(Un)defining Genre: Studying the Writing Experiences of STEM Students with Technical Project Reports in India and the United States

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by

Vijeta Pai

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ABSTRACT OF THESIS

Submitted in Partial Fulfillment of the Requirements for the degree of Master of Arts in English in the College of Social Sciences and Humanities of Northeastern University August, 2015
The purpose of this thesis is to explore what generic features are stable across cross-cultural contexts and which features are in flux. The writing experiences of two Indian students who received their undergraduate engineering degrees in India and their graduate degrees in the U.S. are studied in this thesis. I’m studying two individual experiences of students, with a common background and a common set of research question around the conception and reproduction of the genre of technical project report. As I argue, the ways that international students merge different cultural influences is reflected in their writing and understanding of genre.
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1. Introduction

Writing is a process influenced by academic, cultural and individual responses. There is, according to Charles Bazerman, an “interplay between the existing social worlds writers recognize and orient toward, and the individualized presences and contributions each writer makes through participation in the shared discursive space of the genres” (17). In the technical disciplines, technical writing operates as a dialogue between the writer and the field, negotiating different patterns of knowledge sharing. Scientific, engineering, and technical writing has been studied extensively, with a focus on the influences as well as the outcome of practicing writing within and outside the curriculum. Technical knowledge, according to Poe et al., “emerges from a nexus of interacting people, agencies, materials, instruments, individual and collective goals and interests, and the histories of all these factors” (4). STEM writers place themselves within the larger conversation of their fields, thus determining ways of transmitting knowledge. There is a code under which they operate, with a common goal in mind, influenced by their peers and discourses preceding them using when they shape their perception of the genre of technical
writing. STEM writing isn’t born or developed in isolation but a product of the internal as well as external influences on a student, more importantly, according to the cultural definition given to the genre. Technical project reports are reports written on a scientific or technical topic, highlighting a technical issue/observation, highlighting the problem, process and results borne out of the research. They have different elements like structure, content, writing style and visuals, which students convey through their writing. There is a constant engagement to fit in the larger conversation of peers within the academic sphere, which reflects in the way a technical student chooses to present their work through writing.

It has widely been held that technical communication genres share similar features across cultural contexts. Penrose and Katz mention how science papers “must be written in a way that makes the science accessible, testable, and acceptable to journal editors and colleagues within the field” (12). While the rhetorical purpose of technical project reports, for example, might be similar across contexts, other generic features may differ. Thus, operating within different cultural and academic influences, international students from the field of science and technology find themselves negotiating differing expectations—e.g., design and citation patterns—with the genre of the technical project report. As a result, students develop their writing based on their cross-cultural antecedent knowledge, while engaging in a discourse with their peers and academic requirements to shape their understanding of genre and writing.

A rhetorical genre studies perspective is useful to study this negotiation. Miller calls genre “a mid-level structurational nexus between mind and society” (Miller 1996 71). Students must, according to Bazerman, “draw on their reading, their empirical experience, and their interactions with their peers so as to use the existing symbol system to point to phenomena previously uncontained by symbols but reliably reproducible, recognizable, and persuasive to
peers” (318). There is an additional element of cultural belonging for international students, who attempt at “persuading” their peers by adopting symbols and signs signifying their comfort with the culture they’re trying to fit into. This cognitive development happens at a subconscious level, as they adapt to change, sometimes passively and sometimes aggressively. Writing is a site of struggle, which reflects the way an international student, responds to change; by not merely mimicking the culture they’re getting exposed to, but create a culture of their own. There’s an amalgamation of various cultural and academic influences, where the individual surfaces time-to-time, giving rise to their understanding of the genre of technical writing.

It is, in my opinion, important to destabilize the definition of genre and render it open to investigation if we are to take a cross-cultural perspective on genre. This thinking and interrogation of genre according to Carolyn R Miller, started getting explored with the New-Historicist reading of genres as “cultural constructions that reflexively help construct their culture” (Miller 1996 69). Culture stems from a need to belong and establish an identity with respect to the society. It is useful to look at genres as cultural artifacts, which are open to revision, various interpretations and shaped by individual and cultural interactions. This is what RGS enables us to do, which, in Artemeva and Fox’s opinion, “considers genres as typified symbolic actions in response to stock sets of situation types ”(481). The construction of genre, according to Melzer, depends upon the “audiences for genres, their social exigencies, and how they vary from discipline to discipline and instructor to instructor”(252). Genre can be viewed as a negotiation, rather than an adherence to codified form. Such negotiation stems from responses to various cultural and academic interactions. According to Pare, “Genre’s illusion of normalcy is cracked at certain moments”, and this moment of “crack” is important for genre scholars (61). It’s this moment of “crack” when we view is as a cultural artifact amidst social
flux at the backdrop of the individual. The thesis of my entire paper is based on this crack, which I shall expand into my understanding of genre. It is necessary, in my opinion, to understand experiences of international students in the academic sphere of science and technology where the conception of genre is getting defined, undefined and redefined with each interaction and experience, tailored to for the requirements of their academic and cultural background.

The purpose of this thesis is to explore what generic features are stable across cross cultural contexts and which features are in flux in the cases I study. The writing experiences of two Indian students who received their undergraduate engineering degrees in India and their graduate degrees in the U.S. are studied in this thesis. I’m studying two individual experiences of students, with a common background and a common set of research question around the conception and reproduction of the genre of technical project report. As I argue, the ways that international students merge different cultural influences is reflected in their writing and understanding of genre.

2. Critical Conversations

2.1 Genre and Social Action

According to Bazerman, “Genre is a sociopsychological category which we use to recognize and construct typified actions within typified situations. It is a way of creating order in the ever-fluid symbolic world” (319). Schryer, quoted by Artevema, “developed an argument about the temporary stability of genres by proposing to use genre as a verb: we genre our way through social interactions, choosing the correct form in response to each communicative situation we encounter”(331). It is interesting to look at genre as a verb, which associates it with action and response, rather than a fixed category around which people function. Genre presents
itself as a space where individuals carve their identity and establish order amidst the social flux. In a process of acting out, or performing, individuals perform genre paving their way through a system of signification. They develop signs and symbols, interpreting them as a part of their cognitive process, placing themselves within certain rules as a part of their genre interaction. As analyzed by Miller:

1. Genre refers to a conventional category of discourse based in large-scale typification of rhetorical action; as action, it acquires meaning from situation and from the social context in which that situation arose.

2. As meaningful action, genre is interpretable by means of rules; genre rules occur at a relatively high level on a hierarchy of rules for symbolic interaction.

3. Genre is distinct from form: form is the more general term used at all levels of the hierarchy. Genre is a form at one particular level that is a fusion of lower-level forms and characteristic substance.

4. Genre serves as the substance of forms at higher levels; as recurrent patterns of language use, genres help constitute the substance of our cultural life.

5. A genre is a rhetorical means for mediating private intensions and social exigence; it motivates by connecting the private with the public, the singular and the recurrent. (Miller 1984 163)

Anis S. Bawarshi and Mary Jo Reiff define genre as “complex social actions and cultural objects” (78). They quote Berkenkotter and Huckin to explain how genres are “inherently dynamic rhetorical structures that can be manipulated according to the conditions of use…and
best conceptualized as a form of situated cognition embedded in disciplinary activities” (83).
Genre acts as an intersection between the private and the public for an individual who tries
belonging to a larger social structure, which is constantly in flux. Language, patterns of
expression, signs and symbols all function within the discourse of establishing one’s
individuality within the society. It is a fluid residue of cultural interactions and not a fixed entity,
immune social and cultural influences. Rounsaville mentions how “genres construct and respond
to situation . . . and provide writers with means to recognize, frame, and organize their everyday
rhetorical encounters” (335), which makes genre dependent upon each individual’s personal
experience to situations. She further elaborates how “rhetorical situations and genres are
understood as sites of constraint and creativity, structure and agency, rigidity and flexibility
wherein writers often find themselves wrestling to bring personal intention into a social forum”
(336). Students use genre as a space of creativity and creation of their individuality, which
shapes genre conventions and perceptions. These writers, also called “agents” by Schryer,
struggle between their personal and cultural experiences, in order to produce a piece of work
which would fit in the situation they are experiencing. These situations can either be dependent
on their academic requirements, cultural expectations or catering to a certain audience to whom
their work is addressed.

2.2 Genre, Culture and International Students

An individual is in a dialogue with the genre as they conceive and reproduce it. This is
reflected in experiences of international students as they undergo spatial shifts and negotiate
between various structures. They need to find a space within their pre-existing knowledge and
newly formed experiences, like a child who is developing in school by accumulating knowledge.
Kamberelis, while studying the conception of genre in children, notes how “children's
developing understanding and enactment of different genres are emergent phenomena…

Development is complex, non linear and constitutively related to differential linguistic complexity and abstraction, task conditions, proximal and disal learning experience and other contextual variables” (448). In other words, genre is formed at the intersection of a student’s response to individual and cultural experiences within a community of practice to which they belong. According to Bazerman, “In recognizing and using genre, we are mobilizing multidimensional clusters of our understanding of the situation, our goals, and our activity.” (319). There’s an element of perception, antecedent knowledge and adaptation when we create genre in our mind. “Understanding the genre one is working in is understanding decorum in the most fundamental sense-what stance and attitude is appropriate given the world one is engaged in at that moment” (320). It is important to situate the individual’s engagement with the society, operate within the nexus of various social forces to understand the conception of genre. Schryer further elaborates on this by mentioning that “temporality is always present in social contexts. Agents bring with them memories of past experiences and/or they use already existing structures…to guide them in their interactions with other social agents” (37)

Discipline and culture guide international students belonging to the field of science and technology, where they operate their “situated cognition”. It’s a borne out of a response to cultural conditions. To understand culture, I would like to borrow Miller’s definition of culture as a “‘particular way of life' of a time and place, in all its complexity, experienced by a group that understands itself as an identifiable group” (Miller 1996 68). Cultural belonging, like genre, isn’t a fixed notion and changes for individuals as they try identifying themselves with different groups. Ann M Penrose and Steven B Katz discuss peer review as a mechanism of “gatekeeping” to “ensure quality control by deciding what is acceptable to publish in the field” in science
writing (11). This is similar to the genre conventions a student needs to follow in order to fit within the ‘rules’ set by their peers, which changes with the change in culture and academic settings. An international student tries identifying with his/her peers in the academic sphere, which at that moment in time becomes a part of that person’s culture. That doesn’t mean cultures are mutually exclusive categories, but a site of resistance and acceptance. Genre also behaves in a similar manner in the minds of individuals, where they accumulate signs and perception gained from the culture to which they belong and want to belong to. Artemeva and Fox mention genre as “texts that are rhetorically constructed to meet the expectations of the disciplinary community insiders” (483), where the sense of community and expectations of the “insiders” of that community is prevalent in shaping the definition of a genre. The idea of a particular genre differs according to the community an individual belongs to, which defines the genre for them. An individual may choose to get identified to or fit in a particular group, which defines his/her conception and shaping of genre, which also gets more complicated and interesting for students who have travelled between two different cultures. According to Bazerman,

    going to a place is only the first step, for once you are there you need access and encouragement to engage with particular people in particular roles, use particular resources, and take part in particular experiences and activities. When you start writing in those genres, you begin thinking in actively productive ways that result in the utterances that belong in that form of life and you take on all the feelings, hopes, uncertainties and anxieties about becoming a visible presence in that world and participating in the available activities (14).

This is useful for international writers or students who function at the intersection of multiple cultures, multiple different forms of life and academic expectations. According to Rounsaville,
“transnational writers… Often negotiate shifting discourses of language ideology, national educational policies, and nationally territorialized identity categories “ (356). They have a certain conception of time and space, which may shift with their physical act of shifting places, forming a part of their learning experience in the new culture they are trying to equip themselves to. This is evident in their use of language, expression, structure and a constant negotiation to fit in the two cultures they have been exposed to. There is a constant creation of identity in their writing experiences, validating their sense of belonging to a new culture, while trying to engage in the cultures they are rooted to. The feeling of wanting to fit predominates their shaping of the genre, which I shall explore in this paper.

2.3 Genre Learning in the Disciplines

According to Bazerman, “the regularized symbolic practices define the symbolic universe within which the community operates; and the degrees and kinds of restrictiveness within these practices define the directions and dynamics of growth for the knowledge to be produced by the field” (321)⁶. Poe et al. mention in their study that "students develop as writers through engaging in a range of professional tasks and from a range of potential readers" (79). The idea of genre as a “developing” cultural artifact renders it open to revision and investigation. There’s an element of social interaction and awareness of “potential readers”, making genre a dialogue the individual has with his/her cultural surroundings and the larger disciplinary sphere. According to Alan Gross, “although the general progress of scientific knowledge relies heavily on the relative subordination of individual efforts to communal goals, the career progress of scientists depends solely on recognition of their individual efforts at discovery (165). The individuals place themselves within the larger community of practice, establishing their identity in that culture and gaining recognition for their work. The individual and the society, are both important in shaping
the genre of technical writing. The idea of easy language, clear structure and deductions is central, in the opinion of Penrose and Katz to scientific writing. This however presumes the idea of a common “field” of science and technology, independent of cultural influences, which I contest in my paper by studying writing experiences of the same students in different cultural and academic settings.

2.4 Structure of Technical Writing

Genre is a representation of social activity and culture, which for students is a space to place themselves within the society. The study of language within scientific disciplines has been widely explored, in order to study the development of students and teachers. Postman and Weingartner quoted by Jerry Wellington and Jonathan Osborne felt that the “key to understanding a subject is to understand its language” (3). A discipline, according to Postman and Weingartner “is a way of knowing” which is “inseparable from the symbols (mostly words) in which the knowing is codified”(3). Writing in the discipline of science does function differently in the way it functions in humanities, with the importance given more to facts and quantitative data, but language does play an important role in defining the discipline.

According to Luc Pauwels, “visual literacy in science communication is defined broadly to include that which occurs among scientists as well as the mediated communication that occurs from scientists to the public” (267). They call is “information literacy” or ways of conveying comprehensive information to the readers through the medium of the diagram (267). According to Penrose and Katz, “the use of visual technology in scientific research and communication is by no means ornamental or cursory… visual technologies are deeply embedded in the sciences” (45). Wellington and Osborne explain how verbal and written words and important in science, but communication happens at various levels including diagrams, animations, graphs, images
etc. where certain words may not have the same significance as they do in other disciplines. They focused more on the teaching of science than writing, but it is important to my study to understand the way technical students use language in their projects, in order to understand the conception and reception of genre.

2.5 Science and Technology in India

Science education in India is central to my thesis, as I attempt to understand experiences of students who have transitioned between the Indian and the American education system and culture. Science and Humanities in India are viewed as mutually exclusive disciplines, with very few interdisciplinary study options available to students. Technical education can either be at the Bachelor’s, Masters or Doctoral level and the degree is awarded in Technology. For this paper, I have recruited two students who have their BTech (Bachelors in Technology) from India in the field of Computer Science and Electronics. Technical fields are broadly classified under Computer Science, Electrical, Mechanical, Chemical or BioTechnology. There are sub-categories to those, but these are the major concentrations for the Technical degree. There’s hardly any flexibility with the course selection, and students have to select their concentration at the time of their admission into the University. Each concentration has a set of courses related to their concentration, and there are hardly any inter-disciplinary courses as a part of the technical education. A major portion of the marks is given based on a written exam (around 75%), and the rest on internal assessment throughout the semester. This puts a lot of weightage on the final examination, which tests skills and problem solving abilities of the students based on their concentration. Marks are given either in percentages or GPAs, which may be based on individual performance or relative. The recruits for my paper got graded on their individual performance in the form of percentages.
Writing isn’t considered a major part of technical education in India, although students have to submit technical project reports and assignments for some technical investigation as a part of their writing projects. Most of the assignments are hand written, with emphasis placed on handwriting, presentation and diagrams. The materiality of the text plays a major role in shaping the genre of technical project reports in India, where a lot of attention is given to the handwriting, binding, material of pages used and the overall presentation.

For the scope of this paper, I only included projects typed out by students, but the notion of presentation still influences the way Indian students conceive scientific and technical writing. Due to the material nature of the written work and attitude towards writing in the field of technology, citation and plagiarism are overlooked in most of the cases. The cultural and academic background, as well as the attitude of technical scholars towards writing in India, is important in understand the experiences of students whom I’ve chosen for my case study.

3. Methods

3.1 Case Study Methodology

For this paper, I decided to use case study methodology to study the way students treated the notion of genre based on their experiences. Jennifer Rowley describes case study as “an empirical inquiry that investigates a contemporary phenomena within its real life context, especially when the boundaries between phenomenon and context are not clearly evident” (18). She explains that case studies can be either holistic or embedded. As conceptualized by Rowley, “Cases need to be carefully selected so that they either produce similar results (literal replication), or produce contrasting results but for predictable reasons (theoretical replication)” (21). The case study method uses the full set of procedures needed to do case study research.
This includes designing the research goal, establishing the cases, collecting the data, analyzing the data, and presenting and reporting the results. The cases to be studied for the case study (which in my case are multiple units of analysis) are directly relevant to the group the researcher wishes to study to establish the research goal and answer questions.

One of the biggest questions faced while using the case study method is that of “generalization” which isn’t possible while using data gathered from two writing samples and interviews. It is important to understand the questions and purpose of using specific examples to make a general statement, which in my case revolved around the definition and fluidity of genre. It is wise to refrain from generalizing specific finding to make a universal statement, and attribute a part of the finding to an individual’s personal experience and reception. According to Rolf Johansson, there are various modes of generalizations and reasoning within the case study methodology, explained in Figure 1.
I chose the “deductive” mode where my “hypothesis was formulated and testable consequences were derived by deduction” (Rowley 21). My hypothesis was based on my understanding of the fluidity of genre, viewing it as a space where several individual, cultural and social forces meet, which I tested with multiple case studies (two students who fit into the background of my study), followed ultimately by the validation of a theory for the particular individual experiences I studied.

3.2 Participants
I decided to carry out case studies of two students, VB and KP, who got their education in Science and Technology in India and the United States. Both the students were selected in compliance with the IRB protocols and recruited based on their exposure to two different cultural and academic settings within the field of science and technology (Appendix B). The two participants were recruited through personal correspondence, based on convenience sampling. I wanted to work with two students falling in the age group of 23-25 years, who had studied Science and Technology both in India and the United States. The participants recruited were students who pursued their Masters in Technology in two different universities in the United States (Northeastern University and University of Colorado Boulder) after having completed their Bachelor’s degree in Engineering/IT from the University of Mumbai, India. The students were Indian citizens who had come to the United States to pursue their Masters in Science. They were recruited through an email sent to them, describing the nature of their participation followed by their consent (unsigned) to participate in the research (Appendix C).

3.3 Data collection

I collected two work samples, one written in India and one in the United States and carried out brief interviews to follow up on the writing samples to understand the writing experiences of KP and VB in both the settings.

3.3.1 Writing samples:

The writing samples collected were technical project reports written in India and the United States. I collected one sample in each context (one written in India and one in the United States) and compared the two writing samples.

Table 1 gives a brief overview of the writing samples collected by me for my study.
<table>
<thead>
<tr>
<th>Student</th>
<th>Paper</th>
<th>Title</th>
<th>Purpose</th>
<th>Audience</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>VB</td>
<td>Paper 1</td>
<td>Itinerary Management System</td>
<td>To develop a guiding solution based on the B+ Trees Algorithm to prepare an itinerary for tourists</td>
<td>Professors from the University of Mumbai</td>
<td>36 pages</td>
</tr>
<tr>
<td>VB</td>
<td>Paper 2</td>
<td>Bitcoins and it’s Legal, Ethical and Professional Issues in Information Security</td>
<td>Investigating security concerns around bitcoins and ways to mitigate those risks</td>
<td>Professor from Northeastern University</td>
<td>20 pages</td>
</tr>
<tr>
<td>KP</td>
<td>Paper 1</td>
<td>MPLS Security Concerns and Mitigations</td>
<td>Security risks of MPLS Technology and ways to mitigate risks for users</td>
<td>Professor from the University of Mumbai</td>
<td>12 pages</td>
</tr>
<tr>
<td>KP</td>
<td>Paper 2</td>
<td>Traffic Maintenance, Anti-theft car system, and Document verification using ZigBee Technology</td>
<td>Using Zigbee technology for automobile safety and identification</td>
<td>Professor from the University of Colorado, Boulder</td>
<td>17 pages</td>
</tr>
</tbody>
</table>
The first sample collected by me, titled “Itinerary Management System” is a project report, written by VB as a requirement to his completion of the “Bachelor of Engineering” degree in “Information Technology” from the University of Mumbai, India. The second sample is another project report by VB titled “Bitcoins and it’s Legal, Ethical and Professional Issues in Information Security”, written for the completion of a core course for “Masters of Science” degree in “Information Assurance” from Northeastern University, United States.

For KP, I collected a project report titled “MPLS Security Concerns and Mitigations” written in India as a part of his “Bachelor of Engineering” assignment, which he pursued at the University of Mumbai. The second sample is a project report titled “Traffic Maintenance, Anti-theft car system, and Document verification using ZigBee Technology” written for a course undertaken during his “Masters of Science” degree in “Electronics and Telecommunication” from the University of Colorado, Boulder.

This was followed up by the interviews, which asked the students a bit about their experience writing these reports.

3.3.2 Interviews:

The interviews focused on presentation, nature of writing and plagiarism, to get a clearer sense of how these were treated in both the countries VB and KP studied. I worked with each individual for a semi-structured qualitative interview (30 min.) via private email, stored in an encrypted file. The purpose of these interviews was to understand the writing experience of each student in both the different cultural and academic contexts, including their reflection and perception on the genre of technical project reports. The interview allowed me to conduct a conversation with VB and KP, and was held at a time convenient to both of them. They were
taken after analyzing the writing samples, to follow up on my analysis and understand how the participants conceived and reflected the notion of the genre of technical project report as they moved across two different cultural and academic settings. The interviews were semi-structured and were centered around the differences felt by both VB and KP in their writing experiences in the two contexts, and an inquiry on the structure of their writing samples. The list of interview questions has been attached to Appendix B.

3.4 Data analysis

I attempted to note the similarities and differences in two ways: (1) in the individual experiences of KP and VB And (2) by cultural context.

The writing samples for each individual participant were studied first with a close reading of differences and similarities in the structure, language, expression and format. I also did a distant reading using Voyant in order to count the number of expressions and words used in each paper for each student, to notice if there was a change in the use of voice or tone. To understand the construction of genre, I worked on destabilizing the notion of a common structure, tone, use of diagrams and format, constituting the genre of a technical project report. I wanted to see the differences between the two writing samples and how RGS can help me understand the cultural production of this genre of Technical Project report better. Artemeva and Fox attempt at placing themselves within the conversations on “connections between students cumulative prior knowledge and their ongoing experiences with or within a discipline over time and in relation to their ability communicate through the genres of that discipline” (478).

The interviews were analyzed in conjunction with the writing samples to understand if VB and KB were aware of their reworking of the genre of technical project reports through their
writing experiences. The interviews were started to get a basic understanding of both VB and KP’s experience with technical education in India and the United States, as well as their experience writing in both these education systems. They were analyzed keeping the writing samples in mind, and viewed as a follow up to the writing samples.

4 Findings

4.1 Structure of the Technical Project Report

The writing samples collected from VB and KP were written in India in 2011, and the samples written in the United States were written in 2013.

The project report written in India by VB was visually rich with borders and non-standardized font, with colorful diagrams and different font styles for headings. This was very different from the writing sample written by VB in the United States, which contained standardized font throughout the paper, standard margins, and diagrams only to substantiate certain observations. Figure 2 and Figure 3 are examples of my observation, and this scheme was followed throughout the project.
9. LITERATURE SURVEY

This chapter of the report basically deals with “what is itinerary” and what it means exactly to our application.[5]

ITINERARY

Itinerary may include geographic location, transport, shopping, dining, or any other information of tourist spots limited to a particular area. An itinerary may also solely refer to the way of getting from one place to another. The term “itinerary” in this report is confined as the one that tourists can rely on during their stay in Mumbai.

2.4 INFORMATION GATHERING

Many different options are available to the tourists to know about, the places to visit and attractions nearby but they may not suffice their need of subject to change. Books like “Lonely Planet” have been used since years but with changing times, the people also these days may not buy this book, instead they may prefer visiting sites or just get an info on the go through a mobile application. Thus this information was assessed and best possible info was incorporated.

2.2 TOURIST SPOTS INFO

Mumbai is one of the most busiest cities in the world segregating all the spots of attraction which would be interesting as a tourist spot was an enormous task. Maharashtra is a state which has been promoting tourism since many years. Through its website(MITEC) we accumulated most of our data regarding spots and also other related things. We also got information of shopping spots, heritage spots differently. Also travelguru site helped us in gathering this part.

Fig 2- Structure of VB’s Writing sample from India

by storing cash in a wallet known as the bitcoin wallet. Technically speaking, we need to store the secure digital keys to access the Bitcoin addresses and sign transactions. This information would be stored in Bitcoin wallet which we can use to make peer-to-peer cash transactions.

THESIS

Bitcoin is decentralized, lacking the intervention of a central force and thus can involve with lot of security issues. Since financial institutions don’t get involved, they even face legal, ethical and professional issues in the implementation of information security. In this topic, I will be discussing the transaction functioning of Bitcoins and the use of Bitcoins in actual world. I will also be discussing the various obstacles involved while dealing with Bitcoins which deter its advancement into a feasible reality. I will further discuss how few steps we can take to increase the security and the practical deployment of Bitcoins.

HISTORY BEHIND BITCOINS

A. 2008: Satoshi Nakamoto proposed the idea of Bitcoin protocol which came into existence in 2009 year with the release of first Bitcoin client and issuance of first Bitcoins.
B. 2009: A major vulnerability was exploited due to the existence of dual address associated with the same Bitcoin address over the network. So a user can create indefinite number of Bitcoins.
C. 2011: Bitcoins began to be accepted by Wikipaids and other organizations.
D. 2012: Every important Bitcoin clash got submersed by New York State Department of

Fig 3- Structure of VB’s Writing sample from the United States
Similarly, I studied the index page created by VB in both his project reports, and observed a stark difference in the format, font style and presentation. The Index written for the project in the United States was plain, in a standardized font, whereas the one written in India relied a lot on presentation (Figure 4 and Figure 5).

Upon being asked why his report from India had different font style and margins, VB felt that his audience, or the teacher influenced most of their writing. On inquiring how he got to know about this teacher’s expectations, he mentioned that this inference was concluded after observing his grades on the previous papers. There was no explicit instruction by the teacher during the classes, but the observation was made after getting grades and interaction with his peers (whom he mentioned as his “classmates” and “seniors”).

Fig 4- Index of VB’s Writing Sample from India
The influence of peers in shaping STEM writing, explained by Penrose and Katz is reiterated in VB’s understanding and action VB:

Me: “Why did you use different font styles and margins in your writing in India?”

VB: “Presentation in India was more important than content. We had to make it look attractive”.

Fig 5- Index of VB’s Writing Sample from the United States
It is interesting how the structure for the technical project report was dictated by the expectations of the peers, classmates and teachers and VB had tacit knowledge of that. KP also underwent some changes and modifications in his writings, influenced by the expectations of his peers and teachers. Unlike VB, KP did not use elaborate margins and fancy font, but highlighted important lines in his writing sample from India (Figure 6).

1. Introduction to MPLS

Multiprotocol Label Switching (MPLS) uses labels to forward packets to the destination. The forwarding decision is completely based on the contents of the label [1]. The forwarding router does not examine the entire packet, making the technique protocol independent [1].

When the packet enters the network, the Label Edge Router (LER) will take a decision regarding how the packet should be forwarded in the network [2]. A group of IP packets, which are forwarded in a similar fashion are referred to as Forward Equivalence Class (FEC) [2]. After the decision is made, a stack of labels is assigned to the packet between the IP header and the Ethernet header [2].

The LER forwards the packet by assigning it some label. When the packet reaches the Label Switching Router (LSR), the LSR checks its information base and swaps the incoming label with the outgoing label. When the packet reaches the penultimate router, the LSR removes the label and forwards the packet to the LER. This helps in preventing one label lock up for every label switched path and saves lot of CPU memory in case of heavy MPLS traffic.

MPLS uses Label Distribution Protocol (LDP) to release and distribute information about the labels to other peers in the network [3]. The LSRs form LDP sessions between them and exchange label information. Each LSR informs other LSR about the label bindings [3]. Using this information the LSRs form a label switched path. It is referred to as hop-by-hop forwarding [3].

MPLS also uses Traffic Engineering (MPLS-TE) for efficient utilization of bandwidth [4]. Sometimes, while the packet is forwarded, if the bandwidth available is insufficient the packet is dropped. TE can thus be used to provide guaranteed bandwidth within the network before the packet

Fig 6- Structure of KP’s Writing sample from India

This was clearly missing in his writing sample from the United States. Upon being asked why he highlighted words in his report submitted in India, he answered

“The teachers did not spend a lot of time reading every word, and I wanted to highlight the important points for marks”
This threw light on the treatment of technical and scientific writing back in India, elaborated earlier in the paper, where writing isn’t considered a major part of scientific and technical education. Grades, for both VB and KP played a major role in determining the structure of the technical report. Grades, in their opinion was a method of communicating expectations, according to which they modified their writing.

The report written by KP in the United States, had a clear “Abstract” and “Keyword” section in italics, which was missing from his writing back in India (Figure 7). Similarly, there are page numbers on the right hand side of the page in KP’s reports written in the United States, which is missing from his sample written in India.

![Abstract](image)

Fig 7- Structure of KP’s Writing sample from the United States

Upon being asked why he felt there was a “difference in [his] style of writing in the United States?”, KP answered:

“Because that’s what my friends, TA and Professor want to look at and grade me”
This was interesting in understanding the nature of his writings in both these countries, which commented on the fluidity of genre. Grades, as mentioned throughout the interviews played an important role for both VB and KP in shaping the structure of the technical project report in their mind. It is also interesting that both VB and KP submitted a writing sample which they considered “good” due to the good grades given by the Professor. VB got a grade of 65/100 in his project report written in India and A- in the project report written in the United States. Similarly, KP got a grade of 62/100 in his project report written in India and A in the report written in the United States. Any number greater than 60 is considered excellent according to the standards set by the University of Mumbai, due to which both VB and KP considered these samples an example of good writing. There was no mention about the quality of the writing sample while recruiting participants and asking for the project reports, but both the students felt confident giving a sample which was approved by their professor in the form of a good grade. These samples have to an extent understood the expectations of the Professors and the peers and created conventions for the students based on which they structure the genre. VB and KP, both from a similar cultural background, structured the genre of technical project report based on the expectations of the person reading the project. The evaluator of the project placed more emphasis on presentation and font styles in India as compared to his evaluator in the United States. The Professors place more importance in their idiosyncratic rhetorical expectation than the larger disciplinary convention, which goes on to emphasize how genre, for the Professors, is individualized. This could also be due to the nature of most of the assignments and writings in India, which as mentioned by me earlier, are handwritten, where emphasis is placed on handwriting, neatness and presentation. The design choices and structure for both VB and KP destabilize the notion of a genre having a fixed structure and design, which changes from person
to person, based on the culture and academic setting to which they belong, as well as their audiences (in this case the Professors). Instruction and expectations aren’t always spelt out explicitly, but through the act of grading, gaining recognition and appreciation.

4.2 Citations

Apart from difference in the structure of the reports, there was a stark difference in citation in both the samples collected from VB and KP. In VB’s sample from India, we don’t see any in-text citations and only a reference page at the end of the report (Figure 8). The citations don’t refer to any particular line, and we don’t see any quotation marks, page numbers or any form of in-text citation. They are also all webpages.

This is very different from his citation in the writing sample from the United States, where facts taken from other sources are cited in the Footnotes (Figure 9).

<table>
<thead>
<tr>
<th>REFERENCES</th>
</tr>
</thead>
</table>

Fig 8- Citation used by VB in his sample from India
Although both the samples written by VB use websites for reference, there’s no clear indication about the lines/words/thoughts taken from each website due to the absence of in-text citation in his sample from India. The reference section is used more for pointing the readers towards more information, than citing sources for thoughts, ideas or facts used in the project.

KP also used websites as sources for both the papers and used citation in a similar format. The sample from India has a list of references at the end without any indication to the ideas or facts borrowed from that particular source. We see numbers used in the text (Figure 8), but the numbers are repeated throughout the text and the websites at the end are very general, and I
couldn’t understand what he took from those particular websites for his paper. This was very different in his sample from the United States which had clear in-text citation and quotes in quotation marks with references used in the endnote. The following conversation with KP threw light on how citation is also characteristic in defining any genre, which differs with difference in cultural and academic settings.

Me: Is there any change in the way the issue of citation and plagiarism is addressed in the United States?"

VB: “Yes…in india I never heard about this word called plagiarism. United states is more concerned about the research work of the students and the way u present your research in the form of citations”

Although this seemed to be a minor issue in understanding the genre of technical project report, the lack of importance given to plagiarism and citation complicated the structure of this genre. The line “United States is more concerned about…the way u present your research in the form of citations”, highlights the presentation aspect of this genre, which differed in the two different academic contexts in which it was written. Research, according to VB was “presented…in the form of citations” in the United States, which hinted at the importance given to citation in the research presented by VB. He mentioned how references weren’t just mentioned towards the end of the project to form a list, but used to present the research work undertaken in producing the report. This was very different from his experience back in India were citations, as mentioned by him in the follow up interview were “added on” after the paper was written. KP mentioned they were merely encouraged to “copy-paste” and “cite the website” at the bottom of the paper and “marks were given on handwriting” in India. Although this report wasn’t handwritten, the common practice in Indian Technical Universities still dominated the thinking of the Professors.
A part of the problem faced by Indian Universities with respect to plagiarism can be due to the assignments submitted on paper (handwritten) rather than in print. This makes it difficult for the university to use anti-plagiarism software on the assignments, which they continue applying even to typed projects. This thinking, mentioned earlier in Section 2, makes plagiarism less important than the facts and findings, and in VB and KP’s experience, to the presentation. This finding was interesting in commenting on the cultural and institutional construction of the genre of science writing and the difficulty faced on trying to define it within a set of rules and patterns. Upon being asked why KP’s citation numbering wasn’t consistent, had duplications and didn’t give us a clear idea about what was taken from the website mentioned in the endnotes, he answered

“I didn’t really care about that, because my teacher didn’t mind”

Table 2 shows a comparison in the citation formats for the samples written by VB and KP.

Table 2- Citations

<table>
<thead>
<tr>
<th>Student</th>
<th>Paper written in</th>
<th>Number of Citations</th>
<th>Type of Citations</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>VB</td>
<td>India</td>
<td>9</td>
<td>0 in-text citations</td>
<td>None (Just a list of links at the end of the project)</td>
</tr>
<tr>
<td>VB</td>
<td>United States</td>
<td>28</td>
<td>19 in-text citations</td>
<td>IEEE</td>
</tr>
</tbody>
</table>

9 References at the end of the project.
This not only shows the difference in the citation format alone, but in the way citation comments on the nature of this genre. Citation was used differently by both the students in both the countries, based on the expectation of the Professors and the academic institution. The interviews and close reading of the writing sample threw light on the involvement of the individual, society, cultural and academic settings in shaping the notion of genre of technical project reports. The elements of this genre differed not only from student to student (VB and KP), but also in the experiences of each individual student as they transitioned between different academic and national cultures. The awareness of the Professor, or peers was predominant in the way their writings were shaped, and so was an unconscious need to fit within the newly exposed culture and academic setting, which influenced their writing.

4.3 Diagrams

The use of diagrams is essential in STEM writing, especially in the field of technology, and there are a lot of diagrams in all the four writing samples collected. Penrose and Katz mention how “visual technologies are deeply embedded in the sciences” (12), and they are not
just add-ons but as much a part of technical writing as words. There is however, a difference in the purpose for which the diagram was used, for both VB and KP in the different contexts. The diagrams drawn in the project reports in India seemed to communicate on their own (Figure 10 and Figure 11), whereas the diagram used in the sample written in the United States was used to substantiate a claim explained in words (Figure 12). This echoed Wellington and Osborne’s claim that “there is far more to science communication than verbal language, i.e. the spoken and written word” (67) viii.

![Diagram](image.png)

**Fig 10- KP’s Diagram from the sample written in India**
Fig 11- VB’s Diagram from the sample written in India

Proof-of-Work

It is not viable for us to maintain the entire data of transactions without involving the third party like banks, financial institutions etc. This is where timestamp server comes into picture. But this timestamp server needs to be incorporated within the working of the system which can be done by using proof-of-work. For our timestamp network, we implement the proof of work by incrementing nonce in the block until the value is found that gives the block’s hash zero bits. As later blocks are chained after it, the work to change the block would include redoing all the blocks after it. This can be very clearly illustrated in the diagram below.

Fig 12- KP’s Diagram from the sample written in the United States
Diagrams depicted concepts, the way the flowchart functioned in Figure 11, which was used in lieu of a written paragraph to explain a process. Figure 13 (report written in the United States), however, explains the process or the concept first and then has the diagram to accompany the written paragraph. Diagram in Figure 13 isn’t used in lieu of the written word, the way we notice in Figure 11 and Figure 12. This further complicates the genre of Technical Report writing, which may not necessarily use diagrams in the same sense highlighting how genre conventions and rules are subject to modification and interpretation by each individual. KP’s representation of diagrams in the Indian report was colorful, making the project visually appealing. The visual appeal in the Indian samples for both VB and KP jumped out to me, which was in stark contrast with their sample written in the United States. This is interesting when we consider traditional genre theories, which look at diagrams serving a single purpose uniformly. As we see in the samples written by VB and KP, diagrams are used to serve different purpose, where it is sometimes used to communicate on its own, and sometimes to substantiate facts written in words. The rhetorical purpose behind using the diagrams was different for the students in both the contexts, where the diagrams used in the samples from India were more descriptive and spoke for themselves, whereas the diagrams used in the samples from the United States were short, and often used to substantiate some observation or fact already written down in words.

4.4 Words and Expressions

I did a distant reading of the writing samples one by one, by entering them in Voyant. The distant reading analysis showed “I”, “believe”, “feel”, “know”, “think” in abundance in the writing samples written in the United States, which was missing completed from the samples written in India. Table 3 gives an idea of the usage of “personal voice in the samples.
### Table 3- Words and Expressions

<table>
<thead>
<tr>
<th>Student</th>
<th>Paper Written In</th>
<th>Usage of Personal Voice</th>
</tr>
</thead>
<tbody>
<tr>
<td>VB</td>
<td>India</td>
<td>“Feel”- 0 times</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Believe”- 0 times</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Know”- 2 times</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I” and “we”- 7 times</td>
</tr>
<tr>
<td>VB</td>
<td>United States</td>
<td>“Feel”- 0 times</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Believe”- 0 times</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Know”- 57 times</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I” and “we”- 79 times</td>
</tr>
<tr>
<td>KP</td>
<td>India</td>
<td>“Feel”- 0 times</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Believe”- 0 times</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Know”-0 times</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I” and “we”-0 times</td>
</tr>
<tr>
<td>KP</td>
<td>United States</td>
<td>“Feel”- 143 times</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Believe”- 142 times</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Know”- 0 times</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I” and “we”- 0 times</td>
</tr>
</tbody>
</table>
This finding hinted at an active engagement of the writer with the use of active voice and expression in the project from the United States, which was either missing or very less in the samples written in India. KP doesn’t use any active voice throughout his sample from India, but we see a spike in the words “feel” and “believe” in his sample from the United States at 143 and 142 words each. Similarly, VB uses “know”, “I/we” very sparingly in his paper from India but very frequently in his sample from the United States. In other words, two samples written by the same person in different cultural and academic settings differed in style, structure, expression and format. This destabilized all the elements used to establish the genre of technical project report as a fixed category, which evidently differed not only from student to student, but also in writings by the same student in different cultural and academic settings. Upon being asked how KP felt his writing in the United States and India differed in style and expression, he mentioned that he felt it was “expressive” as compared to the writing in India, which he felt was “formal”.

VB gave the following response to the same question asked:

“writing has encouraged me to do more research work, surf more sites to get to my assignments done… I can put forth my ideas with this research in a more constructed manner because of good writing skills. Writing in United States is expressive I believe”

I followed up by asking him

“Why do you feel your writing in the United States is more expressive”

to which he answered

“I don’t just cope past. I write my own thoughts and research”
This substantiated by finding in the work samples where both KP and VB used a lot more “expressive” and engaging words in their projects written in the United States, clearly missing in the reports written in India. There was a conscious awareness felt by both VB and KP on the change in their writing style and active engagement with the audience reading or evaluating their writing. The writing samples and interviews highlight the ways in which the structure, citation, use of diagrams, words and expressions differed not only within the same genre of technical project report, but for the same individual as well.

4.5 Writing Support Beyond the Classroom

KP and VB said the University of Mumbai in India didn’t have a writing center. Students weren’t encouraged to improve upon their writing or devote time to writing. This was very different to the way their colleges treated writing in the United States. VB was asked to visit the writing center thrice in the last two semesters, which he did, and called it a “very good experience”. He claimed they “help you out in putting forth ur idea in a sheet of paper” and he can now present his thoughts in a much more “constructed manner”. Likewise, KP was asked to take a compulsory course on writing in the first semester. He explained that the course helped him learn a lot and that he can now focus more on his research and findings than worry about “grammar and writing.” He felt that “grammar and vocabulary took a back seat” in his writing assignments in India as compared to the importance given to even the minor details in writing in the United States.

Writing Center influenced both KP and VB in shaping their genre conventions, where they picked up various expectations, change in the tone of writing and expressions through their experience at the writing center. Although both of them expressed a reluctance in visiting the writing center or undertaking the compulsory writing course, for which KP had to pay a two
credit course fee, they noticed a change in their writing style, pattern and confidence after their encounter with the writing center.

5. Conclusion

5.1 Genre and the Individual

My intent in this paper has been to add on to the ongoing research on genre theory and understanding genre as a social and individual construction, rather than a concrete category. Carolyn Miller’s mentions how “genre can help account for the way we encounter, interpret, react to, and create particular texts” (Miller 1984 151), and genre isn’t a fixed form, but a fluid residue borne out of an individual’s social and cultural interactions. This is very evident in the way KP and VB interact with and respond to the genre of technical project report, where they shape the genre based on their interactions and cultural influences. A discipline, according to Postman and Weingartner, “is a way of knowing,” which is “inseparable from the symbols (mostly words) in which the knowing is codified” (3) and it is important to view VB and KP’s writings in the light of the discipline, culture and academic influences under which they were produced. It is important, according to LeCourt to indulge in a more critical approach to:

“(1) recognize the continual conflicts currently being played out within the discourse
(2) examine the influence of wider social discourses on their construction
(3) interrogate how a discourse's constitution is both productive and silencing”
(397)

It is clear from the observations and findings that VB and KP’s construction of the genre of Technical Project report was borne at the intersection of a pre-conceived notion of the genre, academic as well as cultural influences and produced as a response to the peers or the readers. Genre acquisition, according to Artemeva and Fox, isn’t always from having genre rules spelt
out, but, as we observe with both and VB and KP, “with or without explicit instruction” (482). VB has been aware of what his Professors liked or expected, either from the Professor’s responses or from his interaction with his peers and other students who were already a part of the discourse community in which he had to function, and this shaped his conception of the genre. KP on the other hand mentions a similar sentiment in shaping the form and content of his writing, which also changed as he undertook a compulsory writing class in his first semester to adapt to the new form of writing in the United States. As quoted by Bazerman, “John Dewey and George Herbert Mead argued that the need to gain some sense of how others will perceive us and our actions, so that we can regulate and direct our actions, motivates our sense of ourselves.” (20). This is important in understanding VB and KP’s personal experience with writing the Project report, where the transition from the title of a second language English speaker to the need to belong in a very different cultural and academic environment in the United States drove their actions in creating the genre.

5.2 Genre Acquisition and Development

As the case studies in this paper highlight, learning to write and writing within the sphere of science and technology, for both VB and KP has been a process operating at the intersection of their cultural and educational influences. They acquire the genre of technical project report by performing within their cultural and educational sphere, sometimes through the act of presenting their writings in a certain format, and sometimes by taking classes and writing courses. Artemeva and Fox mention how “situated performance itself is a primary vehicle for genre acquisition”, and it is through the act of performing that VB and KP define the genre of technical project report for themselves (497). We cannot get the individual out of genre acquisition, as it is very
clear that VB and KP perceive and anticipate responses of their Professors and peers, which make them perform their writing of the genre in a certain way.

5.3 Genre and Teaching

As observed in the writings by KP and VB, elements like visuals and index don’t always serve a common purpose, and it is futile to make generalizations within any genre. One of the most important observations in most the case studies, in my opinion, is how each student ‘learnt’ the genre and the act of writing within a genre within and outside the classroom, based on their perception and understanding of their culture and peers. Nowhere in the interviews did VB or KP mention that they were instructed to write in a certain way, but they were always aware of what their Professors and peers give value to and grade well. International students have to prove their proficiency in English as a second language, which is considered a vital part of their admission and included in their graduate forms. They need to appear for standardized tests, give written and oral examinations to validate their proficiency in written and spoken English, especially if they are from the field of science and technology. The struggle to fit into a new system begins right from the time they apply to a foreign country, which is evident in their cognitive development, and development of their writing within their field. The genre of technical or scientific writing is very different in India and the United States due to the treatment of the discipline of Science and Technology in both these countries, and it is necessary for Professors to evaluate writings of each student differently, based on their individual development and influences. Poe et al mention that:

“When engineering and science faculty make their tactic knowledge known, it is worthwhile to present that knowledge as standards widely held by the professional community rather than idiosyncratic beliefs from one instructor” (191)
There must be, according to them, a “potential for students to contribute to the development of standards and “own” the criteria on which their writing is judged” (191). Students must not feel bound by the rigid notions of a genre, but understand their writing as an organic process, which changes, shifts and develops to make their better communicators in the field of technology. Professors must mentor students, especially international students in the field of technology, to make sure the structures and rigid notions of genre don’t intimidate them, or lose confidence based on the way they’re evaluated. Technical or scientific writing should be aimed at making students better communicators within their field, and efforts must be put at developing their writing by understanding it as a act in progress. Writing assessments are most fruitful if evaluated continuously, as the student progresses in their degree and carves a genre for himself/herself.

5.4 Lessons from the Genre(s)

Genre is a residue borne out of various interactions between the individual and the society, a cultural artifact open to interpretation and not just a fixed entity closed to revision. The genre of a technical project report for both VB and KP has been a residue of their journey from India to the United States, transitioning between two different nationalities, two cultures and two academic environments. In their attempt at becoming better technical communicators, both the students have created the genre for themselves based on their tacit knowledge and understanding. This makes genre, as mentioned earlier, as a “cultural artifact” open to revision, dependent on individual and cultural influences.

__________________________

Notes

I’m using the term STEM (Science, Technology, Engineering, Management) for Technical Fields in India and the United States.
Miller continues “In one of the earliest programmatic statements about such work, Greenblatt introduced a special issue of the journal Genre devoted to cultural forms and power in the Renaissance by claiming that the study of genre is an exploration of the poetics of culture”; (69)

This statement was in response to the claim by Melzer- “As genre studies theorists argue, genres are impossible to deduce from just the structure of the discourse act itself” (Bazerman and Paradis; Miller; Prior; Swales) (251)

Bawarshi Anis S, Reiff Mary Jo “Rhetorical Genre Studies” Web.

According to Bazerman, “Sometimes individuals who have significantly transformed scientific writing have had some degree of rhetorical self-consciousness, as we have seen in the cases of Newton and Oldenburg”(320).

According to Johansson, “When a generalisation is based on the deductive principle, the procedure is similar to an experiment: a hypothesis is formulated, and testable consequences are derived by deduction. By comparing the expected findings, which are deduced from a theory and a case, with the empirical findings, it is possible to verify or falsify the theory. As a result it is possible to define the domain within which the theory is valid more exactly. Cases that are pivotal to the theory are selected. The testing of the theory is comprised of the emulation of experimental method in a naturalistic setting. From a theory and the facts of a case, generalisations are drawn concerning the domain of the theory. This model of the way in which generalisations are drawn from a case is developed by Robert Yin” (10(14))

They quote “Words are important but in science more than any other subject we rely on a combination and interaction of words, pictures, diagrams, images, animations, graphs, equations, tables and charts (Lemke 1998; Jones 2000)”


Wellington and Osborne further quote “What is biology (for example) other than words? If all the words that biologists use were subtracted from the language, there would be no biology. Unless and until new words were invented. Then we would have a ‘new’ biology! What is history other than words? Or astrology? Or physics? If you do not know the meanings of history words or astronomy words you do not know history or astronomy. This means, of course, that every teacher is a language teacher: teachers, quite literally, have little else to teach, but a way of talking and therefore seeing the world” (Postman and Weingartner 1971)

According to Artemeva and Fox in their study “Most of [the students] had developed sensitivity to different genres prior to the communication class and were able to conduct quasi genre analyses of the reading passages- without having ever been taught how to do so and without even realizing that they were doing so” (Artemeva and Fox 496)

Indian students have to give the TOEFL (Test of English as a Foreign Language) in order to apply for Universities in the United States irrespective of their major or language of primary schooling. This test tests their written and spoken English as well as their ability to listen and understand the language.
Appendix A: Interview Questions

Interview Guide
The interview guide is intentionally open ended so that it allows a more organic development of conversation between researcher and research participant. This is done in an attempt to foster a more dynamic and fluid research moment, one that is not tethered to predetermined topics. Semi-structured qualitative interviews require the student researcher to read the participant’s reply on email carefully and point the conversation in directions relevant to the current research project. The student researcher will allow the conversation to diverge away from the guide as long as the topics covered are relevant to the current project. If the conversation goes too far off topic, the student researcher will return to the guide and ask a new question. These more organic, interactional interview techniques allow the student researcher and participant to develop a more natural rapport, and thus allow the researcher to pursue lines of inquiry that might have been overlooked while following more-rigid guidelines.

Interview Questions

- What did you study in India and the United States?
- Did you study in a public, private or semi-private University in India and the United States? You are not required to name your University in case you’re not comfortable with it.
- How many writing projects did you have, on an average in India and the United States?
- Were most of the projects written in both these countries single or multi authored?
How long were the writing projects? Did you find any difference in the length of the projects written in both these countries?

Were the writing assignments submitted by you in both these countries handwritten, typed or both?

Why did you use different font styles and margins in your writing in India?

Could you briefly describe some of the topics for your writing projects?

Did you notice any difference in the way writing gets treated in India and the United States?

How would you call the writing in the United States, as compared to the writing experiences you’ve had in India? Do you feel they’re expressive, formal, factual or poetic?

“Why do you feel your writing in the United States is more expressive”

Was there any preferred way of searching for information for your writing projects in both these countries?

Did you have a writing center in your University back in India? Do you have a writing center in your University in the United States?

How comfortable are you using the writing center? Do you feel your peers have a similar attitude towards the writing center?

If you didn’t have a writing center in either of the two institutions you attended, whom did you consult with any questions/queries/review regarding your writing?

How many writing workshops/training sessions did you have in India and the United States? Did you have to take any special session to improve upon your writing?
Do you think writing was treated evaluated differently for your course in both these countries? Did you notice any change in the general attitude towards writing within the Technical discipline in both these countries?

Did you notice a difference in the way plagiarism was treated in your University back in India and the United States?

Did you follow any citation format for your writing assignments? If yes, were the citations different for the assignments written in India and the United States?

Is there any change in the way the issue of citation and plagiarism is addressed in the United States?

Is there any change you’ve observed in the format of your technical project reports in India and the United States? Do you think you use fonts, margins, indexes, notes and spacing differently in both these different countries?

Did you notice a change in the way diagrams/flowcharts and graphs were used in your technical project reports in India and the United States?
Good morning/afternoon,

I am a Masters candidate at Northeastern University conducting my Master’s thesis research on the writing experiences of students who have had their education in Science and Technology in India and the United States. The purpose of the research is to understand and define the genre of “Technical Project Report” by understanding experiences of students who have been a part of diverse cultural and academic backgrounds.

To do so, I am hoping to learn from individuals who have attained their Undergraduate degree in Science and Technology (Preferably IT) in India and Master’s degree in Science in the United States. You must be at least 22 years of age to participate. I am hoping that you might be willing to take part in the study by participating in a 30 minute interview with me on email, and also letting me collect two technical project reports written by you in India and the United States. You may also be asked to take part in another follow up interview, which will last 15 minutes. The interview will be conducted via an email conversation and you may choose to either use your university email id or personal email id.

The email interviews are to get an insight on your experience with writing projects in India and the United States to understand the genre of “technical project” report in different academic and cultural settings. The writing samples will be compared with each other for differences or similarity in tone, language and structure to understand the subject’s experience and development in writing. The main purpose of this would be to understand the fluid nature of “genre” and show how cultural and academic settings change the student’s understanding of the genre.

I’ve attached a copy of the study’s unsigned consent form, along with the interview questions for your review.

Your participation is voluntary and will be handled in a confidential manner. You’ll be addressed by an alias throughout, and any reports or publications based on this research will not identify you or any individual as being of this project.

This study has been approved by the Northeastern University Institutional Review Board (# 15-03-04).

Please let me know if you have any questions or are interested in participation. I look forward to hearing from you.

Warm Regards

Vijeta Pai, MA English
425-628-8982, pai.vij@husky.neu.edu
Appendix C- IRB Approval Form

NOTIFICATION OF IRB ACTION

Date: April 10, 2015       IRB #: 15-03-04
Principal Investigator(s): Mya Poe
Vijeta Pai
Department: English
College of Social Sciences and Humanities
Address: 405 Lake Hall
Northeastern University
Title of Project: (Un)defining Genre: Studying a Student’s Writing Experience
with Technical Project Reports in India and the United States
Participating Sites: N/A
DHHS Review Category: Expedited #7
Informed Consents: One (1) unsigned consent form for email interview

As per CFR 45.46.117(c)(2) Signed consent is being waived as the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required.

Monitoring Interval: 12 months

APPROVAL EXPIRATION DATE: APRIL 9, 2016

Investigator’s Responsibilities:
1. The informed consent form bearing the IRB approval stamp must be used when recruiting participants into the study.
2. The investigator must notify IRB immediately of unexpected adverse reactions, or new information that may alter our perception of the benefit-risk ratio.
3. Study procedures and files are subject to audit any time.
4. Any modifications of the protocol or the informed consent as the study progresses must be reviewed and approved by this committee prior to being instituted.
5. Continuing Review Approval for the proposal should be requested at least one month prior to the expiration date above.
6. This approval applies to the protection of human subjects only. It does not apply to any other university approvals that may be necessary.

C. Randall Colvin, Ph.D., Chair
Northeastern University Institutional Review Board

Nan C. Regina, Director
Human Subject Research Protection

Northeastern University FWA #4630
Appendix D- Unsigned Consent Form

Northeastern University: English Department
Name of Investigator(s): Mya Poe (Principal Investigator), Vijeta Pai (Student investigator)
Title of Project: (Un)defining Genre: Studying a Student’s Writing Experience with Technical Project Reports in India and the United States

Request to Participate in Research
We would like to invite you to take part in a research project. The purpose of this research is to understand the socio-political and cultural construction of the genre of “Technical Project Report”. This would be done by primarily focusing on the writing experience of students who have had University education in Science and Technology in both India and the United States.

You must be at least 22 years old to be in this research project.

The study will take place via Email or [...], depending upon your convenience. If you decide to take part in this study, we will ask you to answer a series of questions about your writing experience in India and the United States. This interview will last for 30 minutes, and you may be asked to take part in another follow up interview, which will last for 15 minutes. We will also ask you to provide us with two writing samples by you in the genre of “Technical Project Report”, one written in India and the other written in the United States.

There are no foreseeable risks or discomforts to you for taking part in this study.

There are no direct benefits to you for participating in the study. However, your answers may help us to learn more about the treatment of writing and the definition of genre in two different cultural and academic contexts.

Your part in this study will be handled in a confidential manner. Only the researchers will know that you participated in this study. Any publications or presentations based on this research will refer to you using an alias and will not identify you, your writing samples or any individual as being of this project.

The decision to participate in this research project is up to you. You do not have to participate and you can refuse to answer any question. Even if you begin the study, you may withdraw at any time.

You will not be paid for your participation in this study.

If you have any questions about this study, please feel free to call Vijeta Pai (pai.vij@husky.neu.edu); (425)628-8982, the person mainly responsible for the research. You can also contact Mye Poe (m.poe@neu.edu), the Principal Investigator.

If you have any questions about your rights in this research, you may contact Nan C. Regina, Director, Human Subject Research Protection, 960 Renaissance Park, Northeastern University, Boston, MA 02115. Tel: (617)373-4588, Email: n.regina@neu.edu. You may call anonymously if you wish.

This study has been approved by the Northeastern University Institutional Review Board (# 15-03-04).

Thank you.

Vijeta Pai (Student Investigator)
References


