Original Article

Scale of Outcome-based Education: Beyond the Knowledge-Skill Dichotomy

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Abstract

This article fills a notable gap in existing research on outcome-based education (OBE) in India. It reports findings from a multi-sited field-based investigation of OBE across five relatively highly ranked institutions in India. Building on actor–network theory the article argues that attempting to study OBE opens up a range of concerns such as disciplinary dispositions, teacher training, methodological limitations of OBE, concerns of labour, management and the problem of designating the scalar boundaries of OBE. The article argues that OBE allows problematizing the distinction between skill and knowledge and the hierarchy that exists between them. It argues that OBE need not be construed as a degradation of higher education into trade schools, rather this moment provides us an opportunity to rethink the relationship between vocational , technical, and general education. This assumes significance in the current context as the new clientele of higher education do not have the luxury nor often the aspiration for further education but want to use undergraduate education as a take-off to build meaningful careers outside the academia.

Keywords

Outcome-based education, higher education, actor–network theory, knowledge production, vocational and technical education, general education

Introduction

This article fills a notable gap in existing research on outcome-based education (OBE) in India. While academic debates on OBE and specific micro cases have

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been reported, there remains a glaring lacuna of a multi-sited and comparative work comparing the experience of implementation of OBE across various disciplines and types of institutions. The article reports findings from a first study of this kind which engaged in multi-sited field-based investigation of OBE across five relatively highly ranked institutions in India including two public universities, one private university, one autonomous college and an affiliated college.

OBE has traversed the higher education sector in India in a particular manner with its introduction to professional fields like engineering and management, a rigorous implementation in the field of medicine followed by a large-scale mandate across all disciplines. The focus on outcomes has emerged within a crisis of quality in higher education in India following the rapid expansion of the higher education sector through privatization and the setting up of new public institutions and its underfunding. The discourse of quality emerged following the abandonment of the previous focus on blunt enrolment numbers within this set of transformations (Mittal et al., 2020). The trajectory of this discursive shift mirrors the debates in school education where an initial focus on enrolment and drop-out has now been replaced by a concern about the quality of education that is being delivered (Batra, 2014; Bhushan & Mathew, 2019).

There remains a tendency to frame the quality concern amid a larger shift in the educational sector towards neoliberal forms of management (Navani, 2020; Sandhu, 2021), noting the withdrawal of the state at precisely the moment of its expansion and the lack of trained teachers. The absence of teacher training in higher education is a long-existing problem that has received little attention from policymakers. Whatever the causal reasons for the quality crisis in this moment in time, the crisis of quality is immediately perceptible and articulated not just by teachers but students as well in the field. We invoke the notion of perception to stress the fact that no standard or universal notion of quality exists per se. In an interaction with three groups of commerce and economics graduate and postgraduate students in an autonomous college, a public university and an affiliated college, the students lamented the lack of basic and advanced skills with software packages such as Microsoft Excel, Tally and R. The point we are trying to invoke here is not merely a stress on the lack of applied skills but also an inability to provide students with new modes of thinking with these new digital tools that have been around for decades now. In interactions with various humanities and social science teachers, they lamented the lack of basic and advanced reading and writing skills in not just English but also vernacular languages among MPhil and PhD students, pointing towards intersectoral problems that carry forward from school education. The quality crisis is not just a neoliberal construct aimed at furthering new management approaches but the construct also sheds light on a range of challenges facing the higher education sector which has not been able to keep up with the times, whether it be technological transformation or the changing demography of students or the lack of trained higher education teachers who can cope with these dynamically changing demands being placed on them. This has not just had effects on the teaching–learning process but has also affected the research ecosystem at large with faculties from a range of institutions publishing in predatory journals for example (Patwardhan & Nagarkar, 2021). While the

quality construct has been deployed to justify the privatization and commercialization of the higher education sector, it doesn't discount the existence of this perceptible problem at hand, however, construed.

It is in this context of perceived quality crisis that OBE has emerged as a micro-managerial approach to the quality problem as macro approaches of accreditation and ranking failed (Bhushan & Mathew, 2019) to have any significant impact on the teaching–learning process focusing instead on surface-level changes of building infrastructures and classroom technologies and the like.

There has also been a tendency in debates on OBE to construe it as a degradation of higher education to skill-based education akin to vocational education (Bhushan & Mathew, 2019). Such a rhetorical structure remains conceptually murky for at least two reasons as it mobilizes common-sensical dichotomies pitching manual labour against intellectual labour and then hierarchizing one over the other, as one is deemed to be a domain worthy of being avowed the status of knowledge while the other is reduced to mere skills. This has had a significant impact on the way higher education institutions have been structured in India, wherein technical education providing vocational education in the form of certificate and diploma courses or graduate courses have been delinked from other higher education institutions. It is important to note on the other hand that that technical courses, such as Bachelor of Technology, Bachelor of Education, Bachelor of Legislative Law and Bachelor of Business Administration, and their associated postgraduate courses which are skill-based education have been categorized separately and have been ranked higher than the general undergraduate course and significantly higher than vocational education courses. OBE opens up this debate to great scrutiny as we will see in sections that follow, wherein it necessitates thinking through the relationship between knowledge and skill, not necessarily at the expense of one or the other. Such a discursive framing of manual versus intellectual labour is particularly worrisome in India as,

> [T]he general social view in India is that vocational education is an inferior form of education. The divide between the mind and the hand is acute and the mental overrides the manual. While such attitudes are perhaps found across the world, the Indian sociocultural background privileges the intellect to a larger extent as reflected in the caste system. (Natarajan & Chunawala, 2009, pp. 111–112)

The distinction between skill and knowledge may be sustained for analytical purposes, but in everyday life, the act of doing something, a complex or a simple task whether fragmentary or not, has phenomenological effects which impinge on the mind and the body. Similarly, the acquisition of knowledge has effects on the malleability of a skill in situations. To decouple these two processes necessarily risks hierarchizing one over the other. This messy relationship between knowledge and skill is not a mere metaphysical concern, ala between episteme and techne but has concrete effects on how education is construed and assembled.

As we will see in the article, OBE remains a deeply messy object whose scale is not limited merely to the classroom, the economy, national policies, global accreditation networks, individual students or teachers. This in turn has the effect of fuzzing the boundary between knowledge and skill. We use scale here in the sense of

valuation of one object over another. If we consider a particular scale, that is, any object, as a valuation device which allows us to value other objects through comparison, contrast or analogies, that is, through negative differentiation (de Saussure, 2013), then OBE mobilizes its particular scale of relationalities as it brings into relation a host of processes to form an apparatus/assemblage (Legg, 2011) which evaluates. The scale of OBE emerges in this article as not merely a scale of assessment akin to a positivist psychological test which can be replicated ad infinitum without a concern for context, rather OBE's scale emerges through its particular relationalities of labour, organizational dispositions, technological adoption, disciplinary dispositions, the disposition of teachers, students and a host of processes that exceed the boundaries of the institution. In this process it is made, unmade and remade through an interaction of a range of processes.

The article is divided into eight sections. Following the introduction and the section on methodology, five sections of the article discuss various aspects of delineating OBE as an object of research, ranging from disciplinary and institutional variations, concerns of creativity, training and support, resistance to OBE and the scalar problematic of OBE. The last section provides concluding remarks on the article.

Methodological Concerns

The article is influenced by departures made by actor–network theory (ANT) in the field of education (Ball, 2016; Fenwick & Edwards, 2010; Junemann et al., 2018). ANT lends itself particularly well to studies in the field of education as the research objects involve a network of various kinds of actors ranging from humans with varied roles and relationships, to discourses, architectures, institutions and technologies. ANT construes 'knowledge and knowledge production … [and] knowing as situated, embodied and distributed' (Fenwick & Edwards, 2010, p. 24). Having emerged out of the field of science and technology studies within the discipline of sociology, transposing the approach to the field of education is intuitive as education is a site of knowledge production and reproduction.

ANT challenged dominant sociological approaches which worked with notions such as 'society', 'social order', 'social practice', 'social dimension', or 'social structure' (Latour, 2007, p. 3). Instead, it sought to build from previous projects such as that of ethnomethodology and the works of Gabriel Tarde by feeding off controversies in defining an object under investigation. This led to the inclusion of non-human actors in a flat ontology with human actors forming assemblages. These assemblages emerged in ANT as legitimate objects and networks of the social as the social had to be assembled by the sociologist. As Latour (2007) notes, 'it's not the sociologist's duty to decide in advance and in the member's stead what the social world is made of—a very common idea for chemists, physicists, and naturalists, but it is still seen as provocative in the social sciences' (p. 29).

The introduction of non-human actors and networks within the social necessitates thinking in assemblages wherein flows of matter and language coagulate.

The primary method of ANT mobilizes material-semiotic approaches wherein matter and language are not considered distinctly divided domains of inquiry. Instead of neat a priori classifications, ANT encourages acknowledging the messiness of the social.

The article is based on fieldwork conducted in five higher education institutions in India which included two public universities, one private university, one autonomous college and an affiliate college. Institutional variation was considered during the sampling of data to get a sense of the divergent perspectives across the higher education sector. The fieldwork was conducted from January 2023 to April 2023 and included interactions with students, teachers and administrative staff including institutional leaders. The interactions were open-ended and covered topics ranging from discussions on OBE, learning management systems, learning analytics, audit culture, changing regimes work and broader tendencies of digitalization and reform. In this article, we limit our discussions to OBE which formed a key anchor of discussions with teachers as all the institutions were coping with the ongoing implementation of OBE.

Disciplinary and Institutional Differences

As noted, OBE has had a particular trajectory in India with the introduction preceding among professional courses such as engineering, computer science, medicine and management through accreditation bodies of those disciplines such as All India Council for Technical Education (AICTE), National Medical Commission (NMC) and National Board of Accreditation (NBA). This divergence in the adoption and implementation of OBE has generated different dispositions among different disciplines and different institutions. A professor of management at a public university who also worked in administrative capacities stressed on this divergence.

> Interviewee: [B]ecause for the professional courses particularly, let it be business management, computer applications, engineering, pharmacy or like all those which are usually covered under AICTE. Those professional courses are already application oriented. Therefore, skills are also inbuilt and imbibed into the programmes. Therefore, they were already developed and designed traditionally in that way. So, when this programme objective, PO-CO mapping, these things were introduced, the system was already familiar with it. It was more of a formal introduction. It was already there.

These divergences within disciplines have a concrete effect on the implementation of OBE. The disciplinary dispositions themselves affect the practitioners and how they interact with OBE. This in turn mobilizes notions of skill and knowledge and how the discipline relates to them. The following interaction with a computer science professor in an autonomous college sheds light on disciplinary disposition and the resulting role that one can play within an organization which allows for particular ways of approaching OBE. The person also doubles as the Learning Management System (LMS) admin for the college.

> Interviewee: [T]here are so many competency frameworks. we may not be able to bring them all…if we create a framework. I have seen some universities in the United States and Australia, they have their own university competency frameworks. So, if we do something like that because the study is happening right now. Our entire team is working on that. How do we prepare a competency framework for the college, and it has to be implemented in the LMS. If we do that for example starting from the lesson content, we can identify the rubrics. OBE is basically connected with the assessment rubric. What level they are? Whether they are satisfied or not? So like that, you know if the competency framework is clear and the hierarchy of competencies is clear, we see the knowledge level, the attitude level, and the value level and we can analyse them. LMS is very capable of doing that. But we need to bring those parameters into the system. In a very limited way, the MBA department are using a rubric for their assessment, basically for the assignments, where they see if the case study has been taken and a thorough work has been done as per their own parameters. Each subject has its own rubrics. So other than that, in the last semester what we have we identified our course outcomes. We have the course outcomes (COs) and programme outcomes (POs). We have included the COs in the quiz assessment in the LMS. whether the student can reach, or attain that CO, CO1 or CO2. Like that, we have started. In the long run, we are going to implement the entire competency framework, and parameters so that we can have a solid understanding of connecting LMS with OBE. It can be possible. It is possible.

This professor of computer science played a key role in the introduction of LMS to the colleagues in the department over a decade ago. He played around with this new technology and attempted to use it in his own classroom long before LMS usage was recommended or mandated. The organization chose to tap into his interests and assigned him the position of the admin for the LMS. This disciplinary disposition and his own curiosity allowed him to think through the possibility of linking the LMS with OBE. The linking of OBE data structures with LMS is not a particularly novel idea as scientific communications have reported such practices and possibilities (Sarkar & Kurup, 2022; Villamañe et al., 2016). At the same time, the linking of OBE data structures with LMS was reported to us by other disciplines like medicine as well which already have rigorous competency frameworks in place. Our intent rather is to highlight the disciplinary disposition of computer science that allowed such a person to start thinking of these new configurations while it occluded a person from the field of education for example.

This is not to suggest that computer science or any application-oriented disciplines are not engaged in theoretical knowledge production or consumption. Painting such a picture introduces the dichotomy of practice-based disciplines and their other. While one often heard statements in the field which suggested computer science and other professional fields to be amenable to OBE such assumptions are often not held by practitioners within these fields. The following quote is from a computer science professor in an autonomous college who also manages the unstructured database for the college.

> Interviewer: So, in your own teaching habits, have you noticed any difference in your own classroom environment, or your interaction with students once you started practising OBE? Or are you more or less doing the same things as before?

> Interviewee: No, I do find differences. My teaching is mostly theoretical. Though I am into computer science, when it comes to teaching, it is mostly theoretical. But now, after OBE, I am practically thinking and practically trying to teach the students.

While teachers from other disciplines often tend to paint computer science as amenable to OBE for its practical and application-oriented approaches, the above quote suggests that even theoretical instructors in supposedly technical fields had to adapt to OBE to make them more practical. A language teacher from a private university noted this problem with lucidity. He was engaged in teaching European foreign languages to students as well as a vernacular language to foreign students within the university. Due to his training as a European language trainer, he was familiar with the Common European Framework of Reference for Languages (CEFR), a competency-based framework for European language which is extremely rigorous and determines the syllabus, pedagogy, assessment and certification (Jones & Saville, 2009). There is no parallel such as the CEFR for Indian vernacular languages. When he attempted to discuss the framework with fellow vernacular language teachers, he noticed great resistance.

> Interviewee: There's no separate Indian way of teaching engineering or there is no Indian way of teaching. You know, my point is that it is the field of language education which regardless of what language you teach, you should be interested in the first place, the language which you are going to learn. So, it doesn't matter if you're teaching, you know, Bhojpuri or some, you know, like some obscure language like Swahili. If you are teaching, and if you're serious about your task as a language teacher, you better be aware of what's happening. Like, let's say, can anyone you know say such things because you are practising medicine in India, I'm not interested in what's happening in the field of medicine.

The above quote from a language instructor sheds light on the difficulty that one encounters when thinking through OBE in humanities and social sciences in India. In the longer conversation, he also noted how students of English or other Indian languages in India often fail to properly write or communicate in those languages despite graduating with degrees in those languages. This is not to suggest that certain humanities or social science teachers do not have a valid criticism of OBE. The following is a quote from a professor who teaches in a department of Gandhian thought. When we inquired how he linked the Gandhian studies programme with market-based skills he noted:

> Interviewee: Maximum you can say that there is some employability in the NGO sector. So, you can connect there. [But] that is against the spirit of Gandhian studies. Commercializing it is against Gandhian studies and still, we were forced to do that.

While the language instructor noted a case of resistance from vernacular language teachers about developing a competency framework and not being aware of global developments in language teaching, the point made by the professor of Gandhian thought poses an epistemological challenge as the programme seeks to build on a thought which resists NGOization in its current form. To link that programme's

outcomes to a particular employable skill requires thinking through the limits of education if they are only linked to employability. To go back to the analogy with vocational education that we invoked in the introduction, vocational fields are often construed in a way to reduce them to employable skills even if these fields indeed harbour a great amount of creativity, to name a few fields such carpentry, cosmetics, food science, hospital administration and so on, can even be linked to proper fields of research. The point that we are trying to invoke here is that a distinction between skill and market-based courses on the one hand and critical and knowledge-based courses on the other needs to be interrogated going forward. OBE provides us with an opportunity to think through whether this distinction is tenable in the first place or not.

This becomes very clear in the following interaction with a professor of botany who is also involved in the administration of an affiliated college.

> Interviewee: In the current scenario this system is apt, but we have to train the students as well as the teacher to cope with these things. Because nowadays students need a job at the earliest. They need a job and are not concerned with a degree.

Student's need for immediate jobs is a material fact for a large number of students who do not pursue extended time in higher education (Navani, 2020). Such a direct acknowledgement of this fact from a professor in an affiliated college is hence not out of place as such teachers deal with undergraduate students, of whom a large number may not chose to pursue further higher education including careers in research or teaching. This raises a significant question about a balance between skill-based education and general education which has the practical concern of integrating a dynamic market-based curriculum as well as providing fundamental theoretical foundations. Another professor of commerce at an autonomous college framed the matter in following terms:

> Interviewee: I think certain courses should be fixed like 40% programme outcomes should be fixed at 40%–50%. And 50% should be open as per the needs of the society and changes in the industry. I look at it from this angle because the Securities and Exchange Board of India won't sit for me to change my programme outcomes because they are a very dynamic body. The Competition Commission of India, they are conducting a study for example. The Competition Commission of India is a body that tries to identify whether there is some cartelization happening in some industry.

The above quote points towards the practical necessity of navigating the dynamic needs of the market as well as assigning certain outcomes of the course as foundational or necessary. This also necessarily entails providing teachers with a degree of autonomy and freedom to adapt a course in real time. For teachers in colleges within a collegiate system, this poses a significant challenge as the decision making remains relatively centralized and hierarchical.

OBE and Creativity

Most radical critiques of OBE highlight the challenge of capturing unexpected and abstract learning (Havnes & Prøitz, 2016). As unexpected and abstract

learning poses a challenge in assessment, we generally were interested in probing how creativity is construed by teachers during their assessment. How teachers navigate OBE in their assessment of creativity provides us examples of this foundational critique of OBE and the difficulty in assessing them. The following is a response from a history professor at an autonomous college and how s/he navigates assessing students' outputs after field visits. We inquired how s/he qualifies a submission of a student as good or bad after a field visit.

> Interviewee: We won't label it as good if it doesn't meet the outcome. We don't fix the outcome broadly. The learning level of learning outcomes can be fixed by the teacher only. So, we have to say there is a knowledge-level learning outcome that I fixed for that visit, which is definitely attainable for all. So, if I'm going to produce creative outcomes, doing videography, or showing it on the YouTube world, or propagating the destination into a tourism destination, that is a creative end of the learning outcome that out of 20, maybe only 5 would have done it. So, the basic level knowledge, definitely everybody would have done it. At least I should make sure that they have done it.

Alluding to Bloom's Taxonomy, the teacher suggests that there is room for assessing and encouraging creativity within OBE. For them as a teacher in the case of a particular assignment like a field visit, the lower levels of the taxonomy such as remembering and understanding remain non-negotiable as outcomes that the teacher must make sure are attained. This is not to suggest that higher orders within Bloom's Taxonomy is not addressed when creative outputs have to be judged. The following quote from an architecture and design professor suggests that applied and practice-based disciplines have sense of how to navigate this concern. When we inquired her about how aesthetic concerns impinge on assessment and the problem of subjective bias that it introduces, she suggested that the instructors and assessors do not intervene explicitly in the aesthetic domain but in the technical aspects.

> Interviewee: It could be, but you know there would not be a drastic difference. It cannot be that somebody rates it a 5 and somebody gives a 0. It would not be right. There is one more way you can grade any aesthetics when you have a one-to-one viva with them. They always defend their design. You cannot rate any design as bad or good. Because even as teachers when a student comes to us with a design, we can tell them that the design will not work, but we will not say that this design is bad or good. We are here only to guide them and see that they can take the design further. We will not change their ideas. Because the students have excellent ideas, but they might not know that it does not work. But we are there to put them on the track and make it work. So, you know we do not discourage the students from saying that this design is not good. It may not work.

In the above quote as well we encounter an acknowledgement and a withdrawal from assessing creative aspects of the work directly. This difficulty in capturing the creative aspects of the work in assessment remains a challenge, but we notice that as a practice-based arts discipline, the instructor hints that relatively higher-order outcomes beyond remembering and understanding are being assessed. The

reference to a viva voce examination points towards the possibility of a dialogic encounter between the student and the assessor where the student has the option to defend and justify their creative output. Whether instructors and assessors remain open-ended during assessments is a concern that remains unaddressed as the concern of rigorous teacher training rears its head.

Training and Support

The question of teacher training remains a glaring lacuna in the higher education sector in India. Structured certification programmes or fellowships for higher education teachers do not exist in India. Higher education instructors are hired after their master's education or their doctoral education with or without a certification received through passing the National Eligibility Test for assistant professorship or their state variants. These examinations remain a grossly inadequate way of addressing the quality of teachers in higher education as it includes no training. The nature of the test itself is beyond the scope of this article, but it suffices to say the nature of the test has not been adequate to the challenge of the quality crisis. After teachers in higher education are hired, they go through various kinds of orientation and refresher courses which do not necessarily focus on imparting teaching skills or delve deeply into the field of education but often involve material that updates the participants about new developments in particular fields.

When we inquired the director of a public university about the Internal Quality Assurance Cell (IQAC) and the support that teachers receive, and outcome mapping and reconfiguring their courses to follow OBE, he noted:

> Interviewee: Teachers will have to do it on their own. They are not getting any kind of support.

While such a situation may exist, this is not to suggest that no training related to OBE has occurred. Various teachers and administrative staff of all institution types participated in workshops conducted to train them in OBE. Yet not all faculty members received such training across all institutions. The following is an interaction with a professor of psychology and education from an autonomous college.

> Interviewer: What percentage of your teachers are trained?
>
> Interviewee: I don't think much. Very few.
>
> Interviewer: Is there a difference in their teaching?
>
> Interviewee: Yeah, definitely. I feel so. There is.

> Interviewer: Do you think you require it? Considering that OBE is being mandated by NAAC and is slowly being formalized in the institutions, do you think this is enough or training is still needed?

> Interviewee: I think intensive training is required. Because when I say I map this or that, I should also know which are the pedagogy or which methods I should use to teach. Just (Course Outcome-Programme Outcome [CO-PO]] mapping and putting it in the curriculum doesn't matter. I can end up mapping, and say oh, this has been achieved, this has been achieved by looking at certain taxonomical words. I feel, you know, there should be intensive training given to the teachers.

As a person trained in education, the professor noted the limitation of training limited to CO-PO mapping while invoking the linkages that are required beyond curriculum restructuring. A narrow focus on CO-PO mapping has actually resulted in a mechanical reorientation of existing curricula in some institutes. This was a phenomenon noted by various teachers wherein the existing syllabus with previous objectives was repackaged as OBE with minor changes. Teachers themselves do note the lack of a structured teacher training programme. Following is a quote from a discussion with an English professor from an autonomous college.

> Interviewee: It is obviously missing. Like, those who have just completed postgraduate degrees or NET or completed PhD, they are directly entering into teaching, and they have no idea about how to deal with students. When one attends courses like Bachelor of Education (BEd) or any of the courses like Teacher Training Course (TTC) or Diploma in Education (DEd), one gets trained to deal with diverse students. That is missing in higher education. So, what ultimately happens is that the teachers tend to believe that all are equal, and that one cup of tea works for everyone. So, that is a problem. So, some sort of training should be given, or a short-term course should be offered for the teachers who are entering into higher education.

The above quote points towards not just the challenge of implementing OBE but a wider systemic and institutional design problem in higher education in India. This mirrors developments in the field of school education where the micro-managerial focus on outcomes has occluded the concern of teacher training (Batra, 2014).

Attitude and Resistance

Organizations are also facing resistance concerning OBE's implementation. Following is a quote from a conversation with an IQAC member of a public university who is also a professor of computer science.

> Interviewee: Some of the teachers who were utterly against OBE before. Now, their mind has changed. They started changing slowly. Sometimes, we should compel people to see reality. When you see the reality, you will really understand that this is sometimes useful. Then, you will use that. There is often prejudice that OBE language is not useful. That it is stupid. Then, the problem is, see, when some of the people or some departments are showing such signs. For a public system like ours, OBE is not possible under such circumstances. That is a real hurdle which we are facing. Now, because of NAAC, we say that it is needed. So, people want to do that.

The above person alludes to the challenge of working within the public education system where teachers have relatively higher freedom to voice their

disagreements. The above quote points towards the increasing legitimacy of OBE that it has gained due to accreditation bodies like NAAC recommending it. The mandate to adopt OBE through bodies like NAAC results in the adoption of OBE by certain teachers who are not convinced of the methodology of OBE. This, as we noted in the previous section, results in surface-level changes to satisfy auditing mechanisms.

On various occasions, respondents noted that resistance against OBE is particularly visible among older faculty members rather than younger ones. This was usually attributed to the younger faculty not being exposed to older management styles or teaching styles. There was also another aspect because of which age played in resistance against OBE as visible in the following quote from a commerce professor of commerce at a public university.

> Interviewee: I think after a particular age, about 50, they go into a rest mode.

Such attitude towards upskilling was often acknowledged by older faculty members who noted the lack of motivation to acquire new skills or change their mode of work just a few years before retirement. This issue points towards the intricately linked labour that is tied to producing and reproducing OBE.

Resistance among teachers who teach traditional subjects was clearly evident. The fact that graduate attributes or outcomes were not defined for general courses such as BA, BSc and BCom meant that these courses by and large have retained their structure and content over decades with little modification to reflect the changes that transpired in the world.

Scale

Sarkar and Kurup (2023) note the need for approaching OBE through the lens of translation as it traverses various scales. As we discussed in the previous sections a range of processes impinge on how OBE is translated within institutions, ranging from disciplinary and institutional trajectories, teacher's individual disposition to the framework as well as regimes of, or the lack of, teacher training. This process of translation becomes evident when we encounter the need for trans-scalar thinking with OBE invoked by certain individuals in administrative roles. We invoke trans-scalar thinking to stress the fact that processes at various existing scales impinge on an object under investigation, its construction and production, that is, in this case, OBE's boundaries do not end at the boundaries of a classroom, an institution, national policy bodies or frameworks or global processes, rather one finds oneself fluidly navigating these various scales when attempting to think through it. Existing scales of national, global, local and so on are reconfigured by OBE as they are traversed in a non-hierarchal manner and invoked and made sense of in the same breath.

Following is a quote from a professor of ecology who also holds a high-ranking administrative position at a public university.

> Interviewee: So, when something is designed by the faculty, they have some sort of expectation or outcome. So those outcomes should be in alignment with the outcome of the student. Only then will it be meaningful or successful. At the same time, it should result in the growth of the nation. After the completion of the education, one has to go for a job or maybe for some other purpose or research. That should benefit society, even in the global scenario or for the country. At the time, while designing such courses, there are limitations of the students. For example, for engineering students, something has to be built. That is the outcome of the work. For civil engineers, they have to design and construct a house by themselves. That is the ultimate aim of that.

In a span of a paragraph, we see a range of scales being invoked, from the individual student to the teacher, a tangible outcome such as a constructed house and its linkage with global and national processes. The framing of OBE in such a manner by a high-ranking admin and an ecology professor demonstrates how particular dispositions allow framing of the challenge of OBE in different ways. Ecology as a discipline has been concerned with the problematic of trans-scalar thinking since its inception as the boundaries of its research objects remain difficult to pin down (Horton, 2019), as its objects invoke networked complexity. On the other hand, being located in a high-ranking admin position also allowed the individual to articulate OBE's trans-scalar challenges as not just a process that is limited to the classroom, individuals or the institute but beyond it.

We see such an acknowledgement of the trans-scalar nature of OBE articulated differently by different disciplinary locations. The following is a quote from a computer science professor at an autonomous college who is also the LMS admin for the college.

> Interviewee: In my department, I do not see any difference because it is all at the global level. Our COs are mapped at the global level, not at the local level or even the national level. Say, for example, if there is a new concept or a new programming language that comes, we set the COs accordingly. POs are anyway general ones. If you see the COs, they have a global approach. If you see Bloom's Taxonomy, the level we are talking about here is creation. Whether they are able to design something out of it, not if they are able to understand or remember. Those levels are gone. Maybe they pertain to the pre-course test only. Once we move into the mid-course we are in the middle level of the taxonomy. Right from the first semester to the fourth semester, we have mini projects. Ultimately, they have to show the outputs. So, you see we don't see any gap in our departments. Other departments might have them.

In the above quote, we witness an explicit acknowledgement of the global and a quick jump to the higher levels of Bloom's Taxonomy. Unlike the discussions on creativity that we witnessed in a previous section, we see in the above instance a jump from creation to the global scale, as if global processes impinge on and co-constitute any act of creation.

Conclusion

An ANT view of OBE provides us with a deeply messy and networked view of this educational theory. When we began our research, OBE, for us, was an

educational theory mandated by NAAC and whose traces we initially found in self-study reports of institutions. In attempting to pin down the research object by the name of OBE, we inadvertently ran into a host of issues ranging from disciplinary variations, concerns of labour, concerns of higher education management, methodological challenges and limitations of OBE and the scalar problem of designating the appropriate scale to locate OBE.

Along with this messy reality of OBE, we also wish to evoke the messy boundary between knowledge and skill that this moment of OBE adoption opens up. As we saw in the previous section, there is no a priori scale within which OBE can be fit and served. The object of OBE has its own particular scalar nature as it evades common-sensical scales of evaluation such as the global, national, local, classroom, institution and so on. The scale of OBE mobilizes a range of scales at the same time. It is for this reason its contours remain difficult to pin down. And it is precisely this aspect and quality of OBE which makes it productive to engage with. Engaging with it provides us with a peek into the contemporary and ongoing transformations in knowledge production and reproduction in the higher education sector.

On the other hand, we also saw in the article how OBE blurs the distinction between skill and knowledge where outcomes are linked at the higher end with creation. We wish to stress that this isn't necessarily a degradation of higher education per se. A response to OBE that laments the degradation of higher education into a trade school is misplaced for at least two reasons. As we noted before, dichotomizing skill and knowledge and hierarchizing one over the other devalue different ways of relating to this world. Second, to construe the higher education sector as an island or haven away from the turbulent vagaries of market forces is politically naïve as the infrastructure of higher education is intimately tied to the broader economy. As we demonstrated in the article, concerns of labour and management surface their head when one attempts to conduct a study of OBE. This is not particular to OBE but pertains to the larger scientific and knowledge workforce and students involved in higher education. If one is indeed serious about the encroachment of market logic and dynamics into the higher education sector, the place to begin would be to grasp the labour that is, and always has been, producing and reproducing these institutions. Ignoring this aspect of academic, scientific and menial labour that has always gone into sustaining higher education leads to the alarming responses that the adoption of OBE produces. A more interesting challenge would be to rethink how boundaries between vocational , technical, and higher education can be blurred and how different ways of relating to this world can flourish.

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