data on student's performance and inadequate parental involvement in the child's daily learning activities have been identified as some of the most pressing concerns related with stakeholders at the micro level, which if influenced in a coherent manner can bring a positive change in student learning outcomes.

In many countries across the world and India as well, monetary incentives have been used to motivate various stakeholders like teachers, parents and students to improve access to education, attendance and enrolment, and learning outcomes. Secondary research also shows that monetary incentives through instruments like education vouchers and scholarships have ecosystem level impacts as they result in choice of school selection and accountability of the education provider.

The 'Auro Scholarships' programme is an inventive concept to improve these measurable metrics, which will point to the improvement of teaching-learning processes as a whole. 'Auro Scholarships' aims to create a technology-enabled institutional backbone in the country to enable monthly micro-scholarships as Direct Benefit Transfer in Education (DBT). It is a mechanism to improve student motivation, parental engagement and teacher's access to learning levels in the learning process. The programme aims to create a synergy in children, teacher, and parent participation in the teaching-learning process by showcasing an improvement in learning outcomes.

The Auro-Scholarships Programme, started by Sri Aurobindo Society, enables micro-scholarships of INR 50 each to any of the 250 million K-12 children in the country if they verifiably achieve Benchmark Performance (currently 80%) in 10-min curriculum-aligned assessments on Auro Scholar App (platform). The children failing to do so, can study and retake the Assessments thereby creating learning nudges. The children can undertake 20 such assessments from 5 subjects per month and hence get a total of INR 1000 scholarship each month. The vision is to eventually enable targeted and straight-through Direct Benefit Transfer (DBT) as micro-scholarships from entire community (Governments, Companies, Foundations, Multi-lateral organizations, Development Finance Institutions, Brands, HNIs and Peers) to 250 million children in order to create micro-incentives for daily learning as well as to provide resources to families to access education themselves.

In the short term, the objectives are to increase children motivation with a shift from 'extrinsic to

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[1] Department-related parliamentary standing committee on Human Resource Development. Accessed from http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%20on%20HRD/283.pdf

intrinsic', increase teacher motivation, and parent commitment towards children learning. In the medium term, the objectives are to increase teacher accountability and personalized learning for children. Lastly, in the long term, the programme has objectives to create community and government funding of scholarships for sustainable change.

To establish a relationship between the Auro Scholar app and its theory of change a detailed log frame was created with the following outcomes - Increased student motivation to learn, Student motivation change from 'extrinsic to intrinsic', Increased teacher effectiveness for student learning, Increased parental commitment towards student learning, and Improved student learning outcomes.

Initial data captured by Auro Scholarship Programme provides evidence on monetary incentives (award of the scholarship) to be a driving factor for the students to continue taking tests beyond the first few months. It has been observed that scholarship winners continue taking tests, while non- scholarship winners stop after 11 months. It is expected that in addition to monetary incentives, continuous success in assessments on Auro Scholar app and the choice in accessing assessments and content on the app will result in improved motivation to learn amongst students and would positively affect the learning outcomes.

2 Context

Education as a sector is drawing much attention in the national as well as global discourse in the development sector. India has one of the largest and the most diverse education systems in the world with 10 million teachers, 250 million students and roughly 1.5 million schools in the country. Education became a concurrent subject in India through the 42nd Amendment Act,1976 which has further strengthened the intent and ability of the central government to set a direction for the sector while leaving enough scope for the respective state governments to contextualize. This has led to a development of a dynamic and evolving policy landscape in India with recent landmark policy developments being National Curriculum Framework (2005), Right to Education (RTE) Act (2009), the National Education Policy (2020) and more recently, the National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN) Bharat Mission (2020). As of result of which, the education sector has witnessed some significant achievements in all aspects ranging from access[2], quality and equity of education.

However, some challenges which require more efforts include last-mile access, stagnation in gross enrollment, drop- outs, performance of students, among others. Amongst these, learning outcomes has emerged as an area of huge concern at all levels of schooling. Outcomes in even basic literacies (English, Native Language and Mathematics) reflect a troublesome reality. As per ASER 2018 report, among children in class VIII, around 72.8% can read Std. II level text and only 43.9% can do a simple division[3]. Further latest round of *National Achievement Survey (NAS 2022)* shows steady decline is student performance with progress in grades. The mathematics score nationally was 57% in class third, dropping by almost 10% to 44% in class fifth, and to 36% in class eighth, and 32% in class 10th. Similarly, language score nationally was 62% in class third, and dropped to 52% in class fifth, and to 53% in class eighth. And the national score for science declined from 39% in class eighth to 35% in class 10[4].

A reasonable understanding of the education landscape in India helps one recognize the complex set of multiple causes underlying the low learning outcomes concerning with different stakeholders including parents, teachers and students, among others. It is a known fact that efforts targeting the underlying causes in isolation hardly bear any fruit, and hence a solution which attempts to influence an ecosystem is needed. Amongst the multiple levers, lack of student motivation to learn, teacher's lack of access to data on student's performance and inadequate parental involvement in the child's daily learning activities have been identified as some of the most pressing concerns related with stakeholders at the micro level, which if influenced in a coherent manner can bring a positive change in student learning outcomes.[5] Further, in order to come up with an innovative and effective solution, one needs to take into cognizance the changing landscape in India with respect to access to digital technology. The availability of smartphones in children's homes has almost doubled from 2018 to 2021, regardless of school type. For example, in 2018, 29.6% of children in government schools had at least one smartphone

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1 Department-related parliamentary standing committee on Human Resource Development. Accessed from http://164.100.47.5/newcommittee/reports/EnglishCommittees/Committee%20on%20HRD/283.pdf

2 ASER 2017. Access from img.asercentre.org/docs/Publications/ASER Reports/ASER 2017/aser2017fullreportfinal.pdf

4 NAS website. Access from National Achievement Survey (education.gov.in)

5 https://rupantar.in/auro-scholar/

at home. This proportion increased to 56.4% in 2020 and grew further to 63.7% in 2021.[6]

Against the above background, Auro-Scholarships Programme, launched by Sri Aurobindo Society in 2019, envisages to create a technology-enabled institutional backbone in the country to address the said challenges. The Auro-Scholarships Programme enables micro-scholarships of INR 50 each to any of the 250 million K-12 children in the country if they verifiably achieve Benchmark Performance (currently 80%) in 10-min curriculum-aligned assessments on Auro Scholar App (platform). The children failing to do so, can study and retake the Assessments thereby creating learning nudges. The children can undertake 20 such assessments from 5 subjects per month and hence get a total of INR 1000 scholarship each month. The vision is to eventually enable targeted and straight-through Direct Benefit Transfer (DBT) as micro-scholarships from entire community (Governments, Companies, Foundations, Multi-lateral organizations, Development Finance Institutions, Brands, HNIs and Peers) to 250 million children in order to create micro-incentives for daily learning as well as to provide resources to families to access education themselves. As children take curriculum-aligned summative assessments on Auro Scholar, their learning gets validated dynamically through Auro Scholar certification. The dynamic learning data of learning levels of millions of students not only enables education providers to personalize the education of students by focusing on their weak areas, but also holds the same education providers accountable for the Learning Outcomes of students. Given the improved access to smartphones and internet connectivity, it is envisioned that the app would enable children from economically weaker families have an equal opportunity towards earning monetary incentives and for personalized learning. The monetary incentives provide the power of choice to these children and an opportunity towards a successful future. In combination, this would help in pursuance of SDG 4 which aims to "ensure inclusive and equitable quality education".

Post launch of the 'Auro Scholar', Sri Aurobindo Society needed to design a programme theory of change along with logical framework as well as monitoring and evaluation framework. KPMG has been engaged to do a study of the Auro Scholar and its implementation processes and prepare a report for the same.

Following are the key objectives of the engagement:

- Developing Theory of Change through research
- Develop monitoring and evaluation framework including creation of logframe and identification of monitoring/success indicators
- Reporting on Activities, Inputs and Outputs (Jan 2020- May 2021)

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[6] Annual Status of Education Report (Rural) 2021 Cover Page.cdr (asercentre.org)

3. Approach and Methodology

KPMG used a consultative approach and deductive research methodology for project requirement. The focus was on designing the Theory of Change for an innovative model of micro-scholarship. The challenge was in identifying the seed of idea, and inspiration behind Auro Scholar and establishing possible linkages between students' motivation and nudging the students and families for continuous learning.

The literature review mainly comprised of available literature on scholarship for education. Auro Scholar is an innovative concept seeded in students' motivation and financial incentive in the micro-form. We explored the existing literature for any possible linkages. The secondary research and brainstorming with Auro Scholar Team helped in developing the Theory of Change for the programme. Furthermore, definition of goal, outcome and output was linked to the activities and output of the project.

Secondary Research	Study of Auro Scholar Programme	Brainstorming with Auro Scholar Team
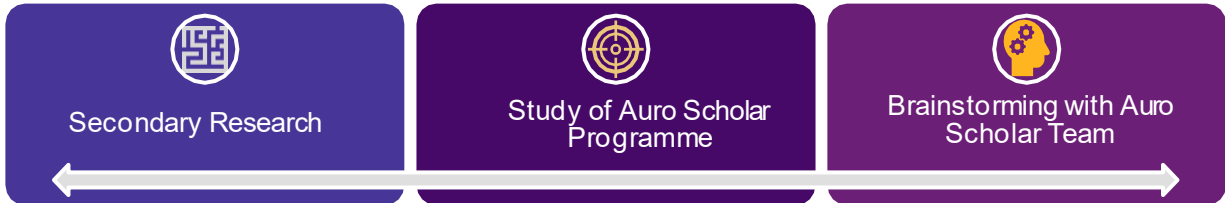
Areas of Inquiry: It is important to define the area of inquiry for every stage of the project and all the aspects related to Auro Scholar. The entire project was broken into three major aspects and for each of these aspects, key questions were defined for guiding the study. The table below presents the questions mapped to these aspects.

Aspects	Key areas of inquiry for Auro Scholar Programme
Understanding Auro Scholar Programme	a. What are the objectives of the programme? b. What was the inspiration behind the programme? c. What are the key contours of the programme? d. What are the linkages of the programme with the academic processes the child goes through? e. What are the challenges faced so far? f. What are the high-level results achieved so far? g. What were the different options available and why particular options were chosen in structuring the programme?

Conducting Secondary Research	a. How do monetary incentives impact motivation of students and education? b. What is the relationship between learning outcome for students and extrinsic motivation factors? c. What are the challenges identified in improving learning outcomes for a certain age group, especially for the opportunity challenged students? d. Which are the factors behind the student dropout rates, viz: age, region, profile, gender etc? e. How does the family engagement happen with the child's learning, as evidenced by improved learning environment and increased participation in school activity? f. What is the education policy landscape, possibly influencing the Auro Scholar programme? g. Which are similar programmes around the globe?
Developing Theory of Change	a. What is the goal of Auro Scholar? b. Are there any specific target group that Auro Scholar aims for interventions and outcomes thereof? c. What are the specialized means to attract/ reach out to the targeted groups? d. What are the underlying assumptions of the Auro Scholar programme? e. What are the process flows to enable the end-to-end programme?
Identifying success indicators and reporting on activities, inputs and outputs	a. What are the output and outcome indicators to be tracked? b. What are insights/early trends which can be drawn around inputs and outputs which can be drawn from the data being captured by Auro Scholar?

The primary information on the areas of enquiry was collected through the primary interviews with the Auro Scholarships programme team and the data recorded by the Auro Scholar App.

Next chapter details the concept of Auro Scholar, inspiration behind Auro Scholar, and its theory of change.

Please note that the words tests, assessments and quizzes have been used interchangeably in this document.

4. Auro Scholarhips and its Theory of Change

This section introduces the Auro Scholarships programme, provides findings from the secondary research which form the bases for assumptions and outcomes in the Theory of Change for Auro Scholarships programme and finally draws out the Theory of Change for the programme.

4.1 About Auro Scholarships

'Auro Scholarships[7]' aims to create an institutional backbone in the country to enable monthly micro-scholarships as Direct Benefit Transfer in Education (DBT) to any of the 250 million K-12 students in the country.

Auro Scholar is an incentive mechanism to improve student motivation and parental engagement in the learning process by providing micro-scholarships. The students take 10 min curriculum-based quizzes on the Auro Scholar app and those who verifiably achieve the benchmark performance (currently 80 per cent) on the assessments are offered the micro- scholarship of INR 50 within 24 hours. Students can undertake twenty such 10-min assessments across 5 subjects (English, Mathematics, Science, Social Sciences, Native Language) and get up to INR 1,000 as micro-scholarship each month. The children who fail to achieve the benchmark performance, can retake the same assessments two more times per month, after learning in their existing education environment, thereby creating learning nudges. The programme hence is not designed as a reward mechanism for bright students, but as an incentive mechanism for every student to improve and achieve benchmark learning attainment (currently 80%) within a month.

Auro Scholarships draws inspiration from:

a. choice of education service provider provided through **Education Vouchers** by Governments in many countries.

b. financial support to few students if they demonstrate certain achievements through **Scholarships.** In that sense, scholarships have largely been used to 'discover merit' amongst students in need of financial support and provide them with financial support, usually to cover the complete or partial cost of education, each year.

Highlighting the impact of Auro Scholarships, the programme team stated that, "Auro Scholarship programme transforms the purpose of scholarships to 'incentivize creation of merit' ('learning'), rather than to 'discover merit', among millions of students by offering 'micro-scholarships', potentially on a daily basis".

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[7] This section is based on the information provided by the Auro Scholarship team

4.2 Objectives

The objectives[8] of the Auro Scholarship programme and the causal pathway leading to achievement of those objectives as stated by the programme team are provided below. The assumptions inherent in the causal pathway will be verified during the impact assessment of the Auro Scholarship programme.

a. **Increased student motivation to learn**
Causal pathway: Positioned as 'micro-scholarships' for students, the DBT produces achievement motivation among children, when they win micro-scholarships. If they don't win micro-scholarship the 1st time, they are incentivized to 'learn & practice' to attempt it 2 (two) more times in the same month, thereby starting a virtuous cycle of learning.

b. **Student motivational change from 'extrinsic to intrinsic'**
Causal pathway: Each micro-scholarship becomes a moment of appreciation from family and the teacher, which is augmented by monthly online award ceremonies conducted by Auro Scholarship programme. This slowly leads to behavioral change, as a result of which the student continues to improve and perform comparatively better irrespective of whether he / she gets the scholarship for the period under consideration (6-12 months). This effectively means a transformational change from extrinsic to intrinsic motivation to learn.

c. **Increased teacher effectiveness for student learning outcomes**
Causal pathway: Starting with teachers enrolling students to join Auro Scholarship as well as influencing students to take regular Assessments, the Teachers also receive the instant information on the weak and strong areas of the children. The Teachers then effectively work to improve weak areas of students. In country like India with large Teacher-Student ratios and disproportionate focus on enabling the whole class move beyond a particular hurdle learning level, the weaker students get left out of the race. The instant access to student level dynamic learning data gives a valuable tool in the hands of Teachers to work on student learning outcomes.

d. **Increased parental commitment towards student learning**:
   a. **Parental engagement in daily learning**
   Causal pathway: Micro-scholarships are received in financial instruments of parents, directly from the community. Each time the micro-scholarships hit the parents' bank account; the parents become engaged in the day-to-day learning of the child. This is augmented by parents being able to see the improved Assessment Performance of the child on a regular basis and participating in monthly online award ceremonies to felicitate the child.

   b. **Opportunity cost of keeping a child learning (by attending the school or otherwise)**
   Causal pathway: Parents directly receiving DBT in their accounts, is a strong counter-balance to the tendency to get children out of school so that they could get additional monthly resources in the family. This not only will reduce the student drop out in the targeted geographies but also increase the attendance in schools.

e. **Improved student learning outcomes**
Causal pathway: The incentives to win monthly micro-scholarships encourages students to learn and practice before they undertake Assessments. 'Learn and practice' form critical academic processes which improve the learning outcomes at mass scale. In addition to this, the understanding of student weak areas is made available to education system, including Teachers, who then can work for student remediation. In the long run, there are multiple additional levers, all of which pull up the learning outcomes of entire generation of students together.

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[8] As stated by Auro Scholarships team

In the medium term, Auro Scholarship programme aims to achieve following objectives:

f. Increased teacher accountability towards student learning outcomes
Causal pathway: Starting with teachers enrolling students into their virtual classrooms, influencing students to take regular Assessments and working to improve their weak areas, the student learning outcome data will be easily correlated to the efforts of millions of Teachers in the country. This will help the whole education system, specifically Parents and Teachers discern effective Teachers vis-à-vis the non-effective ones. This will have a direct influence on the efforts of Teachers for better student learning outcomes.

g. Increased education provider accountability for student learning outcomes
Causal pathway: The certified Learning Outcomes of students (as evidenced by students undertaking regular Assessments) will be linked to the efforts of Education providers. This will force accountability of Education Providers towards student Learning Outcomes. By enabling families to use DBT to select the Education Provider, the Education providers will have to prove that they are better in achieving student Learning Outcomes compared to others.

h. Increased access to quality education for students
Causal pathway: Auro Scholarship programme puts monetary resources in the hands of families and enables them to choose the best, accessible and accountable education provider. The education provider accountability will start in the medium term, but it will achieve its potential slowly in the long term.

i. Increased learning personalization for student
Causal pathway: The massive learning data created as a result of millions of students undertaking daily Assessments (due to incentive of scholarships) as well as the certification of student learning outcomes, helps to understand the weak and strong areas of each child, helps build individual learning personas and personalized learning paths. This is made available to education system, leading to personalization of the education for each child eventually.

In the long run, Auro Scholarship programme aims to achieve following objectives:

j. Community funding of education in India
Causal pathway: Auro Scholarship programme enables targeted, transparent, straight-through, evidence based and instant benefit transfer from anyone who 'cares for' education impact. Such kind of targeted impact is not possible by most other non-profit programmes. Over time, this will make 'everyone to give for education', including Governments, since the monies reach the intended beneficiaries in an immediate and transparent manner. The mass scale adoption of 'giving for education' will help fund the education of wide spectrum of students eventually.

k. Efficient and effective use of Government education subsidies
Causal pathway: With Government's and society's monetary support going transparently to intended beneficiaries, there will be measured impact on student Learning Outcomes. This will prevent subsidy leakage and use it effectively for what matters in education i.e. the student Learning Outcomes.

l. Sustainability of country-wide micro-scholarships:
Causal pathway: At first level, the 'giving for education' will become more and more mainstream, since Auro Scholarships has produced a method to create targeted impact in an immediate and transparent manner. With Governments, Corporates, HNIs, Grant Institutions, Impact Funds, Brands, Education Providers as well as Retail Donors doing DBT in education through Auro Scholarships, the 'giving for education' will become institutionalized.

4.3 Auro Scholar Process

The process flow of the Auro Scholarship programme is provided below:

a) Sri Aurobindo Society signs MOU with the Donor.

b) Donor transfers money to Escrow Account. Currently, it is transferred to SAS account only.

c) Student registers on the Auro Scholar App or www.auroscholar.com and selects the grade (1 to 12) and education medium.

d) Based on the education medium selected, the student sees the instructions in the relevant language. At present, the student can see the instructions and undertake quizzes in English and Hindi medium, which will be eventually extended to multiple Indian languages.

e) Student uploads her KYC and profile picture.

f) Student can select from 5 subjects (English, Math, Science, Social Studies, Native Language) as per his Grade and start a 10 min Assessment which is relevant as per the Grade chosen. During the Assessment, student pictures are clicked at random intervals, after getting the consent. The student is also informed that during the duration of the Assessment, the camera will remain on to ensure no external help is taken by the student.

g) Student undertakes the 10 min quiz for a particular curriculum concept relevant to the student. These questions are designed as per Bloom's taxonomy, which is the most widely used taxonomy the world over. Student can undertake 20 such Assessments in a month (4 Assessments for each of the 5 subjects relevant to him).

h) If the student achieves 80% marks, the student is asked to submit KYC documents. If the student fails to achieve 80% marks, the student is suggested to 'learn & practice' before retaking the Assessment.

i) The student can retake similar quiz twice each month to win the scholarship. This means effectively, the student can undertake 60 curriculum-aligned quizzes per month, thereby providing him numerous practice opportunities. The student is nudged to study before taking each retake, thereby creating virtuous learning cycle.

j) Operations team undertakes the KYC check of the student and either approves, rejects, or asks for change. In case of 'Ask for change', Operations team then compares the 'KYC checked' profile picture of the student with the random pictures taken during the duration of the quiz.

k) Operations team either approves the quiz, rejects or recommends Online Interview (in cases where there are chances of student taking external help or any other wrongdoing). Operations team then conducts Online Interview for the relevant students, asks them to answer the same questions as those in the relevant Assessment and approves or rejects the Assessment accordingly.

l) Operations team approves the DBT disbursal to the approved quizzes of the students, following which the student gets intimation to initiate the DBT transfer.

m) Once the student initiates the transfer, the DBT money is transferred from the Donor Escrow Account to the students through Paytm interface. Soon, the students will receive DBT in the KYC-verified financial instruments which the 3rd party Banks open for them.

n) Student can see Learning Analytics generated because of undertaking quizzes, allowing her to improve the weak areas.

o) Student (or Parent) can allow his Learning Analytics to be made available to formal education system.

4.4   Secondary Research

The linkages between incentives and motivation to learn have been researched and documented. A summary of secondary research delving into these linkages is provided in the next sub-section. This secondary research has informed the Auro Scholar's Theory of Change

1. **Evidence on impact of monetary incentives on student motivation and learning outcomes**

   Incentives, coupled with other existing factors, may constitute the reason for students to put in more effort and thereby improve their attitudes toward studying and the academic performance. National Education Policy (NEP 2020) also acknowledges that there have been various successful policies and schemes such as targeted scholarships, conditional cash transfers to incentivize parents to send their children to school[9]. And that there is a need to strengthen such schemes and policies across the country[10]. To understand the role played by monetary incentives in motivating an individual, certain literature has been reviewed and has been categorized into themes such as: introduction to the concept of motivation, understanding the role played by monetary incentives on motivation, benefits of monetary incentives, understanding how much incentive must be provided, possible challenges, and the way forward.

   a. **Student motivation:** In a classroom context, the ambiguity created due to unfamiliar situations may result in uncertainty for some students and a sense of challenge for other students. The students attempt to make sense of the novel learning situations by referring to their motivational beliefs. Here, the motivational beliefs are an aggregate of the opinions, values or the judgements that students perceive about any objects or events. Besides, beliefs also refer to student's opinion of the efficiency or effectiveness of learning and teaching methods. They can act as a reference that guides how a student thinks, feels or acts in a subject area.[11]

   In order to understand what motivates the students to complete a task, it is important to identify what the student perceives will create a 'link between their action and a positive outcome'[12]. The link can be established by facilitating learning situations in which the student can experience success. For example, through tests. However, it is not sufficient that the student gets the correct solution, rather it is important for him/her to understand why the solution was correct and what steps can be taken to enhance the skills further. However, students who may have developed 'unfavorable motivational beliefs' may not be interested in process-oriented feedback, but rather would want to know whether their answer is correct. However, process-oriented feedback gives them a feeling of progress and is required to build up a positive identity. Therefore, educators should stimulate students to reflect on their own performance through self-assessment.

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[9] National Education Policy (NEP 2020). Accessed at: https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
[10] *ibid*
[11] Boekaerts, M. (2002). Motivation to learn, International Academy of Education, International Bureau of Education. Accessed at: http://www.ibe.unesco.org/sites/default/files/resources/edu-practices_10_eng.pdf
[12] ibid

Also, it can be said that there are two types of motivation, extrinsic and intrinsic[13]. Students who complete tasks for the sake of getting a reward from others, or to avoid some penalty, are extrinsically motivated, however, if external reward is not necessary for students to initiate and continue the activity, it is called intrinsic motivation. Intrinsically motivated students do not have to invest effort and doing the activity is gratifying for them, and when difficulties arise, the intrinsically motivated students experience a feeling of self-determination and hence persist in challenge. However, educators must recognize that all the students are not intrinsically motivated and hence one must cater to the ones who are less motivated to learn, by creating a classroom environment and interacting in a manner that facilitates motivation and make tasks and activities meaningful to the student by making them understand the potential application of it in other subject areas and outside school.[14]

b. **Role played by monetary incentives in education**: Monetary incentives can have different impact on different stakeholders, (teachers, students, and parents) involved in the education of students.

For Teachers: As mentioned by Masino, S. (2012)[15] the incentives designed for teachers can help to improve the quality of teaching. Briefly touching upon the factors that influence teacher's motivation to attend a classroom can depend on factors such as wages, nature of contract (temporary vs permanent), school facilities, commute distance to the workplace, and systems in place in school such as those to monitor attendance. In certain cases, monetary incentives have been seen to reduce absenteeism, however, in others, non-monetary incentives, such as, monitoring and pay sanctions and enforcement mechanisms have proven to be effective.[16]

For Students and Parents: Incentives designed for students and parents can impact behaviors and preferences affecting demand and utilization of education services.[17]

To elaborate, in most developing countries, levels of educational attainment and drop-out rate have been closely related to poverty[18] and this has impacted the education of children due to many reasons. A brief about the issues that parents and students face has been explained below:

i. **High Education Cost:** Parents face high education costs, such as those in the form of school fees and material costs, which results in limited investment

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[13] Boekaerts, M. (2002).Motivation to learn,International Academy ofEducation,International Bureau of Education. Accessed at: http://www.ibe.unesco.org/sites/default/files/resources/edu-practices_10_eng.pdf

[14] ibid

[15] Masino,Setal(2012).Whatworkstoimprovethequalityofstudentlearningindevelopingcountries.International Journal of EducationalDevelopment

[16] Rau and Contreras, 2009; Glewweetal.,2010; Kingdon and Teal, 2007; Duflo etal., 2012; Muralidharan and Sundararaman, 2011 in Masino, S etal (2012). What works to improve the quality of student learning in developing countries. International Jounal of Educational Development

[17] Masino,Setal(2012).Whatworkstoimprovethequalityofstudentlearningindevelopingcountries.International Journal of EducationalDevelopment

[18] Brown, P. and A. Park. 2002. ―Education and Poverty in Rural China. Economics of Education Review

in education by economically weaker families.[19]

ii. **Dropout**: The limited investment by parents in education and the corresponding lower quality of school facilities and teaching play a critical role in the decision of students and their parents to drop out of schools[20]. It has also been observed that even when the education tuition/fees are zero, dropout has been observed in cases where there is high competition in the education system[21]. Students from the economically weaker families are able to invest in a limited capacity in learning and hence are less able to compete with students coming from economically stronger families[22]

iii. **Opportunity Cost:** The increase in the wages of the unskilled labor market also plays a role in students dropping out of school, as the increase in wages implies a rise in the opportunity cost of attending the school.[23] A difference of pattern in dropout in students has been observed across academic performance, age group, gender, role played by the student in the family and poverty. To elaborate, as per a study conducted in China, in the controlled group, the students dropped out less if their test scores were higher, similarly, wealthier students had lower rates of dropping out. Then, it was seen that boys and older students had a relatively higher drop-out rate. In fact, the better performing, female, rich and younger students showed lower probability of dropping out. Explaining on the possible reasons, it can be guessed that the economically wealthier families had the option to select schools on their own and would probably select the ones with more resources and with better quality teachers, probably with less travel time. Besides, it has also been seen that older siblings have more responsibility to support their parents and hence have higher probability of dropping out, especially boys. Other than that, students who have high commuting time between their school and home are more likely to drop out. Whereas those who live with their parents and those who have plans to continue their education have lower chances of dropping out.[24]

2. **Benefits of Monetary incentives:**

Understanding the challenges that parents and students undergo in order to complete schooling and the dilemma they face in order to continue education due to reasons highlighted above, a number of randomized control trails and experiments have been

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[19] Mo, Di et al. (2011): School Dropouts and Conditional Cash Transfers: Evidence from a Randomized Controlled Trial in Rural China's Junior High Schools, Katholieke Universiteit Leuven, LICOS Centre for Institutions and Economic Performance, Leuven

[20] Banerjee, A., S. Jacob, M. Kremer, J. Lanjouw and P. Lanjouw. 2000. Promoting School Participation in Rural Rajasthan: Results from Some Prospective Trials. mimeo, MIT in Mo, Di et al. (2011): School Dropouts and Conditional Cash Transfers: Evidence from a Randomized Controlled Trial in Rural China's Junior High Schools, Katholieke Universiteit Leuven, LICOS Centre for Institutions and Economic Performance, Leuven

[21] Glewwe, P. and M. Kremer. 2006. Schools, Teachers, and Education Outcomes in Developing Countries. In E.A. Hanushek and F. Welch, eds. Handbook of the Economics of Education. Amsterdam: North Holland

[22] Orfield, G., and J. Wald. 2001. High Stakes Testing. In Motion Magazine April 2001.

[23] Angrist, J.D. and V. Lavy. 2009. The Effect of High-Stakes High School Achievement Awards: Evidence from a Group-Randomized Trial." American Economic Review

[24] Mo, Di et al. (2011): School Dropouts and Conditional Cash Transfers: Evidence from a Randomized Controlled Trial in Rural China's Junior High Schools, Katholieke Universiteit Leuven, LICOS Centre for Institutions and Economic Performance, Leuven

conducted across the world to understand the impact of monetary incentives on the motivation of an individual and his/her education. The details of some of the experiments has been described below:

a. **Change in Behavior:** A few **school-voucher based interventions**, such as Colombian school voucher programme PACES, and Chile's school voucher scheme have been designed to impact the behavior of students and parents.[25] The objective of these was to enhance enrolment and attendance of low-income students in better quality schools, mostly private schools. The school vouchers have multifold objective – providing pupil with financial resources to attend schools and influence students' intertemporal choices and their allocation of time to education over labor supply.

The second type of intervention is of using **Conditional cash transfers (CCTs)**, and **merit-based scholarships and grants** to induce behavioral change to an increased use of education.[26] In a CCT programme, payments or cash transfers are provided to parents based on their child's enrolment in school. As per the World Bank Report (2009), CCT program is being used in more than twenty developing countries in some form or the other.[27] In the case of CCTs and grants, the financial support is conditional upon aspects that are behavioral, such as, school attendance or improvement in grade, thereby directly targeting student's choices to bring the desired change. In some cases,[28] girls are provided larger income incentives than boys; and vulnerable and low-income groups are targeted as they are higher exposed to the possibility of dropping out[29]. As mentioned by De Paola and Scoppa, 2007, low economic rewards offered to skills may be partly responsible for high dropout rates as the low rewards may discourage students from studying hard.[30]

Based on the various studies conducted on CCT programmes, it has been observed that CCTs have been able to raise the rate of schooling across various parts of the developing world.[31] However, the effect has been heterogenous across the various groups, such as a larger impact has been seen on girls than on

[25] Angrist, E. et al. Vouchers for private schooling in Colombia: evidence from a randomized natural experiment; Hsieh, C. et al (2006). The effects of generalized school choice on achievement and stratification: evidence from Chile's voucher program

[26] Das et al., 2004; Kremer et al., 2009; Baird et al., 2011 in Masino, S et al (2012). What works to improve the quality of student learning in developing countries. International Jounal of Educational Development

[27] Mo, D et al. (2011): School Dropouts and Conditional Cash Transfers: Evidence from a Randomized Controlled Trial in Rural China's Junior High Schools, Katholieke Universiteit Leuven, LICOS Centre for Institutions and Economic Performance, Leuven

[28] Niño-Zarazúa, (2011) and Martınez Franzoni and Voorend, (2012) in Masino, S et al (2012). What works to improve the quality of student learning in developing countries. International Jounal of Educational Development

[29] Heckman and LaFontain. (2010). The American High School Grduation Rate: Trends and Levels. in Masino, S et al (2012). What works to improve the quality of student learning in developing countries. International Jounal of Educational Development

[30] Paola, M.D. et al (2010). Monetary Incentives and Student Achievement in a Depressed Labour Market: Results from a Randomized Experiment. University of Calabria

[31] Baird S., C, McIntosh, and B. Özler. 2009. ―Designing Cost-effective Cash Transfer Programs to Boost Schooling in Sub-Saharan Africa.‖ Policy Research Working Paper No. 5090, The World Bank.

boys in the secondary schools in Turkey[32] and also the older students respond more to the CCT interventions as the marginal impact for the older children is larger.[33] It has also been observed that CCT has resulted in increase in the attendance of the students in the treatment groups as there has been a reallocation of responsibilities within the household after the CCT was introduced. Linden et al. (2008).[34]

b. **Distribution and Redistribution of Resources**: Das et al (2004) found that due to cash transfers, there has been a 'resource substitution and re-distribution effect', indicating that certain resources that were not required to be invested in the student as they obtained grants, were now being invested in other household purposes. For example, through interviews it was found out that some students used the additional money received to take the bus to school, instead of walking down. Some bought bicycles to make the journey to school easier.

c. **Reduction in Dropout Rates:** As per a study conducted in China, it has been seen statistically that the CCT program has been successful in reducing the probability of students dropping out. It also shows that though the reduced dropout rates are across all subgroups, however, the difference is greater for the poorest performing students, indicating that the CCT programme has a higher impact on poorer performing students in reducing their dropout rate.

d. **Age and Gender Difference:** The experiment conducted in China also highlighted differences in the effect on relatively richer students, girls and younger students. To elaborate, it was observed that CCT programme reduced the dropout of girls more than that of boys and that of younger students more than that of older students. A possible reason for this could be that older and male students have decent number of opportunities to start a job and earn higher wages, thereby indicating higher opportunity costs. Therefore, as there is a rise in the opportunity cost, the CCT programme becomes less effective.[35]

e. **Improved learning outcomes:** As per findings from the study conducted by Braun, H. et al (2011)[36] it has been found that possibly the examinations "may have been underestimating the reading abilities of students enrolled and yielded biased estimates of certain achievement gaps". However, it has been seen that the monetary incentives have a statistically significant and important impact on student's efforts and his/her performance across gender, race, and background characteristics has improved. The impact assessment study of Delhi Voucher Project evidence that the voucher students have performed better than those studying in government schools and on par with the students in private schools in

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[32] Ahmed, A., M. Adato, A. Kudat, D. Gilligan, and R. Colasan. 2007 Impact Evaluation of the Conditional Cash Transfer Program in Turkey: Final Report. International Food Policy Research Institute, Washington, DC.

[33] Attanasio et al., 2005 in Mo, Di et al. (2011): School Dropouts and Conditional Cash Transfers: Evidence from a Randomized Controlled Trial in Rural China's Junior High Schools, Katholieke Universiteit Leuven, LICOS Centre for Institutions and Economic Performance, Leuven

[34] Mo, Di et al. (2011): School Dropouts and Conditional Cash Transfers: Evidence from a Randomized Controlled Trial in Rural China's Junior High Schools, Katholieke Universiteit Leuven, LICOS Centre for Institutions and Economic Performance, Leuven

[35] Mo, Di et al. (2011): School Dropouts and Conditional Cash Transfers: Evidence from a Randomized Controlled Trial in Rural China's Junior High Schools, Katholieke Universiteit Leuven, LICOS Centre for Institutions and Economic Performance, Leuven

[36] Braun, H. et al (2011) An Experimental Study of the Effects of Monetary Incentives on Performance on the 12th- Grade NAEP Reading Assessment

English, Mathematics and Hindi in all grades[37]. Delhi Voucher Project was launched by Centre for Civil Society in 2007. Under the project INR 3,600 was given to more than 400 students in Delhi across 68 wards[38].

In another similar example, voucher system titled "AMMA VODI", incentivized poor parents in Andhra Pradesh to support completion of K-12 education for their children. The voucher was introduced in Andhra Pradesh in June 2019 and part of this scheme involved direct transfer INR 15,000 per year to the parent's bank account. It was found that students who received vouchers spent more time in school and performed better in social studies, science, and Hindi[39].

It has also been noticed in another study conducted (Baird et al. (2011)), that conditional cash transfers are more effective than unconditional cash transfers in improving the student academic performance, thereby emphasizing on the role of conditionalities in influencing preferences and decisions affecting the use of education services.[40]

f. **Promotes School Choice**: The vouchers allow for students and parents from economically disadvantaged background to attend a school of their choice. Evidence from the impact assessment of Delhi Voucher Project found that the majority (63.1 percent) of the voucher beneficiaries exercised the freedom of choice after receiving the school voucher and switched over from a government to a private school[41].

g. **Deliver targeted benefits**: Incentive mechanisms can help deliver benefits to hard-to-reach population. For example, PAHAL initiative in Uttarakhand (initiated in 2007) is an Innovative PPP (private public partnership) initiative which provided INR 3000 to the schools per child to enroll children (6-14 yrs) of rag pickers, scavengers, snake charmers, orphans, etc. from the urban slums of the State. The eligibility criteria for selection are that the child should never have enrolled or has been a drop-out for at least a year and that there is no government school/EGS centre (Education Guarantee Scheme) within a kilometer of the habitation[42].

Two similar initiatives were implemented in Rajasthan as well[43]:
Gyanodaya Yojana: The Government of Rajasthan has launched the Gyanodaya Yojana in 2010 for setting up public-private partnership schools in the state to improve access to secondary education. Under the scheme private participants will establish and manage fifty senior secondary (class VI to XII) schools. The

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[37] Impact assessment report of Delhi Voucher Project. Access at https://www.schoolchoice.in/events/DVPFirstAssessmentReport.pdf
[38] https://eitherview.com/can-school-vouchers-improve-education-in-india/
[39] ibid
[40] Masino, Set al (2012). What works to improve the quality of student learning in developing countries. International Jounal of Educational Development
[41] Impact assessment report of Delhi Voucher Project. Access at https://www.schoolchoice.in/events/DVPFirstAssessmentReport.pdf
[42] Website of School Choice. Access at https://www.schoolchoice.in/voucherschemeindia.php
[43] ibid

revenue for the private participant was in from a combination of school fees and vouchers which were reimbursed by the Government. The voucher amount will be based on current government expenditure in government schools.

Shikshak Ka Apna Vidyalaya: Under this scheme, particular emphasis has been given to the role of trained unemployed teachers. It aims to enhance the access to and quality of primary schools by letting these teachers adopt government run one-teacher primary schools and open new schools in Public Private Partnership (PPP) in the rural and the backward areas of the state. All children living within a 3 km area can access these schools with government sponsored vouchers. Such students will constitute 50% of the school strength.

h. **Improves Education Provider Accountability**: The revenue of a school depends on the number of students it has both who pay directly and those who pay through vouchers. Schools therefore have an automatic incentive to increase enrolments and to improve quality to retain students[44].

Summing up, the benefits from the incentive mechanisms and instruments like vouchers and charter schools, Shabnam Sinha, Lead Education Specialist, India for World Bank group, stated following at 9th School Choice National Conference – Vouchers and Charter Schools provide choice to parents and students as they can choose to go to schools which perform, are accountable and give learning outcomes (instead of the current option of only going to government schools). She added that such mechanisms allow for innovations through service providers coming in, track outcomes through more accountable systems and more accountable teachers who will be performing for results.[45]

3. **How much incentive is good incentive?**

While referring to monetary incentive, it is important to decide the amount that will be given as scholarship and the impact of the amount on the targeted beneficiary. It is critical to do a market assessment to gauge about the average monthly income of the target group and whether any other similar interventions are already being implemented and the scholarship amount being provided by them. To elaborate, an experiment has been conducted by the regional government of Calabria with the financial support of the European Union (through the European Social Fund). It is an intervention where scholarships were awarded to students with high achievements. Through the analysis, it has been seen that the financial rewards were effective in improving student performance, and the amount of the award also had an impact on the effect produced. For example, an award of €700 increased student performance by almost 0.19 standard deviation of the target variable, whereas an award of €250 produced an effect of about 0.16 standard deviation. Also, it has been observed that the improvement had also been

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[44] https://www.schoolchoice.in/schoolchoice.php
[45] Recording of the 9th School Choice National Conference. Access at https://www.youtube.com/watch?v=miD_RIr4eOI

across components that were not a part of the experiment, indicating a higher level of effort by the student across other aspects as well.[46]

4. **Possible Challenges:**

The concept of monetary incentives to motivate a student to learn and improve academic performance has seen many positive impacts across the groups and across the experiments. However, it is also critical to understand the associated challenges and limitations while designing similar interventions.

a. **First challenge** in designing an intervention related to monetary incentive, is the concern that why not any other intervention. Author Conn.K.M. (2014) shared that after reviewing a set of "56 articles (containing 66 separate experiments, 83 treatment arms, and 420 effect size estimates)", she used random-effects meta-analytic techniques to evaluate the relative impact of different types of interventions and to explain variation in effect sizes within and across intervention types. After examining the 'relative pooled effect sizes' of twelve intervention areas. The intervention areas are:

Group	Quality of instruction	Student financial limitations	School or system accountability	Student cognitive processing abilities	Student or teacher motivation
Intervention Areas	1. Class size and composition 2. Instructional time 3. Pedagogical instructions, 4. School supplies provision	5. Cash transfers 6. Support for school infrastructure	7. Information provision 8. Management interventions	9. School meals 10. Health treatments	11. Student incentives 12. Teacher incentives

S/he found that the interventions related to the pedagogical methods, i.e. changes in the instructional techniques have a higher pooled effect size on the achievement outcomes as compared to all other eleven intervention types (including cash transfers, student incentives and teacher incentives) in the full sample.[47]

b. **Second challenge** that can be expected is regarding the average outcome. Leuven, Oosterbeek and van der Klaauw (2009)[48] to assess the performance of the interventions through their experiment divided students into two groups with two separate bonus amounts (one was a bonus of 680 euros and other with 227 euro). Through the experiment it was observed that certain respondents showed better academic results, however, on an average no significant effect of the incentives on achievement was observed, as possibly the requirements for the rewards were too demanding for the average student.

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[46] Paola, M.D. et al (2010). Monetary Incentives and Student Achievement in a Depressed Labour Market: Results from a Randomized Experiment. University of Calabria

[47] Conn, K.M. (2014) Identifying Effective Education Interventions in Sub-Saharan Africa: A meta-analysis of rigorous impact evaluations

[48] *Leuven, Oosterbeek and van der Klaauw (2009) in Paola, M.D. et al (2010). Monetary Incentives and Student Achievement in a Depressed Labour Market: Results from a Randomized Experiment. University of Calabria*

c. **Third challenge** with providing incentives through material/financial incentives is that the benefits may not reach the intended beneficiary or that the benefits may not accrue to all students due to varying capabilities. It has been analyzed by Paqueo and Lopez-Acevedo (2003) who designed a programme to provide financial resources in four poor Mexican states but realized that the top-down method of providing the incentives did not help the poorest students, as the funds did not reach them. With respect to the teaching material being provided, it has been analyzed (Glewwe et al. (2009) that the resources helped to improve the performance of only the 'strongest and often better-off students', however, the weaker students faced challenges in understanding the material that was written in English.[49]

d. **Fourth challenge** is important to identify the target group that is being provided the financial incentives. For example, in a study carried out in Mexico by Behrman et al. (2015) an intervention with three components were designed, the three components were defined based on the stakeholder to which the financial incentive was being provided - students only, teachers only, or both and schools' administrative staff. Through the study, it has been observed that when the incentives were provided only to the students, the effect was marginal in improving learning achievement of the students and there was cheating from the students' side. On the other hand, the second component which included only teachers being paid the incentives, was mostly ineffective. It was seen that the third component saw the maximum result where there was a combined incentive scheme, in which the reward was not based on only individual performance but on the increase in performance of the group. However, Muralidharan and Sundararaman (2011) found that individual incentives are more effective, as there is a possibility of spillover effects on test scores of non-incentive subjects.

5. **Conclusion from secondary research and way forward:**
The literature suggests that in developing countries, like India, education may take a back seat in the economically weaker families due to multiple reasons such as poverty, lack of resources to provide education, distance between home and school to name a few. However, the need is to identify the factors that can motivate parents, students and teachers to encourage their enthusiastic participation in ensuring education attainment. One medium to motivate the beneficiaries can be through providing monetary incentives that will directly reach the student or his/her parents and can be invested in the education itself. Through multiple experiments that have taken place across the developing world, it has been seen that the monetary incentives in terms of conditional cash transfers (CCTs) or school vouchers have played a significant role in instilling a sense of motivation amongst students across age, class, sex, though the degree of motivation may differ. Also, certain challenges that may arise while implementing a similar programme have been shared, highlighting issues in identifying the right intervention strategy for a specific target group, the right amount to be disbursed and whether the incentives reach

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[49] Glewwe et al. (2009) in Masino, S et al (2012). What works to improve the quality of student learning in developing countries. International Journal of Educational Development

the intended beneficiaries or not. Therefore, while designing a similar intervention the existing environment, present competition, technology and government support must be studied to make an informed decision.
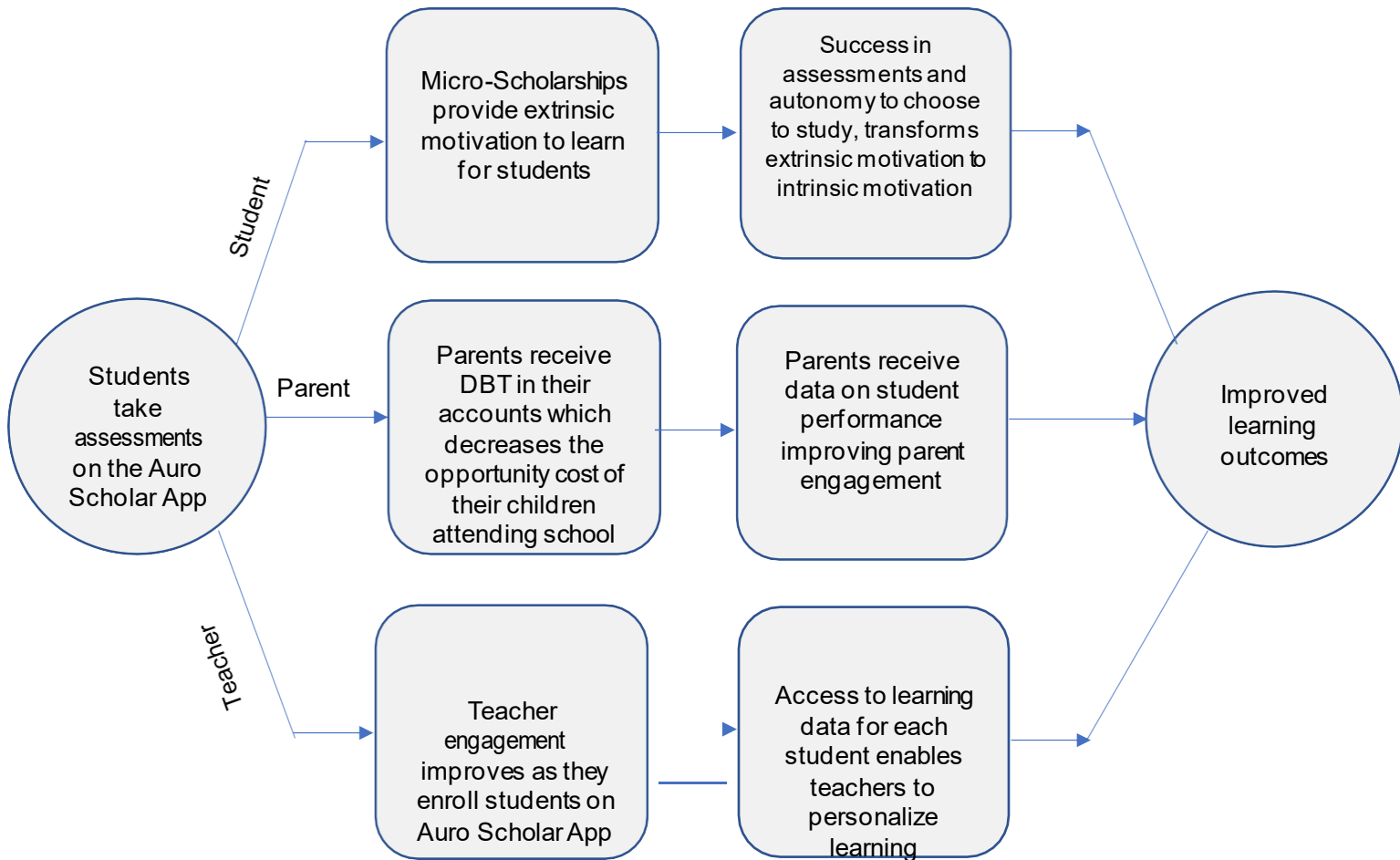
Further, some important factors like how student motivation resulting from monetary incentives evolves over time – whether it decreases, increases, or remains consistent; what is amount of monetary incentive to achieve optimum level of motivation etc. are not covered sufficiently in the available literature and would be an avenue of research for the Auro Scholarships programme.

India has shown consistent under performance on attainment of learning outcomes, with most nation-wide studies including ASER and NAS highlighting the gap in student performance. Therefore, any programme providing monetary incentives needs to provide means for students and other stakeholders (parents and teachers) to improve learning. Secondary research suggests pedagogical interventions being strong influencer for improving student performance[50]. It has also been noticed that conditional cash transfers are more effective than unconditional cash transfers in improving the student academic performance, thereby emphasizing on the role of conditionalities in influencing preferences and decisions affecting the use of education services[51].

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[50] Conn, K.M. (2014) Identifying Effective Education Interventions in Sub-Saharan Africa: A meta-analysis of rigorous impact evaluations
[51] Masino, Setal (2012). What works to improve the quality of student learning in developing countries. International Jounal of Educational Development

4.5 Auro Scholar's Theory of Change

Students take assessments on the Auro Scholar App

Student → Micro-Scholarships provide extrinsic motivation to learn for students → Success in assessments and autonomy to choose to study, transforms extrinsic motivation to intrinsic motivation

Parent → Parents receive DBT in their accounts which decreases the opportunity cost of their children attending school → Parents receive data on student performance improving parent engagement

Teacher → Teacher engagement improves as they enroll students on Auro Scholar App → Access to learning data for each student enables teachers to personalize learning

→ Improved learning outcomes

Auro Scholarship will also strengthen the ecosystem, for improving learning outcome attainment, through:

1. Access to curriculum linked quality content
2. Regular availability of data on student performance
3. Education provider Accountability
4. Enabling donors and government to provide mass scale and targeted financial support for education
5. Reducing cost of providing scholarships for donors and government

Figure 1: Theory of Change

5. Monitoring and Evaluation Framework

5.1 Log Frame

The logframe provides the pathway between inputs, outputs, outcomes and goals of the Auro Scholarship programme.

For phase 1:

Inputs	Outputs	Outcomes	Goal
a. Sign MOU with donors and coordinate operations. b. Sign MOU with State Governments/UTs and coordinate operations. c. Sign MOU with education bodies and coordinate operations. d. Promote DBT in Education. e. Register students on the platform. f. Register teachers on the platform. g. Register education providers on the platform. h. Increase regular assessments by the students. i. Create online teacher forums to motivate students for learning. j. Identify students (& parents) through KYC. k. Issue financial instruments for students to receive DBT l. Enable technology platform for student assessments m. Check the 'free and fairness' of the student assessments n. Create unique assessments o. Conduct monthly felicitation ceremonies p. Disburse DBT based on donor mandates q. Create impact reports r. Handle stakeholder queries s. Provide student learning analytics to stakeholders t. Provide 'learn and practice' resources to students before assessment retakes	1. Active donors 2. Active State Governments 3. Active partner education bodies 4. Student coverage in the geography 5. Monthly active students 6. Student uptake of assessments 7. Student learning nudges 8. Approved student (& parent) KYC 9. Students with financial instruments to receive DBT 10. Monthly award ceremonies 11. Certified student 'weak and strong' areas 12. Teachers using student 'weak and strong' for remediation 13. Students using their 'weak and strong' areas for remediation 14. DBT money committed by donors 15. Amount of DBT money disbursed	1. Increased student motivation to learn 2. Student motivation change from 'extrinsic to intrinsic' 3. Increased teacher effectiveness for student learning 4. Increased parental commitment towards student learning 5. Improved student learning outcomes	To create incentives among education stakeholders for increasing student learning outcomes

This section further provides indicative logframe for Phase 2 and Phase 3 of Auro Scholarship Programme. Phase 2 will focus on creating right incentives and ecosystem for education providers to provide quality education for students and Phase 3 will focus on building a sustainable model of Micro Scholarships to ensure all students achieve the age-appropriate learning outcomes. The logframe will be updated during design of respective phases.

For Phase 2:

Inputs	Outputs	Outcomes	Goal
To be defined later	To be defined later	1. Increased teacher accountability towards student learning outcomes 2. Increased education provider accountability towards student learning outcomes 3. Increased access to quality education for students. 4. Increased learning personalization for student.	To create incentives among education stakeholders for increasing student learning outcomes

For Phase 3:

Inputs	Outputs	Outcomes	Goal
To be defined later	To be defined later	1. Community funding of education in India. 2. Improved efficiency and effectiveness of country's education subsidies. 3. Sustainability of country-wide micro scholarships.	To create incentives among education stakeholders for increasing student learning outcomes

5.2 Outcome Metrics

Metrics to measure the outcomes of phase 1 of the Auro Scholarship programme are provided in this sub-section. The outcome metrics for the other two phases will be defined during the design of respective phases.

Outcomes	Outcome Metric	Study tool

Increased student motivation to learn[52]	**Extrinsic Motivation**
	• Grade Motivation
	  ▪ Good grades are important to me
	  ▪ I'm thinking about what grade I will get on a test
	• Career Motivation
	  ▪ Learning well at school will be an advantage for me in my professional career
	  ▪ Learning for school will help me get a good job
	  ▪ The learning material at school is important for my life
	• Monetary reward
	  ▪ Scholarship amount is important to me
	  ▪ I'm thinking about how much scholarship will I get this month
		• Interview with students

Student motivation change from 'extrinsic to intrinsic'	**Intrinsic Motivation**
	• Self Determination
	  ▪ I spend a lot of time studying
	  ▪ I am preparing well for school assignments and projects
	  ▪ I'm studying hard
	  ▪ I'm trying hard enough to learn
	  ▪ I use strategies that enable me to learn well
		• Interview with students
		
		(Assumption: Level of intrinsic motivation should improve after a child has consistently

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[52] Article from MDPI. Access from: https://www.mdpi.com/2227-7102/12/6/378

	• Self-Efficacy
	  ▪ I am confident that I will do well on tests
	  ▪ I think I can get very good grades
	  ▪ I believe that I can master the content and practical requirements in class
	• Passion for learning
	  ▪ Learning makes sense of my life
	  ▪ Learning is interesting
	  ▪ I like to learn
		used Auro Scholar App)

Increased teacher effectiveness for student learning	• Metrics for classroom observation:
	  ▪ Subject matter understanding of teacher and pedagogy used
	  ▪ Lesson plan and classroom time management
	  ▪ Classroom environment - Ease with which students ask questions to teacher, Student attentiveness
	• Indicators for student perception survey:
	  ▪ My teacher makes me feel that he/she really cares about me
	  ▪ Our class stays busy and doesn't waste time
	  ▪ My teacher explains difficult things clearly
	  ▪ In this class, we learn a lot almost every day
	  ▪ If I don't understand something, my teacher explains it another way
		• Class-room observation
		• Perception survey with student

Increased parental commitment towards student learning	• Awareness of parents about their child's education and performance in school • Attitude of parents towards education and their child's performance in school • Actions taken by parents towards improving learning outcomes of their children	• Interview with parents • Interview with teachers
Improved student learning outcomes	• Age-appropriate and grade-level competency in language • Age-appropriate and grade-level competency in mathematics • Age-appropriate and grade-level competency in science	• Classroom test

5.3 Output Metrics

Outputs	Output metrics - Internal data
1. Active donors	Number of donors disbursing DBT in the year
2. Active State Governments	Number of State Governments/UTs with active DBT program
3. Active partner education bodies	Number of partner education bodies with active working in the year
4. Student coverage in the geography	a. Total number of students registered on the platform b. % of students in the country, registered on the platform
5. Monthly active students	% of registered students who undertake at least 1 assessment in a month - averaged across the year
6. Student uptake of assessments	Number of core assessments per month, taken per monthly active student - averaged across the year
7. Student learning nudges	a. Number of retakes per month, taken per monthly active student - averaged across the year b. % of retakes in which the students undertake 'learning & practice' before assessment retakes

8. Approved student (& parent) KYC	a. % of eligible students in a month, submitting their KYC - averaged across the year b. % of uploaded KYCs approved in a month - averaged across the year c. Time taken for KYC upload after being eligible - averaged across the year d. Time taken for KYC approval after KYC upload - Averaged across the year e. % of KYC uploads which are rejected - averaged across the year
9. Students with financial instruments to receive DBT	a. % of approved KYCs active with financial instruments (received at least 1 DBT) in a month - averaged across the year b. % of total financial instruments created, active in a month - averaged across the year
10. Monthly award ceremonies	a. % of monthly active students participating in monthly award ceremonies - averaged across the year b. % of monthly DBT receiving students awarded in monthly award ceremonies - averaged across the year c. % of monthly active teachers participating in monthly award ceremonies - averaged across the year d. % of monthly awarded students accompanied by the parents in award ceremonies - averaged across the year
11. Certified student 'weak and strong' areas	a. % of monthly core assessments certified - averaged across the year b. % of monthly core assessments rejected - averaged across the year c. Time taken to process a core assessment - averaged across the year
12. Teachers using learning data on 'weak and strong' areas for remediation	% of monthly active teachers up-taking 'weak and strong' areas at least once a month - averaged across the year
13. Students using their 'weak and strong' areas for remediation	% of monthly active students up-taking 'weak and strong' areas at least once a month - averaged across the year
14. DBT money committed by donors	a. % of eligible quizzes covered by committed monthly donor money - averaged across the year b. % of monthly active students enrolled for DBT - averaged across the year c. % of 'monthly DBT summed across all DBT enrolled students' over the monthly committed donor money - averaged across the year
15. Amount of DBT money disbursed	% of DBT per receiving student per month over the plan DBT per receiving student per month - averaged across the year

6.Reporting on Outputs

Auro Scholar programme was started on 27th September 2019, with tests only in Mathematics, which was expanded to include 4 (four) other subjects English, Science, Social Science and Hindi in August 2020. The platform has collected data since then on certain output indicators. This section provides an overview of key milestones achieved by Auro Scholar till 31st May 2021. The entire data of 2,15,330 students who have taken altogether 9,22,463 exams between January 2020 to May 2021 has been analyzed and reported here.

a. **Financial Infrastructure**: Partnered with Paytm, which provides General UPI infrastructure through which any student/parent can transfer DBT to any wallet or Bank Account in the country immediately

b. **Technology**: Enabled technology to power the entire ecosystem through Android App, website, education provider integrations, financial infrastructure, quizzes and back-end operations

c. **Analysis of data captured through Auro Scholar**

1. Active Donors
The details of active donors, as per the data shared by Auro Scholarship team is provided below:

- Captive capital: Sri Aurobindo Society has committed internal corpus for Auro Scholarships till external funds arrive un sizeable numbers.
- Government of Sikkim: Passed cabinet proposal and subsequently signed MOU with Sri Aurobindo Society to commit INR 50 Lacs/year.

2. Active State Government
MOUs has been signed with 10 States for state-wide roll out. Additionally, MOU has been signed with CBSE for the roll out to 8 million students across 22,000 schools.

3. Active Partner Education Bodies
A. **Teacher access:** Auro Scholar programme is integrated with ZIIEI programme (Zero Investment Innovations in Education Initiatives) of Sri Aurobindo Society, under which 2.2 million school teachers are enrolling students and influencing them to undertake daily quizzes and get micro-scholarships.

B. **Assessments**: Partnered with Cambridge to power Mathematics quizzes. Create 5k+ original Question Items monthly to power the quizzes.

4. Student Coverage Across India

Item	Total
Students registered	2,15,330
Quizes taken	9,22,463
Core Quizes taken	6,26,986
Retakes attempted	2,95,477
Eligible Quizes (Score 80% or more) - Out of Core Quizes	4,50,875
Non-Eligible Quizes (Score less than 80%) - Out of Core Quizes	1,76,111
Scholarship winning Quizes (Money disbursed) - Out of Eligible Quizes	75,679
Non-Scholarship winning Quizes (Money not disbursed due to - Non-submission of KYC, inaccurate KYC, plagiarism, cheating, bank details not found etc) - Out of Eligible Quizes	3,75,196
Scholarship winning students (Money disbursed)	5,142

5. Monthly active students

The number of students registered on the portal and having undergone atleast one test is distributed as below across the assessment period (Jan 2020- May 2021). The Auro Scholar initiative started with a modest number of 19,835 students in Jan 2020 which increased to over 2.9 Lakh in May 2021.
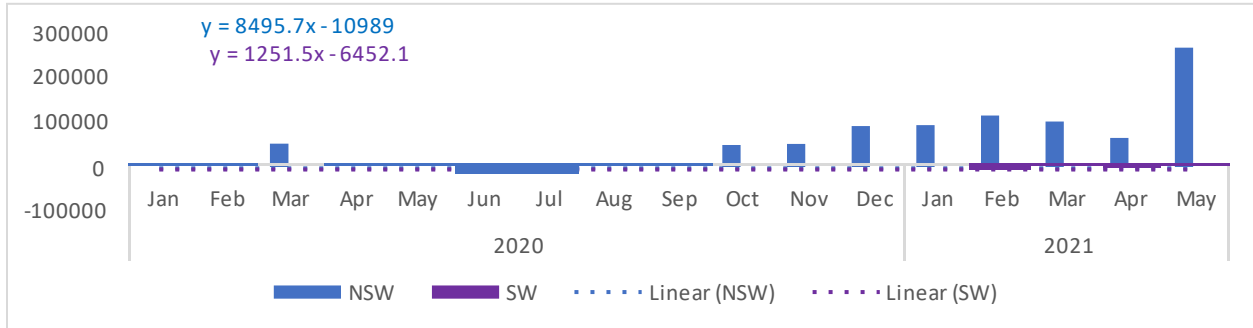
Figure 2: Active Users (SW and NSW) over the assessment period -Jan 20 to May 21

The data shown above includes the Scholarship Winners (SW) and the Non-Scholarship Winners (NSW) groups. The scholarship winners are identified basis the following:

i. Student's KYC is approved
ii. Student has scored above 7 in any exam
iii. Student has received the scholarship

The **number of scholarship winners has steadily increased during the period of implementation from an initial number of 53 students during Jan 20 to a total of over 5,142 students in May 2021**. The data shows a steady increase in terms of numbers of test takers and scholarship winners indicating a higher level of participation from students over time.

6. Students' Uptake of Assessments
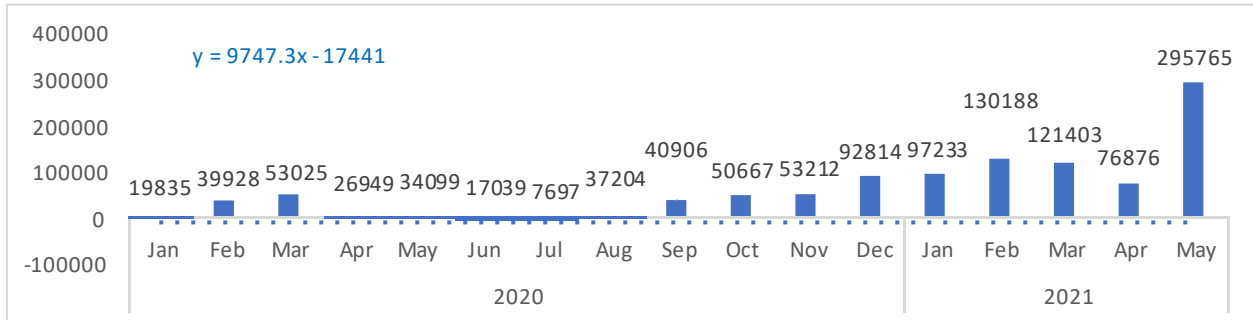
Figure 3: Number of tests taken during the assessment period (Jan 20-May 21)

The number of tests taken shows a similar pattern of increase as the number of active users with about 2.9 lakh tests taken during May 21 compared to 19 thousand tests taken during Jan 20 with a monthly increase of about 10000 tests.
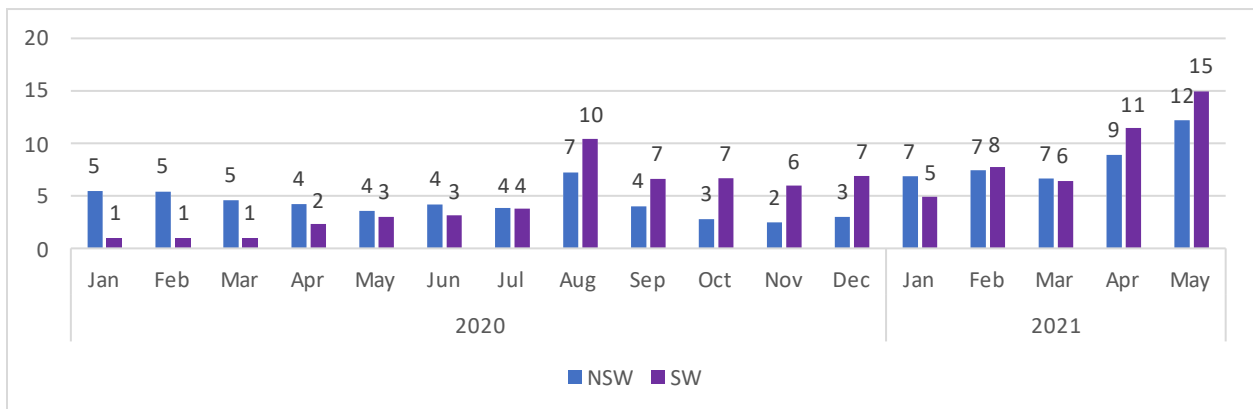
Figure 4: Average number of tests per student (SW and NSW)

The average number of tests taken per student has also improved over the assessment period with an initial 5 number of tests per NSW student and 1 per SW student. The average number of tests per student for scholarship winners improved at a faster rate, and by May 2021, scholarship winners took an average of 3 tests more compared to non-scholarship winners, indicating a difference in the test taking behaviour, which may be linked to self- motivation and successful incentivization.

7. Student learning nudges

a. Comparison of performance between scholarship winners and non-scholarship winners
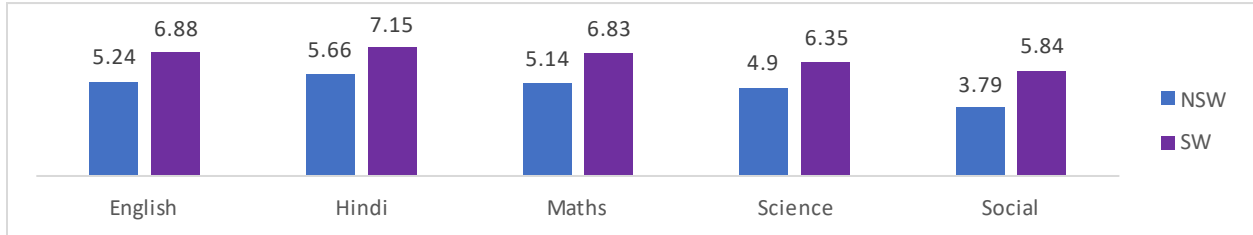
Figure 5: Comparison of performance between scholarship winners and non-scholarship winners

As per the data on the test scores for the students winning scholarships and students not winning scholarships, there is an obvious marked difference across subjects. The scholarship winners exhibit a number of differences across multiple test-taking behavior patterns, which we would explore in the subsequent sections. This may be the reason behind the better performance of scholarship winners compared to their peers.

b. Average time spent on Assessments
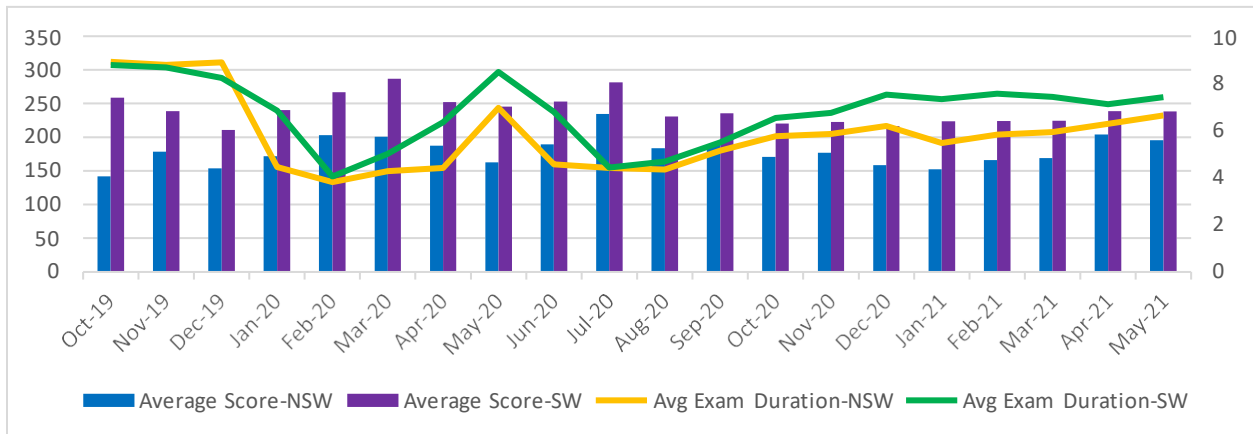
Figure 6: Time spent on Tests and Average Scores- SW and NSW

Scholarship winners in most cases spend more time per test on an average 254 Seconds compared to non-Scholarship winners who spend an average of 203 seconds per test. While the relation between the scores and the time taken on tests does not have a definitive relationship, an additional effort to complete the tests is evident on the part of scholarship winners.

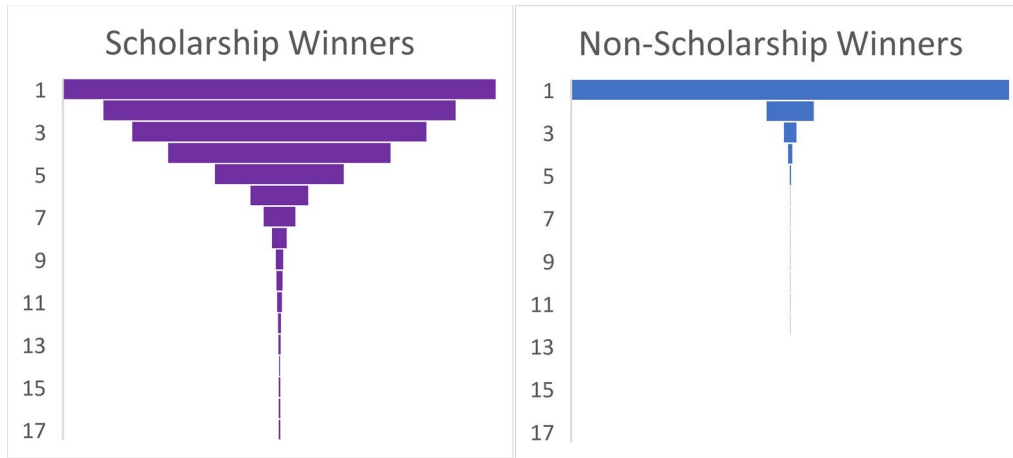## c. Number of consecutive months in which tests were taken

Figure 7: Consecutive Months in which tests were taken

As seen in the figure, the assessments were taken by the students in consecutive months in more cases for Scholarship winners. The "tapering of the funnel" as seen in the figure above is sharper for the non-scholarship winners, indicating that a higher number of students stopped taking tests beyond the 1st -3rd months. In contrast, a higher number of scholarship winners continued taking tests till the end of the assessment period and are likely to continue taking tests.

The award of the scholarship in this case appears to be a driving factor for the students to continue taking tests beyond the first few months.

8. Approved student (& parent) KYC
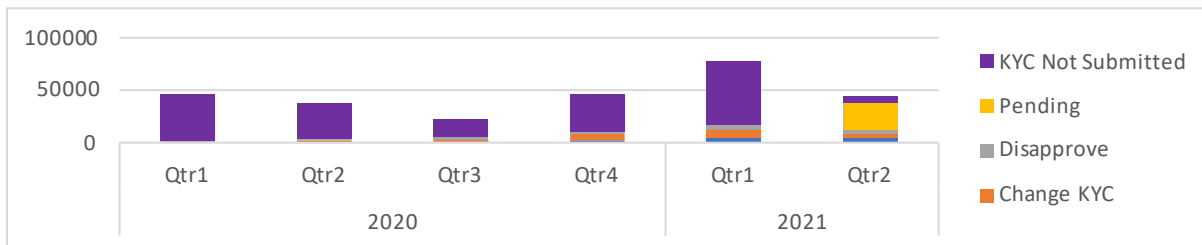
Figure 10: KYC completion rates

To ensure disbursements on time, timely completion of the KYC process is required. The KYC verification is done at 2 levels, and the level 2 verification marks the completion of the process following which the student is eligible to receive scholarships. The KYC submission rate was lower in the initial phases and has improved in the Q2-2021 wherein a higher proportion of students have submitted their KYC documents which are under process. The KYC rejection rate is at 13 percent for the assessment period Jan-20 to May-21.

7. Conclusion

The literature suggests that in developing countries, like India, education may take a back seat in the economically weaker families due to multiple reasons such as poverty, lack of resources to provide education, distance between home and school to name a few. However, the need is to identify the factors that can motivate parents, students and teachers to encourage their enthusiastic participation in ensuring education attainment. One medium to motivate the beneficiaries can be through providing monetary incentives that will directly reach the student or his/her parents and can be invested in the education itself.

The experiments in India on monetary incentives have evidenced that those government school students who get a voucher are able to change schools and do better for themselves. Evidence further suggests that even those students who stay in government schools also perform better. First, the student-teacher ratio improves and second, schools become more attentive to stop student numbers from going down further. All students achieve better learning outcomes[53].

In a voucher system, instead of funding schools, the government funds students. The resultant choice and competition working together provides universal access as well as improving quality education[54].

Auro Scholar has created a platform to broad base scholarships and the number of scholarship winners has steadily increased. The number of registered users who have taken any test is 2.67 lakh and number of winners was over five thousand in May 2021 and representing the reach Auro Scholar achieved within a year of its operations.

Nearly 10% of the test takers receive scholarship – one reason might be low KYC completion rate (approximately 13%). Other reason will be poor learning levels among students in India, which is well-documented. Therefore, Auro Scholar is improving motivation to learn among students and improving parental engagement in education can go a long way in improving attainment of age-appropriate learning outcomes in India.

The data collected by Auro Scholar also provides initial evidence on monetary incentives (award of the scholarship) to be a driving factor for the students to continue taking tests beyond the first few months. It has been observed that scholarship winners continue taking tests, while non-scholarship winners stop after 1 months.

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[53] Website of School Choice Campaign. Access at: https://www.schoolchoice.in/schoolchoice.php
[54] ibid

Thank you

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