Developing Higher Order Thinking Skills of School Learners by Using Reflective Journals

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Abstract

In the twenty-first century, many countries and international organizations have expressed their views on the incorporation of thinking skills to produce effective, efficient individuals for social-economic prosperity. Therefore, it becomes imperative to introduce thinking skills from an early period of education to inculcate thinking abilities in students and gain benefits for their personal and professional goals. In this light, this study examines the use of journals as a tool for reflection and higher-order thinking. The findings of the study revealed that reflective journal writing helped learners to activate their higher-order thinking skills, develop strategies and achieve autonomy.

Keywords: thinking skills, higher order thinking, reflective journal writing, autonomy, strategies

Introduction

The twenty-first century witnessed a shift in the demand for human skills to progress in various aspects of life. From simple memorization of information to complex and challenging thinking abilities, there is a transition of skills that recognize thinking skills as paramount for personal and economic prosperity. Many nations have recognized the potential and opportunities at the global level and therefore the emphasis is on competing with the worldwide labour market which is characterized by creativity, innovation, global thinking and problem-solving abilities etc. The new cultural, technological and pedagogical reality which is globally dominant has called for a more realistic, experiential and meaningful learning at all educational stages (Leu et al., 2005). In this
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...direction, developing varied thinking skills among students becomes needful and significant. The present study aims to develop the thinking skills of school learners in English language learning. Moreover, this study also attempts to understand the process of thinking skills in a social-cultural context by using Vygotsky’s Sociocultural Theory.

Literature Review

Vygotsky established the embodiment of human cognitive functioning within the social and cultural milieu. He introduced thinking in a social-cultural setting through Sociocultural Theory. In this regard, some studies were reviewed related to the research focus.

Sociocultural Approach in Various Educational Contexts

In another development of approaches to second language acquisition, the sociocultural perspective has recently gained emphasis. According to the sociocultural approach, learners are social which happen through participation in various social-cultural interactions. In this view of language learning, Warschauer (1998) argued for online learning by promoting student-centred communication, collaborations and inquiry which were influenced by a broad range of socio-cultural factors that helped shape a computer-based English as a Second Language (ESL) writing course. A study related to Mathematics education by Lerman (2001), identified various Vygotskian concepts to be included in the tool kit of Mathematics education such as Zone of Proximal Development (ZPD), semiotic mediation, positioning learners’ voice in-class activities and social relationships of learners. Lerman perceived mathematical language consisting of meanings, connections, strategies, artefacts such as diagrams, graphs, physical tools like scale, compass, learning or teaching through text, teacher, peers and others. This study identified many social-cultural factors in the learning environment unlike based on individual psychological processes which ignored human interactions in their surroundings. It also brought Vygotsky into the framework of mathematical learning by introducing concepts of sociocultural theory where social context was under examination. Fukai, Nazikian & Sato (2008), worked on how the language instructor can incorporate the sociocultural approach to assessment practices with a concrete example drawn from projects focusing on the classroom community. The study focused on the sociocultural approach where the assessment process was seen as interactive, dynamic and collaborative. Cross (2010) aimed
to engage with the themes and concerns by considering the potential of Vygotskian sociocultural theory as the basis for a conceptual framework to research language teacher cognition. In another study on Mathematics, Sreeja (2005) developed an instructional strategy based on the Vygotsky approach for teaching basic mathematical concepts at the primary level. Similarly, in English language education, Pinninti (2015) developed reading strategies for school learners by applying sociocultural theory-ZPD, scaffolding, and mediation in the reading comprehensions. The findings of the study revealed that sociocultural theory provided a significant improvement in reading strategies and reading comprehension. This enabled the learners to perform better by interacting with teachers and peers, participating in peer collaboration tasks, reflecting on strategy use. Therefore, a dialogic and reflective community practice was established in this study with the help of sociocultural theory.

This section shows that the sociocultural theory has been practised, applied in many teaching and learning contexts of different disciplines. The studies reviewed in the section provided social-cultural dimensions of learning, teaching, methodologies and acknowledged them in second language acquisition research which was predominantly cognitive. The studies have established the role of what the learner brings to a learning environment in an active, interactive manner and channelizes the meaning-making process.

**Learning or Teaching Thinking Skills Through the Sociocultural Theory**

Some studies on thinking skills have been conducted where cognitive processing of information is emphasized in Second Language Acquisition (SLA). In ESL and EFL contexts, many social and cultural realities operate at different levels in learning. These realities emerging from classroom research, teaching-learning methodologies, tasks, and so on have to be addressed. The aspects of social-cultural factors in teaching and learning various thinking skills were investigated by some researchers. These studies focus on cultural background, cultural values, collaboration, interactions, mediations in the area of thinking skills which was considered to be individualistic, involving only psychological meaning-making process in isolation. There are a few studies that shed light on developing thinking skills through the sociocultural theory. Grosser &
Lombard (2008) suggested a cultural approach in their study for the development of critical thinking abilities in contrast to the traditional, individualistic approach for first year B.Ed students at a South African University. This study also highlighted the challenge of education reform that required behavioural changes like critical thinking skills which were dependent on cultural heritage. They asserted in their study that cultural background, belief system and social factors played an important role in the exercise of thinking in the B.Ed programme.

Meintjes & Grosser (2010) conducted a study for pre-service teacher programmes and found that there was a relationship between cultural factors and the creative thinking abilities of teachers. Their study explored a largely unknown field, namely, the creative thinking abilities of pre-service teachers from different cultural groups and created awareness regarding the development of creative thinking abilities among these prospective teachers. This study also established the key role played by various social-cultural factors to operationalize the creative abilities of the participants. In the other study in New Zealand, Wass (2012) used the Vygotskian perspective of social-cultural theory to develop the critical thinking skills of the Zoology department learners. His study found that ZPD and social-cultural factors play a significant role to develop the critical thinking skills of target learners. Neetu (2011) studied the socio-psychological factors (i.e. personality and socioeconomic status) concerning the learning, thinking style and creativity of secondary school students in India. The study revealed that there was a relationship between them and social factors were part of learners exercising their thinking styles, skills and abilities.

The above-mentioned studies within the framework of the sociocultural theory revealed the practices in the learning, teaching of thinking skills in various contexts of education, especially in L2 classrooms. These studies also established the emergence and development of thinking skills in direct contact with social-cultural practices and contexts.

**Theoretical Framework**

The present study has drawn a theoretical framework primarily from Vygotsky’s sociocultural theory and a revised version of Bloom’s taxonomy (2001) by Anderson & Karthwohl.
Vygotsky’s Sociocultural Theory

Many theories and approaches in second language acquisition research focused on learning-teaching language from psychological domains such as Behaviourism and Cognitivism. In contrast, the sociocultural approach brought the concept of social reality which was neglected by earlier approaches and positioned social-cultural factors, social realities in second language learning research. The process of output and input in SLA research was questioned as sociocultural approaches view “language learners not as processors of input or producers of output” (Gibbons, 2003, p. 248), but interactive participants. The major contribution to the sociocultural approach was drawn from Vygotsky’s Sociocultural Theory of Cognitive Development. He stated that human cognition was an outcome of the sociocultural process that happened by mastering the cultural tools and symbols at an individual level. Therefore, higher-order functioning such as thinking, memory, language, concept formation and others were socially interactive at interpsychological level before reaching the psychological level of an individual.

Every function in the child’s cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and the formation of concepts. All the higher functions originate as actual relationships between individuals. (Vygotsky, 1978, p. 57)

Vygotsky argued for the sociocultural meaning-making process by individuals and for him, biological factors responsible for human cognitive development were “insufficient to account for our ability to voluntarily and intentionally regulate our mental activity. We achieve this ability as a result of the internalization of culturally constructing mediating artefacts” (Lantolf & Thorne, 2007, p. 202).

Zone of Proximal Development (ZPD)

The concept of the zone of proximal development (ZPD) is a key feature of Vygotsky’s theory. He defines it 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”
(Vygotsky, 1978, p. 86). Another crucial factor of this concept is ‘dialogic interaction’ in which engagement among individuals to decide what they could do or could not do independently. According to Vygotsky (1978), imitation of intellectual actions takes place in collaboration in a meaningful manner with another learner (Chaiklin, 2003). When a child attains this potential, the shift occurs and the child can continue learning more complex, higher-level material. Vygotsky believed, what happens in the ZPD, therefore, potentially leads to development, and this has implications for how individuals should be taught. In addition, he also believed that collaboration in tasks helps learners understand, and significantly contribute to cognitive and linguistic development.

**Bloom’s Taxonomy**

In the field of psychology, philosophy and education, there are numerous frameworks on promoting thinking skills for individuals. In this study, a pioneering work of educational psychology known as Bloom’s Taxonomy was used as a framework for thinking skills.

The first edition of Bloom’s Taxonomy appeared in 1956 to promote “the exchange of test materials and ideas about testing” ... (Bloom, 1956, p. 4) through a system of classifying the goals of the educational process. However, in 2001, another edition was worked on by Anderson & Karthwohld which included school education also and thus had wider applicability and usage for teachers and academicians. The reasons to use this taxonomy for the categorization of thinking skills are given as under:

- The categories in Bloom’s Taxonomy for cognitive development are hierarchically ordered- Remembering, Understanding, Applying as Lower Order Thinking Skills and Analysing, Evaluating, Creating as Higher Order Thinking Skills.
- Many other frameworks of thinking skills took clues from Bloom’s Taxonomy to develop the frameworks.
- The revised taxonomy emphasized planning curriculum, instruction, and assessment focusing on school and tertiary education.
- It can be used with any age and ability group and also provides a vocabulary for describing specific knowledge and skill objectives (Moseley et al., 2005).
Research Question
How do the learners operationalize their higher-order thinking skills by using reflective journal writing?

Research Design
This study adopted a qualitative approach to gain an in-depth understanding of the research focus in the study. In addition, the qualitative study also offers opportunities to understand a research problem from multiple perspectives. Denzin & Lincoln (2002) mentioned advantages such as multiple viewpoints, collection and analysis tools of information gathered from qualitative studies.

Participants
The participants of this study were from a central government and CBSE affiliated school in Hyderabad, India. Forty-eight learners of age group 15 to 16 years old from Class 9 participated in the study.

Tools
- Reflective Journals
- Researcher’s Diary
- Semi-Structured Interviews

Procedure
The present study is a part of the doctoral work of the researcher and a small portion of it is included in this article. The study was conducted for 45 hours with the learners. The learners were given five reflective journals which contained five prompts to write their responses. Each journal was given to them after they completed the reading of two lessons and answered the comprehension questions. During the interviews, their responses were recorded using audio equipment and later transcribed by the researcher.

Analysis
The data collected from research tools was qualitative which resulted in large chunks of data, especially from reflective journals. The researcher carried out qualitative analysis of the data by following the six phases for thematic analysis as suggested by Braun & Clark (2006). These six phases included- i) Familiarizing with the data, ii) Generating initial codes, iii) Searching for themes, iv) Reviewing of themes, v) Naming
and defining themes, vi) Producing the report. The researcher read the data collected from various tools in a rigorous manner which involved reading of data several times. Later, the data from the tools were developed as potential codes, then as themes and sub-themes which were reviewed appropriately.

**Ethical Consideration**

For the ethical consideration, the Principal was informed about the study in detail such as the role of the study, the target of study, benefits for participants, the anonymity of learners, voluntary participation or withdrawal of learners according to willingness, confidentiality and storage of data. The learners were also informed about the study, confidentiality, anonymity of their identities and their consent was obtained in the presence of the Principal.

**Result**

The result of the study by interpreting the data from various tools are given below.

**Reflective Journals**

There were five reflective journals used in the study to become aware of learners’ thinking skills when they were asked to reflect on prompts given by the researcher based on the lessons from the Indian and Non-Indian contexts.

**Creative Thinking**

The analysis of the reflective journals showed that at the beginning of this study, most of the learners had written descriptive reflections. These reflections consisted of textual details and information such as describing characters, events or situations from the lessons. Gradually, the learners began to write their ideas and thoughts in the form of critical reflections about the lessons. They provided new information like relating social-cultural contexts with the lessons, writing alternative situations in their responses by using their background knowledge, providing solutions or suggestions by using their experiences or what they witnessed in their society. Their reflections also mentioned moral values by referring to the mythologies such as *Puranas, Panchatantra, Mahabharata*, etc. The analysis also highlighted the creativity in the writing of the reflections when they brought inputs from their social-cultural background.
Evaluative Thinking

The learners were able to exercise their evaluative thinking by making judgements about the characters, events or situations mentioned in the texts given to them. They did compare and contrast the information of the lessons by relating it to their socio-cultural surroundings. For example, they compared a female character’s situation in the story with the dowry crimes in India, preference of male children in Indian families, equal constitution rights for both genders and so on. The learners were not passive receivers of textual information but became critically involved with the lessons by stating their opinions about social-cultural affairs, events, moral and ethical values. In this way, the learners developed evaluative thinking in the reflective journals by comparing the social-cultural situations and factors with the lessons.

Autonomy

In this study, reflective journals became the learners’ tools to develop self-directed thinking and learning. Most of the learners in the study were conditioned by an existing classroom learning and teaching culture where the teacher was the knowledge provider. This pre-existing culture did not focus on learner autonomy, whereas the usage of reflective journals encouraged them to increase the ownership in channelizing their thinking skills. This further helped them to develop higher-order thinking skills as stated above in the sections, without intervention from the instructor or teacher in the study.

Improvement in Writing Skill of Learners

In the initial stage of reflective journal writing, some learners faced difficulty in the organization of ideas and thoughts while writing their reflections. They made grammatical errors like incorrect tense formations and spelling errors. They also spend more time writing their reflections as compared to other learners in the study. These learners received oral feedback on their writing when they approached the researcher outside the classroom during informal interaction. Gradually, they began to organize their ideas and thoughts in their writings of the reflections, used some new words to express their ideas, organized cohesively. This led them to improve their writing by organizing their ideas, fewer spelling errors after consulting the dictionary.
Researcher’s Diary

In this study, the observations in the diary indicated that the learners were allowed to do peer interactions according to their willingness. Periodically, they discussed their ideas with each other and also helped to develop better reflections by using their background knowledge on the themes of the lessons. Therefore, they were able to relate their social-cultural understanding of the contexts, themes of the lessons in their reflective writing. In this process, they also developed strategies of asking for translations like from English to Hindi and vice-versa to elaborate their responses in the reflective journals. The usage of their native language equipped them to reflect and write efficiently. Another strategy that these learners developed was to collaborate with better proficiency learners- a) to ask for the appropriate words to use in the writing of reflections, b) to ask for feedback on their reflections and correct their writing whenever required.

Semi-Structured Interviews

Five interviews were conducted one by one by the researcher after every reflective journal writing. The following result was interpreted from this tool in the present study.

Reflective Thinking

The analysis of the learners’ responses showed that they developed reflective thinking in reflective journal writing. They began to analyse their decision-making while writing their reflections of their life experiences, remembering situations in the text and then comparing them with the social and cultural realities. They also reflected on their belief systems, reviewed their learning pattern by reflecting on what they knew and needed to learn from the unknown information. They also stated that the reflective practice helped them to think carefully and effectively which was not practised in their regular classrooms.

Reflection on Self While Working with Others

Many learners found that the peer interactions helped them to reflect better and apply their thinking skills efficiently. They discussed their responses with each other to get additional information, awareness of others’ points of view and thus enhanced their reflective writing.
Limitations and Suggestions for Further Research

In this study, there was a limited sample size from a specific setting. The findings of this study may have to be generalized considering the setting and sample size. Future considerations from this study can include a larger sample size and learners from other settings such as international and state board schools. This study focused on secondary school learners, so there is a possibility of future study with primary and tertiary level learners. A further study can also include the development of thinking skills and the usage of reflective journals in different disciplines.

Conclusion

Higher-order thinking skills have become highly desirable in the twenty-first century when there is accelerating development and growth in every sector. These skills also play a significant role in the day-to-day life of individuals. The twenty-first century has created a demand for individuals to be skilful, reflective, effective, decisive, problem solvers, etc. to keep themselves abreast with the dynamic and challenging settings worldwide. The National Educational Policy 2020 has expressed major concern for the incorporation of such skills in the curriculum. However, in the Indian context, a few research studies are done on higher-order thinking skills. Therefore, classroom-based studies with sociocultural approaches are required to contribute in the research area which benefits and provides significant insights for curriculum policymakers, teacher education programmes, mainstream practices of teaching and learning. The present study showed classroom-based research which focused on the higher-order thinking skills by using reflective practice in social-cultural contexts.

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