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HOW TECHNOLOGY CAN TURN CONSTRUCTIVIST AND HELP THE EDUCATION SECTOR: THE ENTWINING OF STUDY PORTALS AND CONSTRUCTIVIST THINKING

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Abstract

Higher education in India is moving at a faster pace than ever before. This has led to an increasing need for effective teacher-student interaction, meaningful discussions and classroom practices that can lead to resourceful research in this fervent area of growth. At a time when the independence of the university as a space of learning is being daily threatened, it is more important than ever before to plunge into a module of revamping the old or conventional system of education. My paper will take classroom teaching in universities and colleges as a point of departure to argue for the increasing use and effectiveness of online study portals (Moodle, NoodleTools, alternative blog-spaces, Drop box, etc.) for bringing about an experiential change in current pedagogical practices in India. It will argue for a larger mandate for student participation to supplant old, pre-existing knowledge avenues, in the quest to create a fruitful, hands-on and holistic learning environment, via the use of technology. It will draw on constructivist thinking, to interrogate current classroom praxis and study the schemata underlying present pedagogy, and developing critical cogitation among students.

Keywords: *Higher Education, Pedagogy, Technology, Classroom, Teaching, Study Portals, Research, Constructivism, Interaction*

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HOW TECHNOLOGY CAN TURN CONSTRUCTIVIST AND HELP THE EDUCATION SECTOR: THE ENTWINING OF STUDY PORTALS AND CONSTRUCTIVIST THINKING

- **Debjani Dutta**

Introduction:

The draft National Education Policy 2016 underlines the necessity of a systemic shift in the educational scenario of India. Among its many objectives is the need for a dynamic approach to the teaching and learning process, in keeping with modern advancements in technology enhanced learning (TEL). This is critical, because such new avenues of what can only be called 'non-institutionalized means' is what will foster a new approach to the business of education and further the local and global knowledge economy. Today, the process of learning is no longer restricted to brick-and-mortar classrooms of old, but have widened out in ever-newer spaces – chief among which is the spatial zone of cyberspace. The internet and communication technologies, like computers, laptops, tablets, telecommunication, wireless signals and mobile devices et al, have revolutionized the way in which students of the 21st century acquire scholarship and the myriad modes via which their knowledge acquisition, their powers of assimilation and application, are analysed and interpreted by teachers. The NEP emphasizes, time and again, the need for a free and compulsory elementary education for all children from the age of six to fourteen in neighboring schools and this objective has been given further heft by the passing in 2009 of the Right of Children to Free and Compulsory Education Act.

'The educational activities and learning process are no longer confined to the classroom and, therefore, the domain of education is no longer limited to formal schooling or higher education. The educational process is not only mediated by *classroom-based curriculum transaction but also by media, both electronic and print, information and communication technologies, books and journals etc.*'[i] (emphasis mine)

This is especially noticeable in the higher education sector in India. This sector is moving at a faster pace than ever before. This has led to an increasing need for effective teacher-student interaction, meaningful discussions and classroom practices that can lead to resourceful research in this fervent area of growth. At a time when the independence of the university as a space of learning is being daily threatened, one would argue that it is more

important than ever before to plunge into a module of revamping the old or conventional system of education. There are many ways of approaching the adoption of newer techniques in teaching, as many philosophies of education exist today – some of them being constructivism, rationalism, situated learning, associationism, etc. The scope of this paper extends only to the pedagogical implications of constructivism and also to a brief discussion of e-learning environments and study portals like Noodletools, Drop box, and alternative blog-spaces. The effective and increased use of these tools can lead to an experiential change in current pedagogical praxis, and bring about critical cogitation among both learners and teachers alike, because this process ensures that a student will no longer just be a passive listener, but actively participate to facilitate a two-way information simulation procedure. The subsequent sections will take up each component and discuss them in detail.

What is constructivism?

Constructivism is a theory of learning that defines the nature of knowledge accumulation. This theory holds that humans make meaning out of any given context both by the set of ideas which they encounter in any environment (class, assembly, workplace) and also out of their understanding, their prior experience. The conceptions which they formulate out of a blending of ideas and experience is what underlies the Moodle of learning or theory of knowledge that is constructivism. There are many schools into which this thought is divided, numerous foci, and interdisciplinary approaches. But it was Kant, in the 18th century, who in the *Critique of Pure Reason* argued away the contradictions of rationalism and empiricism when he said that human experience, tempered by the application of reason and innate ideas/thoughts, could actually go towards forming what Fry, Ketteridge and Marshall call 'Moodles of reality' (10). It was Jean Piaget's theory of 'genetic epistemology' (1950) – whereby he posits that as an extension of the evolutionary process, children acquire a two-way process of responsiveness – i) assimilation and ii) accommodation. Along with Piaget, Jerome Bruner (1960, 1966) came up with his cognitive learning Moodle – chief among which was the theorization of 'revisiting knowledge at ever-higher levels of understanding, leading to the idea of a spiral curriculum' (Fry, Ketteridge, Marshall 11) that has been one of the foundations of constructivist thought. If, as Bruner argues, with our daily cycle of knowledge acquisition, whether it be from a social, political, educational, or cultural context, we do go back and test anew our previous ideas about concepts and propositions, we will see that sometimes we change them, or add to them, at times wholly rescind old ideas or maybe reject the new sets we acquired. What it nonetheless promotes and promulgates is a culture of comparison, of weighing previously held theories and opinions in light of new/recent studies and evidence, all leading to a further outpouring of critical disquisition. We then argue and mandate new structures of reading or coming to terms with pre-existing knowledge avenues and we, in this process, help in taking the act of critical enquiry further, among our colleagues, or in classrooms, with our supervisors or students, or in a community of academics, or the media outlet. We test out these ideas, encouraging learners to reconstruct the old information in the

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light of empathizing with new schemes of questioning, and to see how the past is looked through the prism of present thought. This is what *contracts* this line of pedagogy – building blocks of ideations, adapting and discarding, in a continuous learning methodology, which can be explored, I would argue, both via a top-down (revisiting) and bottom-up (encountering and adapting, or Piaget's 'accommodation') process. Again, Phillips argues for a delineation of constructivism into two branches – i) **social constructivism**, and ii) **psychological constructivism** (6). These are two radically different poles and both merit an extended explanation. D. C. Phillips, when he discusses **social constructivism**, states this about knowledge disciplines –

'are human constructs, and that the form that knowledge has taken in these fields has been determined by such things as politics, ideologies, values, the exertion of power and the preservation of status, religious beliefs, and economic self-interest' (6).

This assertion claims that such perspectives as a person holds which is acquired by any political leaning, or an ideological thought process (left of center, extreme right wing, liberal, Marxist) or through an exercise of moral ethics is merely subjective, and can differ from person to person, from one school of thought to the next. These representations of the world are not objective. Students in a classroom come from various backgrounds, with a conceptual framework embedded in each, through which they acquire the pedagogy which a teacher performs, and so their individual modes of accepting a view, when tinged by their prior experience or socially constructed knowledge, will be contrastive and disparate. This is something it would do well for a teacher to remember, and so to try and approach a problem in a way that would allow for a harboring of dissimilar, non-identical, worldviews. Teachers, as facilitators, should always consider ways in which they can bring about a transformation in the knowledge of their students, knowledge that is pre-existing. This kind of molding, I would argue, can foment creativity, when the schema that underlies a student's thought can be changed to incorporate, or at least make space for, new modes of thinking.

The other form that Phillips introduces is that of **psychological constructivism**. As the name suggests, this construct is based on an individual's assessment of the phenomena around him/her, which then leads to the development of meaning making. This is as opposed to knowledge derived from societal underpinnings, because this approach focuses on the way that comprehension is created within an individual mind. I would argue that this process is based on an individual's capaciousness for ratiocination (form judgments by a process of logic or reason) and apperception (the mental process by which a person makes sense of an idea by assimilating it to the body of ideas him or her already possesses). If both these strains of constructivist thought are applied in classrooms, instead of a passive allocation of knowledge, where students take notes, keep mum and pack up at the end of class, one can bring about what I have called an experiential change in teaching methods. Teachers, especially in higher education, should increasingly encourage classroom participation. They should try to perform the pedagogical approach they adopt – constructivism, or rationalism, or any other, for that

matter. If they choose to be constructivist, they can both 'learn and teach' – they can make a classroom student-centric, by respecting and paying keen attention to the domains of knowledge that make up the psychological approach of a student to the act of receiving and partaking instruction. They (teachers) can provide for more methods of argument from students, where a class is not only accepting the teachings of any theory but also actively challenging any assumptions, and in this process contributing further to an ever-widening body of knowledge. It is important, in today's day and age, for a teacher/lecturer to accept that the process of learning also includes *unlearning* previously held views, in the light of new evidence. If, in this process, a teacher can embrace the adoption of VLEs (Virtual Learning Environments), and motivate students to take the process of education beyond the four walls of a classroom, it can only lead to more effective pedagogical praxis, one that helps in supplanting traditional, pen-book-and-blackboard measures of instruction.

Virtual Learning Environments:

The draft NEP states that the Gross Enrollment Ratio (GER) in higher education in India stands at a low percentile, 23.6 in 2014-15. It has set itself a target of pushing up the GER to 25.2 percent in 2017-18 and thereon to 30 percent in 2020-21. The NEP further rues that experimentation and innovations in teacher education remain very limited, that because current training programs have been found wanting in equipping teachers with new-age facilities, there is an acute 'backlog of untrained teachers', as well as 'a mismatch between institutional capacity and required teacher supply resulting in shortage of teachers.' It also notes that use of information and communication technologies (ICT) remains limited and that 'there is a need to accelerate efforts to use ICT for fostering quality education.'

These are noble initiatives, but they must first be put into place and it is the need of the hour that teachers in colleges and universities quickly adopt these new modes, thereby to put themselves in a better position to harness the positivities of VLE and ICT endeavors. In order to take teaching/instruction beyond classroom parlance, teachers should take to making study materials available via such tools as Drop box or Box. These allow for uploading big files, pictures, videos, documents, power-point presentations. Drop box, a service offered by Google, can be downloaded on mobile devices and in one of its new features, it allows for the scanning of any printed text into a digital file, which can then be shared with other users. This allows for inclusiveness and equity in education, benefiting all students in a class equally, because everybody is allowed access to the necessary materials. Feedback on classes, lectures, further teaching ideas, can all be gathered in a singular thread where everybody can holistically participate. Advancements in technology today have also allowed for digital encryptions, which keeps the information being shared and exchanged, secure from malware. Cloud computing today has given us storage solutions, which could not have been previously envisaged. We can store and process our data on Box and Drop box, among other file hosting and online file sharing platforms.

Blog spaces have been around for some time now, but their use for teaching purposes is relatively new in India. Blogging sites like Blogger, Word press, Technocratic, etc. have been used for individual work, but their use for university education is yet to be fully harnessed. Some institutes allow for blogs to be used for the submission of class projects, as I have experience of doing in Jadavpur University. Multi author blogs (MABs) have posts written by a large number of authors. Students can submit assignments via an alternative blog-space (I use the term 'alternative' because in this context blogs are being used as an auxiliary to classroom teaching and also, in this context, related only to educational purposes), which is also open to access by other class members and the lecturer(s). This medium thus becomes a forum for group participation, where evaluation is not only being done by the teacher, but one can also benefit from the inputs/criticisms of class fellows. Teaching becomes intimately interconnected (something that is not easily achievable in a traditional classroom) and a knowledge avenue gets to exist in intricate matrices, where some points can only be understood or explicated in reference to the whole.

The mushrooming of learning management systems (LMEs) like Moodle and Noodle tools has helped in the augmentation of lessons given in a brick-and-mortar environment. LMEs, among other objectives, allows for educational records to be kept online, to track student progress, and also to maintain divers college courses (Moodle – modular object oriented dynamic learning environment). All paperwork otherwise done via long-established methods can now be handled in an LME, for example: course registration, attendance sheets, assignments, evaluation reports, feedback forms, and certain in-built features allow for analyzing student progress through statistical information, that helps in mapping the skills of a broad cross-section of students.

Noodle tools, on the other hand, are a research platform, again one that can be used both by educators and students/researchers alike. It aims to provide its users with a hands-on framework for navigating their project deadlines. One of its facilities allows for the public access of written work, but only if one gives the portal this permission. If one does opt for it, a student will get to benefit from the insights of a community whose members know no bound. It is especially helpful for writing dissertation papers, because it has a built-in Moodle, which ticks all the right boxes, or allows the user to do so. As it proclaims on its site – 'We are educators, citation specialists, primary source authorities, and academic researchers. That expertise is baked into our platform device and services.'[ii] The only drawback to these modern facilities is perhaps the fact that certain services will remain off-limits unless a nominal sum is paid to the company, but that is only the cost of doing business. These study portals are tailor-made for the needs of the modern day educator-student-researcher trio. Moodle also details its pedagogical approach on its Wikipedia page – 'The stated philosophy of Moodle includes a constructivist and social constructionist approach to education, emphasizing that learners (and not just teachers) can contribute to the educational experience.'iii (emphasis mine) Moodle requires some technical knowhow, because it has the added hassle/utility of working

with community plug-ins (in lay terms, a software component with certain specific features that can be added to a computer program) and unlike Noodletools, which can be accessed via the web, for a fuller experience of Moodle it has to be downloaded and installed, which is to say that the person using Moodle should also make themselves familiar with certain database management systems. Once learned, it is easy to use and has user-friendly guides.

Conclusion:

We therefore see that virtual learning environments provide a boost to the armature of the education process. If the government wants to facilitate the use of ICT in schools and colleges, it must make sure that the proper infrastructure is in place and that there is a strong bandwidth of connectivity in education zones. It quite beats the point if the Internet connection fizzes out on you when you are working on an important project in your computer lab. If the NEP can carry out what it proposes to do – 'Courses on the use of ICT as a tool for enhancing the teaching-learning process will be an integral part of the teacher education curricula', then it can be hoped that the higher education sector, which has in the past seen so much neglect, corruption and indifference, will be able to set down academic gold standards in the pedagogical praxis of India.

Notes:

See *Some Inputs for Draft National Education Policy*, for a full discussion of all points relating to this, to be found passim.

http://mhrd.gov.in/sites/upload_files/mhrd/files/nep/Inputs_Draft_NEP_2016.pdf

See Noodletools homepage. http://www.noodletools.com/

See Moodle Wikipedia page, Pedagogical approach. https://en.wikipedia.org/wiki/Moodle

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