

ORIGINAL ARTICLE

## Content analysis of process based writing in web-supported environment at BITS Pilani and its possible implications

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### ABSTRACT

A digital environment for instructional purposes has been adopted in the form of a Learning Management System (LMS) by educational institutions. The present study facilitates incorporation of online writing tutorials over LMS 'Nalanda' BITS Pilani with the objective of understanding the nature of the writing process while students accomplish their writing tasks on online forums. A paragogical framework has also been devised by keeping scaffolding as the theoretical basis of learning. The methodological strategy adopted to realize the objective and analyze the impact of the educational intervention was content analysis. Results of the content analysis, under the parameters corresponding to different stages of the writing process, suggest that students' emphasis had been more on content development and critical thinking.

**KEYWORDS:** Paragogical scaffolding framework; Learning management system; Writing skills; Higher order and Lower order concerns in writing and Higher order thinking skills.

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## 1. INTRODUCTION

With the development of modern educational technology, the integration of technology is a common practice that is done not only to facilitate online courses and distance education but also to enhance the teaching and learning experience in the traditional classrooms. This web-supported instruction along with regular face-to-face classrooms is utilised for many kinds of assignments and activities to add value and convenience to the classroom activities. Teaching college students, andragogy, in web-supported environments has been assigned the term 'paragogy' (Corneli & Danoff, 2011) which is based on peer-to-peer learning. Alfuqaha (2013) defines, "Paragogy has the underlying principle of self-directed and antididactic learning process with ubiquitous web 2.0 and pervasive web 3.0 edutainment" (p. 44). Emphasising on devising such new teaching methodologies for the integration of technology in higher education, Guffey (2004) stresses, "effective online communication and collaboration should be a part of an integrated curriculum merging traditional skills and knowledge with new digital working practices" (p. 2). Online open resources which can put this learning culture in practice are provided by Web 2.0 as they can support communication through collaboration and can help building classroom communities. Herrington & Herrington (as cited in Simões & Borges Gouveia, 2008) suggest the same that in the era of globalisation when world has become a 'wider community' (p. 8), workplaces require self-motivated and compliant employees and such workforce could be moulded by providing them required university education, and fresh graduates from the universities are expected to be competent enough in taking initiatives, inviting people to join which certainly demands excellent communication skills of their domain.

In the present era merely possessing technical skills and knowledge is not sufficient, the ability to communicate effectively and work with others in online collaborative environments have become equally important. Talking about the prospects of teaching communication and language skills with the emerging technologies, Warschauer (2010) holds the view that, "the diffusion of new technologies is instrumental in the development of the knowledge economy across the globe, which has made the teaching and learning of writing more important than ever before and fortunately, these same new technologies can also aid the teaching of second language writing" (p. 6). Online collaborations demand a great deal of writing and web 2.0 writing tools like wikis, blogs, forums, google documents etc. which may provide right kind of environment to enhance the same.

Teaching of writing at college level demands a change in the teaching methods which can help students participate and learn writing skills online. For this not only the knowledge about the availability of different tools is enough, but also a rationale choice and effective implementation is essential. Warschauer (2010) has also emphasised that, "the thoughtful use of the online tools can enhance effective instructional approaches that emphasize writing for meaningful social purposes, mastery of relevant genres, and development of students' academic language proficiency" (p. 3). Complying with the thought expressed above a paragological scaffolding framework has been developed which lead students towards

practicing writing in a digital environment through engagement in online writing tutorials.

In the present paper an attempt has been made to formulate a paralogical framework by deploying an important concept of socio-cultural theory i.e. 'scaffolding'. To engage students in writing tutorials, the conceptual framework has served as the basis for deciding the paralogy and actual integration (the procedures, activities and tasks) of the online writing tutorial with classroom teaching. The basic assumptions which underlie are – this will be helpful in making the students more participative and active in the dynamic process of learning. It will instill collaborative ability and autonomy into students as these qualities have important theoretical basis and practical value. It will be based on process approach as compared to that of product approach of writing. The focus will be on learning rather than achievement and on process rather than presentation or on final outcome. It will encourage the learners to acquire good writing habits. However, writing being the mode of communication, online tools are an appropriate platform for practicing writing skills and through a structured tutorial, students can share all the minor details related to content, structure, organization and presentation through online medium. Thus, the process oriented attribute of online tools helps in analysing the process of development of writing skills. The present study maintains that since internet involve collaborative learning, it needs to be integrated in English language pedagogy at college level and the present paper attempts to figure out an important framework which will facilitate and analyse the whole integration process.

## 2. SCAFFOLDING ONTOLOGY

Scaffolding is not a new concept but its connotations and levels have evolved over the time. The credit of introducing Scaffolding for the first time goes to a cognitive psychologist, Jerome Bruner. Bruner (1983) defines it as, "a process of setting up the situation to make the child's entry easy and successful and then gradually pulling back and handing the role to the child as he becomes skilled enough to manage it" (p. 60). Since its inception, scaffolding has been interpreted in numerous ways befitting to the educational needs. Donato (1994) has said, "scaffolded performance is a dialogically constituted inter-psychological mechanism that promotes the novice's internalisation of knowledge co-constructed in shared activity" (p. 41) It means that 'shared activity' is a prerequisite for scaffolding and dialogue is an important tool of the process of internalization of knowledge for the new learners. Santrock (2006) says, "In a dialogue, a child's unsystematic, disorganised, and spontaneous concepts are met with more systematic, logical and rational concepts of the skilled helper" (p. 229). Knowledge is appropriated by changing the level of support over the course of a teaching session; a more-skilled person adjusts the amount of guidance to fit the learner's current performance. It reflects that the scattered and unlearned concepts of the learner are channelised with an able guidance.

Scaffolding has been divided into two levels: hard and soft scaffolding by Saye and Brush (2002). Hard scaffold is decided in advance. Soft scaffolding level comes after the enactment of the hard scaffold. Soft scaffolds are

provided during the process of task either by the instructor or the peer depending on the necessity. Reciprocal scaffold (Holton & Thomas, 2001) is also a type of soft scaffold. In both levels, the scaffolding is shared by each member and it changes constantly as the group works on a task (Holton & Clarke, 2006). Van Lier (2004) has proposed six central features of pedagogical scaffolding which in its purview starts with hard scaffolding by the teacher (expert- novice relationship) and then transfers it to the students (collective soft and reciprocal scaffolding). Van. These are continuity, contextual support, intersubjectivity, contingency, handover/takeover and flow. The above six features can be categorised under the levels and types of scaffolds discussed. Broadly, these can be put into following categories:

- Features of hard scaffolds
  - Continuity
  - Contextual Support
- Features of soft and reciprocal scaffolds
  - Intersubjectivity
  - Contingency
  - Flow
  - Handover/Takeover

Features of continuity and contextual support can fit into the level of hard scaffolding. *Continuity* means activities and tasks which are planned beforehand with a set time limit. *Contextual support* is provided through decisions regarding the task environment and purposes by providing learners the whole action plan of a particular task. Intersubjectivity, contingency, flow and handover/takeover can all fall under soft scaffolding. *Intersubjectivity* comes when the students start working in groups and they start getting familiar with the task and the group members are mutually promoted to work together. *Contingency* is the necessary support provided on timely basis. This can be provided by teacher as well as students. *Flow* comes when learners are fully devoted on the task and their interaction runs smoothly with optimum coordination. *Handover/takeover* is the students' procession towards attaining the grasp over the task and move towards appropriation.

Technical scaffolding is a recent terminology but was visualised quite earlier by Kao (1996) when she proposed, "The processing and integrating capabilities of computers have created an interactive, support-rich, and individualized learning environment. These characteristics might break the limitations of scaffolding and ease the implementation of this instructional technique" (p. 302). In *Technical Scaffolding* (Yelland & Masters, 2007), "computers replace the teachers as the experts or guides, and students can be guided with web links, online tutorials, or help pages" (p. 367). In web-supported environments or learning management systems (LMSs) the online environment works both as a pseudo-teacher and as a medium. While integrating online tutorials with classroom teaching, hard scaffolds are set for students by the instructor and students have access of these on either their institutional LMS or the online portal created by the instructor. With the advent of technology many software and programmes have been developed which have been used to scaffold knowledge among adult learners. In higher

education, the focus of learning is generally on developing higher order thinking skills among students and making them autonomous learners. Web 2.0 has provided an important medium in the form of LMSs within institutions to create different online communication environments (technical scaffolding), where the process of scaffolding can be maximised through hard scaffolding provided by the teacher and soft and reciprocal scaffolding by the teacher and peers.

## 2.1. Scaffolding in Language Learning: An Overview

For educational settings, in general, Walqui (2006) has envisaged scaffolding as both structure and process. He opines that scaffolding cannot be looked as a rigid structure but it also encompasses flexibility of changing the type and level of pedagogical support. He underscores range of levels of scaffolding from “macro-level planning of curricula over time to micro-level moment-to-moment scaffolding and the contingent variation of support responsive to interactions as they unfold” (p. 159). Walqui (2006) has also discussed some types of instructional scaffolding techniques which have been employed by him in his language classrooms in school-modelling, bridging, contextualisation, building schema, re-presenting text and developing metacognition. All these have been discussed in detail along with their classroom implementation with various instructional scaffolds. The results show positive changes in the learners’ performance and it is suggested to break the traditional mould and make steps towards making language classrooms interactive, dynamic and motivating.

Baleghizad, Hossein and Memar (2011) find out that most of the study related to application of scaffolding into teaching is restricted to case studies or individuals only. Thus they conduct a study on level IV students of a language institute. Three types of scaffolds are provided to the students-non-structured, low structured and high structured. Hypothesis testing is done to compare these three types of scaffolds and results show that low structured group outperformed the other two. This shows that the cognitive load of the task should be moderate i.e. it shouldn’t be so low that students loose the sense of challenge and nor it should be so high that students become frustrated. The study suggests that low structured scaffolding facilitate students to explore freely and also learn through enjoying the challenge. The study’s relevance lies in considering whole class instead of individual students and trying to make an estimate regarding the appropriate degree of scaffolding required for the students.

Michel and Sharpe (2005) in their study on school students of level seven conceptualised scaffolding at two levels: scaffolding as a task enabling support and scaffolding as language mediated co-regulatory activity. Many types of activities are given in which scaffolding can be kept as basis. Few examples are: individual work, small group work and whole-class interaction. They believe that innovative ways of ‘doing, speaking and thinking’ can be created for students when teacher initiates the discussion. These discussions have an implicit impression of scaffolding as ‘language-mediated, collaborative activity’. In conclusion it is suggested ( Michel & Sharpe, 2005), “scaffolded activity is an identifiable pedagogical activity sub-system well suited to

improving the social, linguistic and academic participation and performance of second language learners as well as their English-only speaking peers" (p.52).

Veerappan, Suan and Sulaiman (2011) introduce intensive scaffolding to three university students over a time period of 5 weeks. They talk about the improvement in their performance in journal writing and have also enlisted different stages of process writing but the discussion on exploring the nature of writing process has not been done. The scaffold provided by the teacher focuses mainly on the lower order concerns in writing. Similarly, Schwieter (2010) has employed editorial and revising scaffolding techniques in writing in the magazine writing project. The project is divided into four stages where emphasis been given on editing and revising the essays through peer-review and instructor review. The results show the improvement in writing skill through quantitative measurement and leave the scope for further research by exploring how the development in writing is facilitated. Thus, various editorial stages for scaffolding writing skill have been given and the feedback mechanism in the writing process is left for future research.

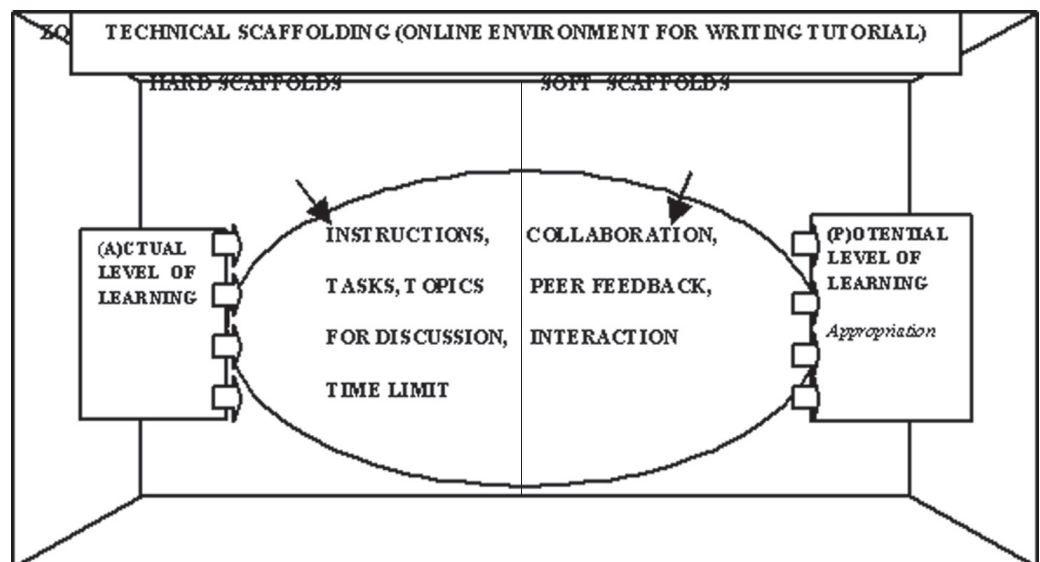
Barnard and Campbell (2005) have also moved ahead of the implementation of scaffolding in enhancing writing skills of the school students and have tried it with college students in University of Waikato. The students were enrolled under the course named EAP (English for Academic Purposes) which was designed for students of international background. Emphasis has been given on teaching writing through process approach as this approach familiarises students with the recursive strategies and techniques that writers use while composing. This case study analyses the procedure of application of the theoretical construct of scaffolding in writing classrooms by utilising electronic media. Six major principles of scaffolding given by Van Lier (2004) have been analysed through the online transcript. They believe that there is a considerable amount of online tutoring required for writing courses and working in groups enables students to work interdependently paving the way for gradual independence. The various stages of process writing are explored with the help of principles given by Van Lier (2004). The study makes an effort in the direction of taking it up for college students through online interaction and exploring process writing. But this does not give the detailed analysis of writing process corresponding to the stages of writing. And, it is also not substantiated with visible change (quantity and quality) in performance of the student. In addition to these, the principles given by Van Lier (2004) have been analysed without outlining any schema in which these principles are operationalised.

The present paper works out and implements the framework which incorporates the six principles along with specifying the types and levels of scaffolds operating at each stage of implementation of scaffolding in online tutorials integrated with classroom teaching of writing. This has been done to understand the nature of writing process with respect to the scaffolding features operationalised corresponding to the stages of writing process.

### 3. THE PARAGOGICAL SCAFFOLDING FRAMEWORK

Based on the above discussion, a paragogical framework has been prepared for the present study which is shown in Figure 1. The given framework

conceives how some, out of the several types, of scaffolds proposed by various educational visionaries are operational at different levels in online environment to facilitate the writing process as well understanding the nature of writing process. In the given framework, technical scaffolding term has been used for the online environment (LMS) which creates zone of proximal development (ZPD) for learners. The concept of scaffolding has its genesis in the concept of ZPD of Sociocultural theory, “the metaphor of scaffolding has been developed in neo-Vygotskian discussions to capture the qualities of the type of other-regulation within the Zone of Proximal Development which is supposedly most helpful for the learning or appropriation of new concepts” (Mitchell & Myles, 2004, p. 197). It reflects that ZPD is the difference of levels between actual and potential learning and scaffolding is the design and assistance provided to unfold the potentials (see Figure 1). ZPD is thus described by Vygotsky (1980) as, “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” ( p. 88). The design and the assistance provided to turn up the potential is scaffolding. This framework is a similar design which can be understood by dividing it into two types of support-structural and procedural. Structural support has been provided through the online environment or through technical scaffolding. It can be compared to the structural support of the classroom environment.



**Figure 1:** A Paragological Framework for integrating online writing tutorials

Hard scaffolds are set to provide contextual support. Continuity provides a transition from structure to procedure by setting the schedule of activity. All the instructions related to the writing task are provided under the tag of ‘hard scaffold’ as these are decided in advance. When learners enter the procedural zone, soft scaffolds start working. Features which can be related to soft scaffolding are- intersubjectivity, contingency, handover or takeover

and flow. Intersubjectivity is established when learners are encouraged to work in groups and they start getting familiar with each other through some initial formal interaction in the initial stages of the task. Contingency refers to the support/feedback which learners start seeking from each other. If the task is moderated by the instructor, then it can also be found occasionally between the student and the instructor. This support is provided on timely basis.

Soft scaffolds of intersubjectivity, contingency, takeover and flow come into operation through various activities like collaboration, interaction, peer feedback, instructor feedback etc. (see Figure 1) leading students towards appropriation of the writing task.

The paralogical framework is designed to understand how different types and levels of scaffolds can be operated to achieve appropriation in a particular writing task through web-supported tutorials over LMS. This framework has been implemented in online forum mediated writing tutorials by the researcher. A detailed analysis of the writing process corresponding to its stages has been done as a step forward in the direction of understanding the nature of writing process.

#### 4. METHODOLOGY

The participants of the study are students enrolled in Effective Public Speaking (ENGL C353) course in the Department of Humanities and Social Sciences, BITS Pilani during II Semester 2013-14. This course is a practice-oriented course where students try to develop skills of speech making through actual practice. The aim of the course is to prepare students to deliver a well-crafted speech and prewriting a speech becomes important to perform better during speaking. So, it is generally assumed that writing a speech beforehand is one of the factors to deliver perfect speech. Some researchers (Mader, 1985; Elbow, 1985; Stay, 1985) also hold that mutual coordinating involvement of both in teaching also helps in enhancing written proficiency. Chuikova (2012) strongly recommends changes in pedagogy to enhance writing skills and the most important change he emphasises is grouping writing and speech practice. Speech writing involves assertive, argumentative and persuasive writing skills and these qualities help students to grow a lot in all the spheres of their lives- social, professional and educational. The students enrolled in the course made a heterogeneous group because fresher as well as final year students could be located in the classroom. This course is an elective course in the pool of humanities courses offered by the department. Out of 42 students enrolled in the course few had withdrawn from the course and few did not attend the class regularly. Finally, 32 active students were identified for participation in the study. Consecutive sampling technique, which is a type of non-probability sampling, has been used for the research. Consecutive means that all the available subjects are taken (Maxwell and Statake, 2006) into the study which ensures a better representation of population. Since the study is an educational intervention so all the accessible students enrolled in the course were made part of the study. These students were further divided into four groups of 8 students each. Each group was given separate speech topic for collaborative writing over LMS Nalanda. Online record of group



wise writing and discussion on their respective speech topics was archived to analyse the nature of writing process to find out how the scaffolding features of intersubjectivity, contingency, flow, handover and takeover are operationalised.

#### 4.1. Understanding the Nature of Writing Process through Content Analysis

Holsti (as cited in Stemler, 2001) has defined content analysis as, “any technique for making inferences by objectively and systematically identifying specified characteristics of messages” (p. 1). Krippendorf (1989) defines, “content analysis is a research technique for making replicable and valid inferences from data to their context”. In simple words it has been defined as a research tool used to determine the presence of certain words or concepts within texts or set of texts. In the present study content analysis has been done of the online transcripts to analyse the nature of writing process while students take part in online writing tutorials over online forums. The analysis framework (see Table 1) has been constructed for the purpose.

**Table 1:** Categorisation for Content Analysis and the Analysis Framework

Main Category	Generic Category (stages of writing process)	Sub-categorisation for Coding (HOCs, HOTS and LOCs)
Writing Process	Pre-writing and planning	<ul style="list-style-type: none"> <li>• Audience analysis (AA)</li> <li>• Thesis Statement/ Focus/ Purpose (TS)</li> <li>• Outline (OL)</li> </ul>
	Drafting	<ul style="list-style-type: none"> <li>• Organisation (ORG)</li> <li>• Initial Content development (CD-I)</li> </ul>
	Reflection and peer review	<ul style="list-style-type: none"> <li>• Critical thinking (CT)</li> </ul>
	Revision	<ul style="list-style-type: none"> <li>• Critical thinking: self-regulation (CT-SR)</li> </ul>
	Additional research or idea generation	<ul style="list-style-type: none"> <li>• Additional Content development (CD-A)</li> </ul>
	Proofreading and editing	<ul style="list-style-type: none"> <li>• Lower Order Concerns (LOCs)</li> </ul>

To establish its validity, the coding scheme was circulated to five senior faculty members in language teaching. Coding scheme was designed to check the relevance of the categorisations included in it on four point scale ranging from ‘not relevant’ to ‘relevant’. Experts evaluated the coding scheme and suggested a few changes which were fixed after mutual agreement of all the experts.

An inter-rater reliability analysis using the Kappa statistic was performed to determine consistency among raters. Two raters independently assigned codes on the coding scheme for content analysis of online transcripts of discussion forums. The raters were provided with the coding framework and proper description of the objective of keeping the categorisation of the coding scheme for assessment. Raters agreed on 80.26 % level of ratings. The inter-rater reliability for the raters was found to be Kappa = 0.731 ( $p < 0.001$ ). The obtained Kappa value is considered to be a good level of inter-rater reliability. According to Bakemann & Gottman (as cited in Jeong, 2001), a coefficient of .40 to .60 is considered fair, .60 to .75 as good, and over .75 as excellent reliability.

In the present study content analysis has been done of the online transcripts to analyse the nature of writing process while students take part

in online writing tutorials over online forums. The research questions which are addressed through content analysis are:

- RQ1 – What is the main focus of discussion while students are engaged in the process of speech writing over online forums?
- RQ2 – How and to what strength are Van Lier’s (2004) features of Scaffolding operationalised in the collaborative speech writing process?

## 4.2. Results and Discussion

Van Lier’s (2004) features of continuity and contextual support fit into the level of hard scaffolding. *Continuity* means activities and tasks are planned beforehand with a set time limit. *Contextual support* is provided through decisions regarding the task environment, purposes by providing learners the whole action plan of a particular task.

Lier’s features of intersubjectivity, contingency, flow and handover/takeover all fall under soft scaffolding. *Intersubjectivity* comes when the students start working in groups and they start getting familiar with the task and the group members are mutually promoted to work together. *Contingency* is the necessary support provided on timely basis. This can be provided by teacher as well as students. *Flow* comes when learners are fully devoted on the task and their interaction runs smoothly with optimum coordination. *Handover/takeover* is the students’ procession towards attaining the grasp over the task and move towards appropriation. While doing content analysis of the online transcripts four features of scaffolding proposed by Van Lier (2004) have been studied which define soft scaffolds (see Figure 2).

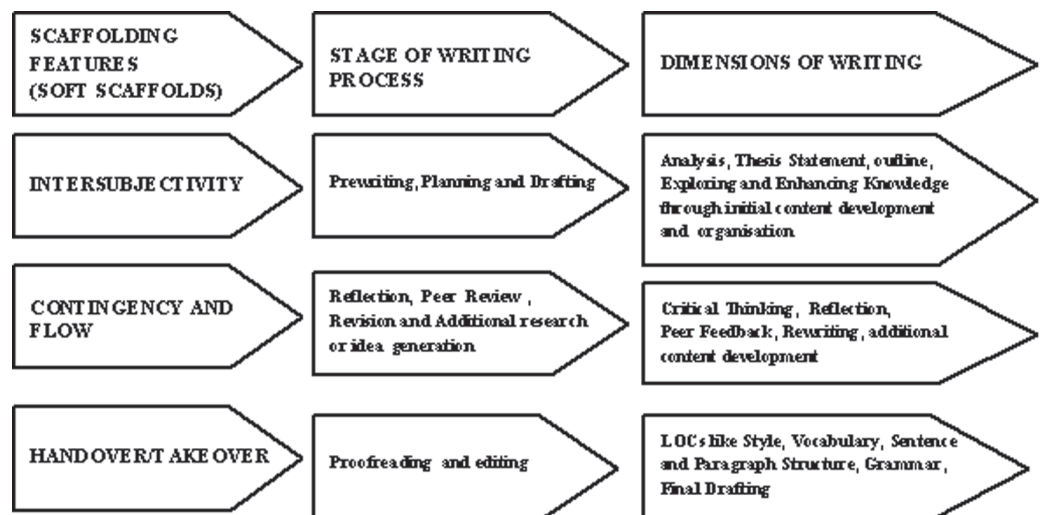
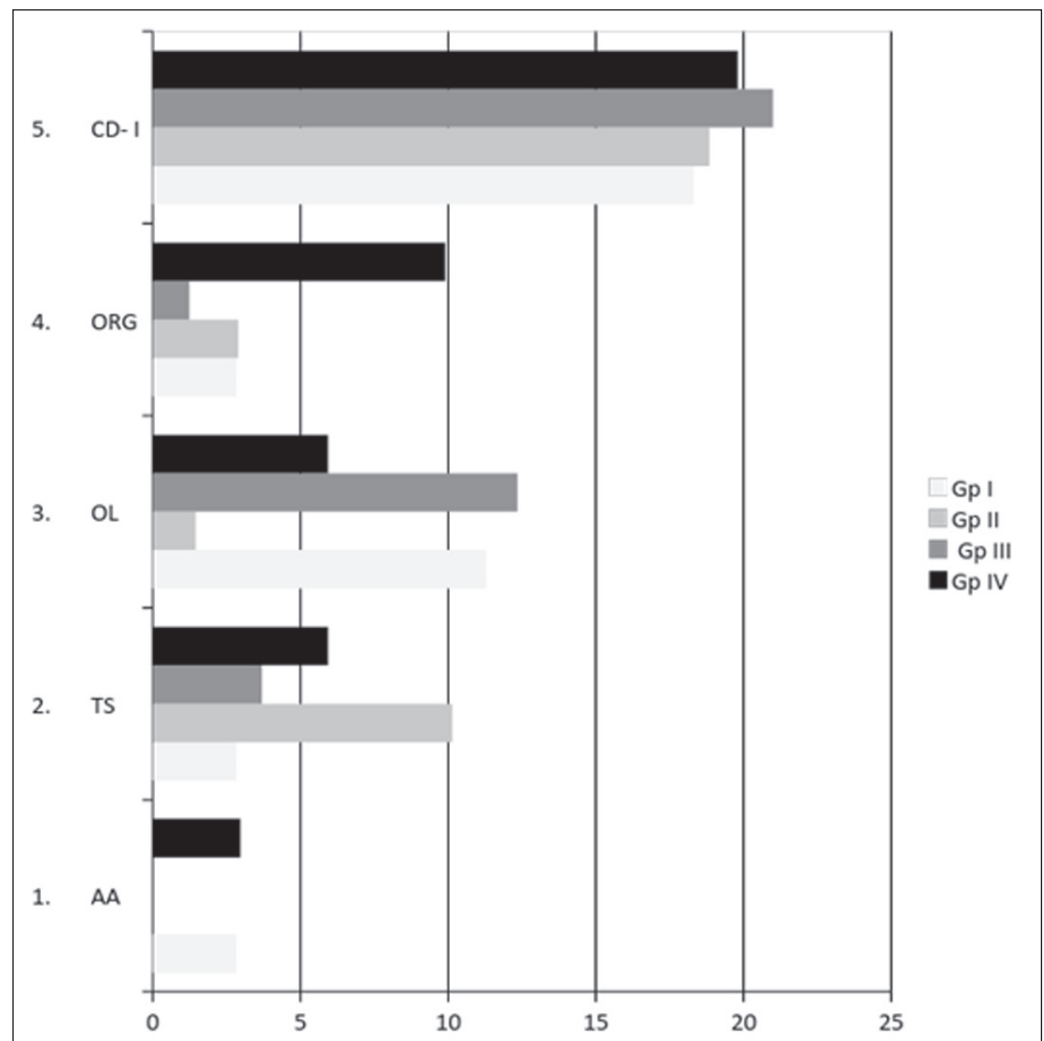


Figure 2: Soft scaffolds, stages of writing process and dimensions of writing

### 4.2.1. Content Analysis for the principle of Intersubjectivity and corresponding stages of writing process

The procedural aspect of scaffolding starts with the principle of intersubjectivity. At this stage participants engage in harmonious exploratory

talk' (Barnard and Campbell, 2005, p. 8). The explorations related to writing process stages of prewriting, planning and drafting are done. For speech writing, the elements of writing corresponding to the stages of writing process are audience analysis, thesis statement, outline, exploring and enhancing knowledge through initial content development and organization. For scaffolding principle of intersubjectivity, writing process stages of prewriting, planning and drafting and the elements of writing corresponding to the stages of writing process in speech writing – audience analysis, thesis statement, outline, exploring and enhancing knowledge through initial content development and organisation – are analysed through content analysis (Figure 3).



**Figure 3:** Intersubjectivity operationalised for all the four groups

The graph (see Figure 3) presents percentages of posts for each stage of writing process and each element of writing in all the four experimental groups. Following observations can be made from the resulting bar graph:

- **Pre-writing and Planning:** The stage of pre-writing and planning consists of three elements of speech writing – audience analysis (AA),

thesis statement (TS) and outline (OL). The focus of collaborative writing had been more on TS and OL in comparison to AA for all the four groups. The statistics shows the following results: AA (Gp I - 2.82%, Gp II - 0%, Gp III - 0%, Gp IV - 2.97%); TS (Gp I - 2.82%, Gp II - 10.14%, Gp III - 3.70%, Gp IV - 5.94%) and OL (Gp I - 11.27%, Gp II - 1.45%, Gp III - 12.35%, Gp IV - 5.94%).

- **Drafting:** The stage of drafting consists of two elements of writing-organisation (ORG) and initial content development (CD-I). Focus on ORG by all groups is: Gp I (2.82%), Gp II (2.9%), Gp III (1.23%), Gp IV (9.9%). Each group had some discussion on the aspects related to organisation. But all the four groups have highest no. of contribution for posts related to initial content development (CD-I): Gp I (18.3%), Gp II (18.84%), Gp III (20.99%), Gp IV (19.8%). All groups were independent of each other's contribution and students of one group could not look at the nature of contributions made by other groups. This shows that when the principle of intersubjectivity is operationalised students of all the four groups tried to develop maximum content for their respective speech topics. This is being done along a brief but seemingly necessary discussion on the elements of pre-writing and planning.

#### 4.2.2. *Content Analysis for the principle of contingency and flow and corresponding stages of writing process*

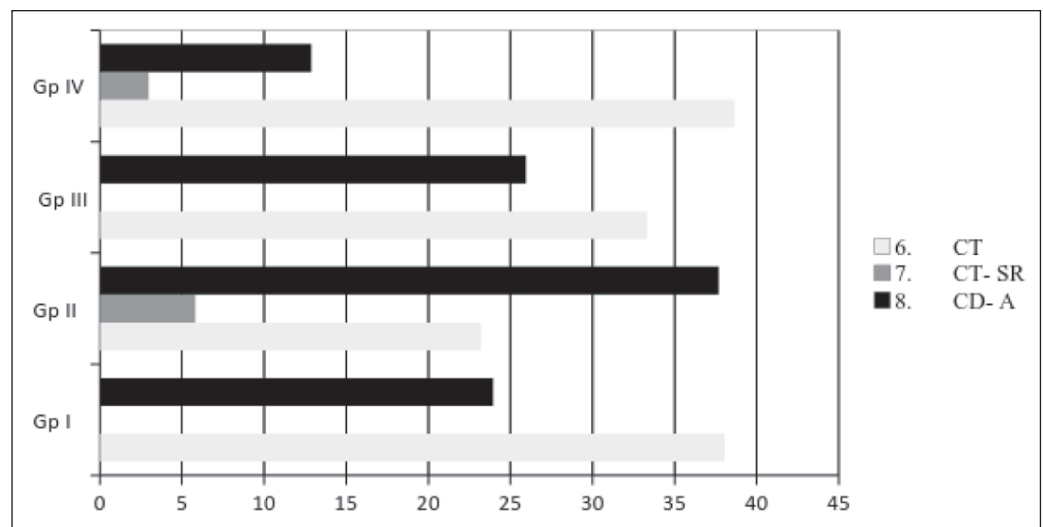
The second and third procedural principles of scaffolding are contingency and flow respectively. The students, after developing intersubjectivity, come in flow with other. Interaction through posts increases and "in the flow of interaction, the help that each student seeks and provides is contingent upon what has been posted in previous messages: elements are changed, added, or deleted (Barnard and Campbell, 2005, p. 8)." The contingent elements of the writing process are reflection and peer review, revision and additional research/idea generation. The corresponding elements of speech writing are critical thinking, self regulation and additional content development respectively.

The scaffolding principle of contingency and flow, writing process stages of reflection and peer review, revision and additional research or idea generation and the elements of writing corresponding to the stages of writing process in speech writing – critical thinking, self regulation and additional content development respectively – are analysed through content analysis (see Figure 4).

The graph in (Figure 4) presents percentages of posts for each element of writing in all the four experimental groups. Following observations can be made from the resulting bar graph:

- **Reflection and peer review:** This stage of writing process consists of critical thinking (CT) element of HOTS in speech writing. The contribution of critical thinking has been highest among all the elements of LOCs, HOCs and HOTS in the collaborative writing of speech writing. All the groups have highest number of posts related to reflection and peer review. The data shows these percentages: Gp I (38.08%), Gp II (23.19%), Gp III (33.33%) and Gp IV (38.62%).

- **Revision:** This stage has been taken into account only for individual changes or amendments in the contribution as other students only suggest, changes or acknowledging gaps are done by those whom these changes have been suggested. The HOTS involved at this stage of writing process is self regulation (CT-SR) which is a part of critical thinking. Results show that not much students do that. Gp I and Gp III students don't even have any contribution related to this stage of writing process. Gp II (5.8%) and Gp IV (2.97%) have little focus.
- **Additional research or idea generation:** This stage of writing process is identified with additional content development (CD-A). It can be observed from the graph that students even after a good amount of contribution done for CD-I also try to explore the possibilities of more data for the speech. All groups have good contribution for CD-A: Gp I (23.94%), Gp II (37.68%), Gp III (25.93%), Gp IV (12.87%).

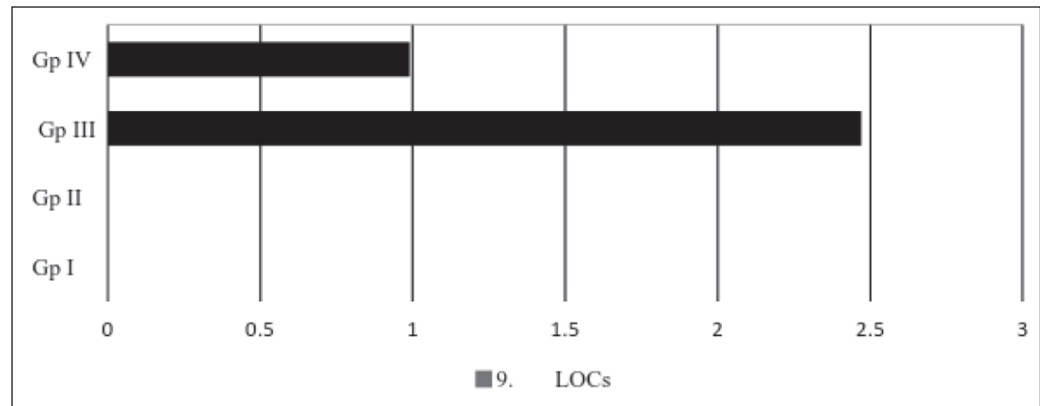


**Figure 4:** Contingency and Flow operationalised for all the four groups

#### 4.2.3. Content Analysis for the principle of handover/takeover

The fourth procedural principal of scaffolding is handover/takeover. The writing process stage associated with this principle of scaffolding is proofreading and editing. The elements of writing for these stages of writing are sentences and posts suggesting changes in LOCs in writing which are spellings, punctuation marks, grammar and sentence and paragraph structure.

Proofreading and editing are associated with LOCs in writing. It can be observed from the graph (see Figure 5) that LOCs account for minimum level of contribution by students in online collaborative speech writing assignment.



**Figure 5:** Handover/Takeover Operationalised for all the four groups

Gp I and Gp II had no discussion on LOCs while Gp III (2.47%) and Gp IV (0.99%) had very less no. of posts on LOCs of writing.

The results of content analysis indicated that the scaffolding features operationalised most during online tutorials were contingency and flow. Maximum consultation is required when students start writing and post initial drafts of their writing with maximum interdependence on each other. As writing is a recursive process so the stages operational during writing process were reflection, peer review, revision, idea generation and additional research. Critical thinking and content development (initial and additional) elements contributed to almost 80% of the online forum writing tutorials posts' content. It also implies that students' collaborative participation in online writing tasks helped them hone their critical thinking and writing skills hand in hand.

## 5. CONCLUSION

A Scaffolding Paragological Framework has been devised and incorporated into online writing tutorials on LMS for college students. The influence of this web-supported instruction has been gauged through content analysis. Results of content analysis, under the parameters corresponding to different stages of writing process, suggest that students' emphasis had been more on content development and critical thinking. Both of these are integral components of higher order concerns in writing and higher order thinking skills respectively. It also implies that online forums provide a space for doing relevant research regarding a topic and coming up with variety of perspectives on the topic under discussion. This process enables students to move towards refinement in ideas as well as writing. Relational Content Analysis can be taken up in future researches for analysing the transcripts to gain more insight into the nature of writing process.

The results of the study also imply possibilities of implementing scaffolding and incorporating online writing tutorials in the educational settings where curriculum is well informed with the tenets of contemporary educational theories like Sociocultural theory proposed by Vygotsky. One of such settings is prevalent in Brazil- Brazil's National Program for Textbooks (PNDL) selects textbooks addressing these principles (Molsing, Perna, & dos

Santos Ramos 2015) and also helps the instructors in selecting appropriate teaching methodologies by understanding learners' social and cultural background and inclinations. This would be a step forward in the direction of integrating task-based and communicative learning of writing skills in the digital era.

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