Board 117: How Could a New Educational Design Broaden Inclusion of Higher Engineering Education in a Stratified System? Investigating the OIPI Initiative

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1introduction

Ensuring participation in Higher Engineering Education (HEE) is crucial for achieving educational equity and social justice[1]. However, the lack of participation has been a persistent problem in the worldwide HEE, demonstrated by dimensions of educational access and success. The former refers to the fact that disadvantaged students are excluded from educational opportunities; and the latter means even after widening disadvantaged learners' accessibility to HEE, they are less likely to achieve desired learning outcomes[2]. The challenge in HEE lies in who can access high-quality opportunities and how to enhance student success post-accessibility[3]. Marginson[4] emphasizes that true equity in education requires behavioral change, not just an increased presence of disadvantaged learners in elite universities. The capability stance, as proposed by Amartya Sen[5, 6], highlights the importance of providing valued opportunities and building self-determining agency in students[4, 7]. This approach focus on personal, social, and environmental factors that turn capabilities into desired outcomes[6, 8]. However, it does not specify how to effectively convert these possibilities into desired learning outcomes. The social cognitive perspective on self-regulated learning provides insights into this conversion process, which will be discussed later.

This qualitative study investigated how an OIPI initiative broadens participation in China's stratified HE system, not only through opening high-quality educational resources in elite universities to students enrolled in non-elite universities; but more importantly, through building supportive learning environments and teaching practices to facilitate the conversion of access (valued opportunities) to success (desired learning outcomes) through enhancing students' learning agency. Together, the OIPI initiative contributes to the participation of China's HE system from the dimensions of both access and success. This article examines the efforts of this initiative by answering the research questions: **What are the specific conversion factors contributing to students' valued academic access and success in the OIPI initiative for those students who has achieved desired learning outcomes? And how to interpret the conversion processes from valued academic access to desired success?**

In what follows, the OIPI initiative and institutionalized stratification in the Chinese HE system as its background will be first introduced. Then, we will discuss the interpretive lens adopted by this article: the social cognitive view of self-regulated learning. After describing the research design and presenting the findings, we discuss the findings and conclude this article.

2 the OIPI initiative

2.1 background: the institutionalized stratification in the Chinese higher education system

One main characteristic of the institutionalized stratification of China's higher education system is the differentiation between elite and non-elite universities. Elite universities are generally sponsored and administered by the Ministry of Education (MoE) or the central government, while non-elite universities are under the provincial or municipal level of administration. The premier status of Chinese elite universities can be best illustrated by the Double First-Class University (DFCU) Plan[9]. 'Double' refers to both university and discipline. 'First-Class' refers to the objective of reaching the WCU standard. In 2022, there are 301,3 universities in China with only 147 of them (around 4.5%) being included in the DFCU Plan[10].Thus, the elite universities in this study referred to those in the DFCU plan. The disparity in educational resources between elite and non-elite universities in China directly affects the educational quality received by students in HEE. Owing to their social reputation, and financial capability, thus research and teaching resources, universities in the DFCU have been more attractive to high-performing faculties. The gross enrollment rate in China has reached 59.6% in 2022[10] while the average enrollment rate in universities of the DFCU is around 6%[11]. Students' scores in the National College Entrance Examination (gaokao) have significantly determined which level of universities they can enter in China. However, the high-stake gaokao is, to a large degree, a 'once-for-all' exam given that the Chinese HE system does not allow students to transfer from their registered university to another during their learning.

Facing the institutionalized stratification and less open transfer mechanisms in the Chinese HE system, it is vital to broaden participation in HEE by increasing the accessibility of students in non-elite universities to rich and high-quality higher educational opportunities. Meanwhile, access without support is not an opportunity[12]. It is also important to create supportive learning environments and teaching practices to facilitate the conversion of opportunities valued by students to desired learning outcomes in HEE. This echoes the capability stance[6] to foster self-forming students who will drive their academic success[4]. The OIPI initiative is one concerted effort in this regard.

2.2 the OIPI initiative's practice detail

The OIPI stands for Open platform, Individualized pathways, Project-based learning, and Inductive tutoring. The OIPI initiative was launched by one of China's elite universities (S University afterwards) in 2019, seeking to broaden the participation of higher engineering education in China, especially in the field of electronic design[13]. To achieve this, it aims to, on the one hand, widen the accessibility of students enrolled in non-elite universities to high-quality educational opportunities; on the other hand, support these students' self-forming agency to acquire desired academic success, which means to tape out in this initiative.[1]

Open platform consists of 'open in', 'open resources' and 'open out'. 'Open in' means that everyone interested in electronic design can apply for this initiative without selecting their educational backgrounds and expertise. Applicants with little or no prior knowledge can experience a pre-learning period before formal learning. During the pre-learning period, applicants will learn the basic knowledge of electronic design and the teaching and learning philosophy of this initiative. Afterwards, they can choose continue to the formal learning or quit. By far, a total of 3,705 candidates have participated in this

[1] In electronics design, tape-out or is the final result of the design process for integrated circuits boards before they are sent for manufacturing.

initiative, including 1,499 undergraduate students, 1,590 master students, 102 doctoral students, and 416 workers. 27% of student participants came from non-elite universities. ‘Open resources’ means that a group of faculties from S University first develops a systematic curriculum, lesson plans and activities by aggregating both self-made lectures and open-licensed online repositories, such as self-videoed lectures and textbooks. Then, these learning materials are accessible to the public through the initiative’s website and social media, such as Bilibili (similar to YouTube). ‘Open out’ means that candidates can withdraw at any time during the entire learning process. If candidates have other obligations, they can apply for a temporary leave, and return at any available time.

Individualized pathways are made up of ‘personalized learning contents’, ‘self-directed paces’ and ‘flexible assessment’. This initiative offers three learning pathways with different learning contents and engineering tasks: the basic, the advanced and the super. All three pathways can lead to tape out different kinds of designs. Candidates can start with the pathway most suitable for their personalized needs. Candidates are free of choices to progress to the advanced after completing the basic pathway, and to the super after the advanced. ‘Self-directed paces’ means that there is no time limit for learning and task completion, contrasting to the notion of term or semester in universities. Instead, candidates can self-determine study frequency and time allocation according to their specific conditions. As such, the assessment is flexible. First, there are no requirements on the completion deadline of each learning pathway, including the span of the pre-learning period. Candidates can apply for the assessment before taping out whenever they are ready. Second, the assessment criteria are relative, focusing on personal progress, rather than the rankings among different candidates.

Project-based learning includes ‘modularized tasks’ and ‘integration of knowledge into practices’. To tape out, candidates have to complete a series of modularized engineering tasks, which consist of the complete project in electronic design. Each engineering task contains both software and hardware knowledge which can be found in the electronic handouts and relevant resources on the official website. In addition to the knowledge coherency between previous and later tasks, every modularized task is a chance for candidates to apply the acquired theoretical knowledge to engineering practices.

Inductive tutoring comprises ‘Socratic guidance’ and ‘procedural monitoring’. This initiative facilitates candidates’ learning through teaching assistants. Notably, teaching assistants aim to induce candidates’ agency in self-regulating their learnings. Thus, they will offer assistance in a Socratic approach: if a candidate poses a specific question X, teaching assistants will not offer answers directly. Rather they will encourage and guide candidates to explore clue Y, which is crucial in addressing question X. Also, teaching assistants are responsible for monitoring candidates’ learning status and improvements during the entire learning process. This is mainly achieved through weekly virtual meetings, which start as early as the pre-learning period. During weekly meetings, candidates will make oral reports on their learnings via PowerPoint, where teaching assistants will probe into the details. It is required that each candidate presents in the weekly meeting at least once a month.

By far, 11 students from non-elite universities have successfully taped out their designs in this initiative. Their stories (which will be presented in later sections) demonstrate the positive impact of the learning environments on promoting access and success for students of engineering enrolled in non-elite universities.

3 the interpretive lens: a social cognitive view of self-regulated learning

The capability stance reminds us that personal, social and environmental conversion factors can influence how a person can be or be able to achieve desired outcomes with valued opportunities[7]. The personal conversion factors are internal to the person, such as learning will, confidence and abilities; the social conversion factors can be understood as the surroundings the person live and interact with, such as family, friends and teachers, etc.; and the environmental conversion factors can be the physical or built environment, such as the learning climate and means of learnings. Both social and environmental conversion factors are external to the person[8]. When probing the dynamics regarding external and internal factors make possible the conversion of valued opportunities to desired outcomes, a social cognitive view of self-regulated learning [14] provides us with a useful lens, which integrates the social learning theory into research on learner's self-regulatory processes.

Social learning theory [15] subscribes to the emergency interactive agency, which emphasizes the triadic interplay of cognitive, behavioral, and environmental factors to influence human learning. In this triadic interdependence, the cognitive and behavioral processes consist of the self-system, contrasting to the external environment; and the environmental factors can impact behaviors through intermediary cognitive processes. Self-regulated learning focuses on how learners agentically participate in their learning metacognitively, and behaviorally. Learners' metacognition includes one's knowledge of cognition and regulation of cognition; the motivational aspects provide the basis for academic engagement; and the behavioral aspect refers to the learning strategies in terms of regulating environmental resources[16]. Together, a social cognitive concept of self-regulated learning involves three interdependent processes among personal, behavioral, and environmental influences[14].

Specifically, it first acknowledges that self-regulated learning is influenced by a person's internal processes, such as one's self-efficacy (the personal conversion factors); second, these processes are determined by external processes, i.e. environmental and behavioral influences, such as the learning climate (the environmental factors), and encouragement from a teacher or peer and positive outcomes from previous learning (the social conversion factors); and third these three processes are reciprocal. Reciprocality does not equal symmetrical or bidirectional influences. Rather, it stresses: (1) one can use personal processes to 'strategically regulate behavior and the immediate learning environment', where the feedback can in turn influence the person's covert process[14]; (2) the influences of externally social experiences and environments are important to internally personal processes[15]; and (3) 'Behavior is, therefore, a product of both self-generated and external sources of influence.'[15]

Notably, studying the triadic reciprocality among personal factors, behaviour and environmental condition does not mean 'undecomposable wholism' leading to 'investigatory paralysis'. It is encouraged to explore the processes of subsystems rather than the entirety of the triadic reciprocality[17]. As reviewed in the previous section, educational opportunities and learning environments are critical in promoting and shaping the academic experiences and outcomes of students enrolled in non-elite universities. Thus, this article aims to assess the conversion dynamics focusing on the influences of externally social and environmental factors on the internally personal processes; and to

investigate in what ways these processes influence students' agentic behaviors in the OIPI initiative.

4 research design

This study is a qualitative research with semi-structured interviews as the research tool. To answer research questions, we adopted a purposive sampling strategy to recruit participants: candidates in the OIPI initiative who have tapped out with registration status in non-elite universities. Eventually, 11 participants from 10 non-elite Chinese universities joined this study. See Table 1 for participants' brief profiles relevant to this article.

Table1 Participants' brief profiles relevant to this article

No.	Pseudonym	Registered University	No.	Pseudonym	Registered University
1	S1-NU1	Non-U1	7	S7-NU6	Non- U6
2	S2-NU2	Non- U2	8	S8-NU7	Non- U7
3	S3-NU3	Non- U3	9	S9-NU8	Non- U8
4	S4-NU4	Non- U4	10	S10-NU9	Non- U9
5	S5-NU5	Non- U5	11	S11-NU10	Non- U10
6	S6-NU6	Non- U6			

We conducted semi-structured interviews during February 2023 and April 2023. An interview guide was designed, including the leading questions concerning the learning environments in the OIPI initiative and their impacts on our participants' learning. Follow-up and probe questions were raised flexibly when some puzzling, unclear or unanticipated answers emerged in individual interviews. The longest interview took one hour and 23 minutes and the shortest lasted 47 minutes. Each interview was audio-recorded based on participants' informed consent. Confidentiality was assured to ensure our participants speak freely. Chinese Mandarin was used as the language of the interviews and all the verbatim transcriptions. All participants' names were anonymized in the following presentation of the data.

For data analysis, we conducted a thematic analysis[18] with the assistance of NVivo 12. The entire analysis process was a mixture of inductive and deductive approaches. As discussed above, the capability stance[6] has inspired this study to focus on the dimensions of both access and success regarding participation in HE. Meanwhile, we aimed to investigate the conversion dynamics from valued opportunities to desired learning outcomes, where the social cognitive view of self-regulated learning[14] provides us with the interpretative lens. We, therefore, draw on these established constructs during the interpretation of data deductively. Also, we are open to identifying emergent themes from the data. In this sense, we also interpreted our data inductively.

Driven by informed theoretical constructs, previous literature and our research questions, findings were identified from our data: there is a dynamic chain concerning the conversion processes from valued learning opportunities to desired learning outcomes in the OIPI initiative for our participants. Specifically, the external conversion factors, including the learning condition, context and climate, act as the background supporting candidates' internal personal processes, including enhanced disciplinary abilities and bolstered self-efficacy. Such internal conversion factors, act as accelerators, promoting candidates' self-regulated learning strategies in motivation and engagement.

5 findings

5.1 external conversion factors as the supporting background

Following the capability stance, external circumstances significantly impact personal processes, such as what they expect and be able to do[19]. According to our participants ' stories, the OIPI initiative offered them what is less available and accessible in their universities in terms of funding (S3-NU3; S11-NU10), learning materials (S7-NU6; S2-NU2), soft and hardware relevant to electronic design (S4-NU4; S5-NU5; S8-NU7). As discussed above, the OIPI initiative is not merely an open platform aggregating high-quality open educational resources. More importantly, the facilities from S University designed systematic learning and curriculum plans which 'transformed the scattered raw materials worldwide to comprehensive and coherent knowledge contents and flow'. (S7-NU6) As our participants recognized that 'accessing resources is the first step leading to success', (S6-NU6) the accessibility to learning opportunities provided by the OIPI initiative is the precondition for candidates' learning and possible achievements.

Participants engaged in specific learning contexts through actual opportunities: a peer community and explorative procedures. The 'open in' design of OIPI 'fostered a peer community with diverse educational backgrounds and expertise' (S8-NU7). The initiative's tutoring activities, following an inductive approach, enable candidates to explore as per Socratic guidance. The learning climate within this initiative is characterized by interest-centricity and safety. The pre-learning phase ensured that 'peopl e continued to the formal learning is certainly oriented by interest' (S9-NU8), leading to the formation of a special interest group in electronic design. Participants expressed a sense of safety due to self-directed paces and flexible assessments, highlighting differences from university settings: 'there is no loss if I failed here' (S8-NU7) and 'I do not need to rush for taping-out, like finishing the term tasks in universities' (S2-NU2). Summarily, the OIPI initiative provided candidates with learning conditions, and construct the learning context and climate for candidates' learning. These external conversion factors act as the supporting environment for candidates' internal conversion processes. This will be presented below.

5.2 internal conversion factors and processes as accelerators

Individuals' internal responses to external influences are crucial for their learning[20]. From the capability stance, enhancing individuals' ability to help themselves 'are central to the process of development'[6]. From the self-regulated lens, self-efficacy and affect are the core of personal processes[21]. Together, this article identified two dimensions of internal conversion factors and processes during our participants' course of learning in the OIPI initiative: enhanced disciplinary abilities and bolstered self-efficacy.

5.2.1 enhanced disciplinary abilities

Echoing previous studies regarding higher engineering education[8, 22], the dimension of disciplinary abilities in this study refers to the disciplinary knowledge and skills, and the mutual promotion between the two. In the previous section, we have introduced the design of project-based learning in the OIPI initiative. When assessing its effectiveness and efficiency, one consensus held by our participants is that it helped them to build a

synergistic knowledge base: The curriculum and learning plans in the OIPI initiative 'contain knowledge in software and hardware whose synergies are important in electronic design' (S2-NU2). Our participants experienced such importance when they were completing modularized engineering tasks.

'When I tried to complete these modularized tasks, I found that it is not enough to finish them beautifully only with knowledge of software or hardware. Instead, I have to use knowledge in software that can support the task in hardware.' (S6-NU6) This contrasts with the curriculum in their universities, where 'teaching contents in different classes are segmented.' (S11-NU10) Apart from knowledge, data shows that our participants also improved their engineering skills. This is because each modularized task is like a small but complete engineering project. Altogether are a complex and large-scale project.

'The engineering experiments in our universities are theory-dominant lectures. However, I have to write thousands of lines of programming codes by myself here.' (S9-NU8) This means 'I have to transform the theoretical knowledge learnt immediately to practical skills in completing engineering tasks.' (S8-NU7) In this way, our participants 'witnessed and understood the processes from theory to practices in engineering.' (S10-NU9)

In addition to the disciplinary abilities, another internal conversion factor contributing to our participants' academic success in the OIPI initiative is their self-efficacy bolstered during their learning.

5.2.2 bolstered self-efficacy

According to social learning theory, people's beliefs about whether they can exercise control over events that affect their lives are pervasive among the mechanisms of human agency (Bandura, 1986). Our data shows the design of the OIPI initiative has bolstered our participants' self-efficacy in various ways. The direct influence came from candidates' enhanced disciplinary abilities which increased their academic confidence. Also, the substantive opportunities and the scaffolding progress have contributed to our participants' increased self-efficacy in learning.

For our participants, the opportunity of tape-out in the OIPI initiative is substantive not only because 'few non-elite universities can support such luxury activities.' (S1-NU1) More importantly, 'let us tape out means that they [faculties in the OIPI initiative] trust us. They believe that we can achieve something.' (S3-NU3) This is in marked contrast to what they experienced in universities: 'Most of our lecturers thought that students [in non-elite universities] would not make much progress in learning …… this is because students they enrolled were not that good compared to those in elite universities.' (S6-NU6) Our data shows that such substantive and 'luxury' opportunities increased our participants ' self-esteem: 'a person's general feeling of worth '[23], which has a strong effect on self-efficacy[24]. This is demonstrated by our participants' experience that 'I feel I am not stupid here', (S2-NU2) and 'I can make progress with efforts.' (S1-NU1) Indeed, our participants were making progress in the OIPI initiative with a scaffolding approach.

As discussed above, our participants can choose a personalized learning pathway, after which they were encouraged to learn through explorative processes. Thus, they could

follow a ‘flat learning curve’ (S10-NU9), which means that the learning difficulties they encountered would not be too difficult, and allowed them to make step-by-step progress. As such, they kept receiving positive feedback on learnings at different points. This constantly increased their self-efficacy with each phrasal progress. Moreover, ‘The explorative procedures sometimes were struggling. However, no words can describe the sense of pride, excitement and fulfillment when you addressed a problem by yourself...This initiative let me believe I can master what I thought I cannot before.’ (S7-NU6)

Self-efficacy can mediate external influences on learners’ motivation and actions[20]. Our data shows that the bolstered self-efficacy, with other aspects of design in the OIPI initiative, acted as the accelerators promoting our participants’ self-regulated learning strategies in terms of self-regulation on motivation and engagement.

5.3 self-regulated learning strategies as the demonstration of agentic behaviours

Self-regulated learning demonstrated the role of human agency in controlling one’s thought processes, motivation and actions[25]. Echoing existing studies[16], our data shows that our participants’ self-regulated learning strategies in motivational and behavioural aspects played important roles in achieving desired learning outcomes: taping out.

5.3.1 self-regulation on motivation

Our data shows that the bolstered self-efficacy, the clearly-set goal and the interest-centred learning climate inspired our participants’ learning motivation, which resonated with existing studies[26]. Notably, our participants’ stories illustrated their self-regulation on motivation through observational learning, for which the peer community offers possibilities.

One important idea of observational learning is that learning can be realized through such as observing, modelling, and imitating the behaviors, attitudes, and emotional reactions of others (called models), especially those similar to themselves[20]. As discussed above, the OIPI initiative constructs the learning context of the peer community. Our data shows that our participants exercised agency by taking advantage of this peer community, such as observing others’ learning styles, engagement and progress during weekly meetings, and observing others’ logic in addressing problems through observing their answers to other candidates’ questions. Such observational learnings make our participants’ self-regulation on motivation possible through positive peer pressure and role models.

Owing to the design of ‘open in’, candidates in the OIPI initiative own heterogenous academic abilities and personal traits. Our data shows when observational learnings occurred within the same peer streaming in terms of academic abilities and knowledge base, our participants’ motivation can be inspired by positive peer pressure. For example, ‘When you saw the great progress made by those who were at the same level as you at the beginning, you would certainly want to do more…like an engine to promote productivity.’ (S10-NU9)

Also, our participants' motivation can be inspired by role models - those who demonstrate strong academic abilities and learning dispositions. For example, S1-NU1 expressed his appreciation to one learning peer who also enrolled in a non-elite university but 'can be called an expert [in electronic design]. This is because he studies hard.' Such vicarious experience let S1-NU1 realise that 'the university background cannot influence my will and ability to learn. I want to be as excellent as him.' In terms of academic abilities, 'they are my direction, my motivation to shorten our distance [in academic abilities].' (S7-NU6) In terms of learning dispositions, 'I am motivated because I realized that the best people worked harder than I did' (S8-NU7).

5.3.2 self-regulation on engagement

Our data shows that our participants actively engaged in the OIPI initiative outside of their learning schedules in universities. Apart from the external and internal influential factors mentioned above, our participants agentically managed their engaged efforts, including persistence and time investment. When answering what personal factors contributed most to their realization of taping out, persistence and time investment were constantly heard in our participants' stories. In terms of persistence, our participants agreed that the learning environment constructed by the OIPI initiative has significantly promoted their persistent behaviours, such as the procedural monitoring from teaching assistance (S9-NU8; S4-NU4; S7-NU6) and peer interactions (S10-NU9; S8-NU7; S1-NU1). More importantly, our participants would actively regulate their persistence, especially encountering difficulties: 'persuade me not to give up. ' (S11-NU10) Our data shows that the scaffolding progress they obtained in disciplinary abilities and bolstered self-efficacy facilitated their self-regulation on persistence: 'It is not easy to quit in the middle when you have made certain progress.' (S3-NU3) 'Previous feedback made me confident to break through as long as I carried on'. (S5-NU5)

Apart from self-regulation on persistence, another representation of the agentic behaviours of our participants is their time investment. In the first place, the design of self-directed paces allows our participants to distribute their time slots between their studies on campus and learning in the OIPI initiative flexibly: If there was a time conflict, they can stop learning in this initiative. Additionally, all our participants shared their experiences regarding extra time investment in this initiative apart from their learning in universities, such as 'noons and evenings. Using scattered time' (S4-NU4), and 'weekends and extracurricular time.' (S9-NU8) When answering the reasons for extra time investment in this initiative, the learning interest came to the front: 'People would not feel tired if they were interested…Instead, I enjoyed.' (S11-NU10) This can best illustrate the capability stance that an individual's agency achievement is his or her deciding and acting based on what he or she values and has reasons to value.[7]

6 discussion and conclusion

The OIPI initiative aims to broaden the participation in China's higher engineering education (the field of electronic design). This is expected to be realized through not only widening access but also facilitating success through enhancing students' learning agency. The concept of conversion from the capability stance is crucial to understand the congruence between valued opportunities and desired outcomes, which needs to be sensitive to the influences of social arrangements and social relations on individual lives[8,

27]. This inspires this article to investigate the external and internal conversion factors that provide our participants with valued academic access and facilitated their desired success. To interpret the conversion processes that contribute to the formation and exercise of our participants' learning agency, the social cognitive view of self-regulated learning provides a useful lens.

Following the capability stance, it is the actual opportunities make the agency freedom possible[6]. The OIPI initiative, as an Open platform aggregating both self-made lectures and open-licensed online repositories, first makes it possible for students enrolled in non-elite universities to access high-quality educational opportunities in electronic design, which is less available and accessible in their universities. Second, the design of 'open in' and 'open out' offer candidates the freedom to choose what they valued (interest-centred) with a sense of safety. This provides the premise for our participants to exercise their agency in learning within specific teaching and learning contexts of Individualized pathways, Project-based learning and Inductive tutoring. Together, these external conversion factors act as the background for our participants to learn through explorative procedures in the peer community, which support their internal conversion processes, especially through enhancing disciplinary abilities and bolstering self-efficacy. From the social cognitive view of self-regulated learning, agentic behaviour is both emergent and interactive as a product of both internal and external sources of influence[15]. The demonstration of our participants' agentic behaviours is their self-regulated learning strategies, including self-regulation on motivation, persistence and time investment. Such agentic performance is indispensable to both the external and internal conversion factors, as discussed previously. As such, the conversion processes from valued learning opportunities to desired learning outcomes in the OIPI initiative form a dynamic chain.

Theoretically, this article contributes to understanding the capability stance in the context of HEE by disclosing the conversion processes from valued learning opportunities to desired learning outcome. This is realized via the social cognitive view of self-regulated learning, facilitating the interpretations of influential mechanisms promoting learners' self-regulated processes.

Practically, this article first presents an exemplary effort to broaden participation in HE through an 'agency-oriented ' capability approach[7]; and second, it shows that a person's ability to achieve desired outcomes can be greatly enhanced by public action and policy[6]. This offers practitioners implications in promoting inclusive HE in an agency-friendly way: distributing or creating opportunities; and constructing external learning environments to enhance learners' internal and behavioural conversion processes, thus achieving desired learning outcomes via the self-forming agency.

This article has limitations due to its reliance on a relatively small sample size of successful non-elite university students introduces potential bias. This may obscure the varied experiences and challenges of students less benefited by the initiative. Future research would broaden participants encompassing both successful and unsuccessful individuals, to provide a more balanced perspective. Further exploration into OIPI initiative's impact across different disciplines in HEE is also important to fully appreciate its effects within China's stratified educational system.

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