Review Paper

Augmenting HOTS through Writing: a Comprehensive Review of Philosophical and Psychological Foundations with a Focus on Dialogic Feedback, Portfolios, and Multiple Intelligence

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Citation

Faravani, A., & Zohoorian, Z. (2022). Augmenting HOTS through writing: A comprehensive review of philosophical and psychological foundations with a focus on dialogic feedback, portfolios, and multiple Intelligence. *Journal of new advances in English Language Teaching and Applied Linguistics*, *4*(1), 847-865.

10.22034/jeltal.2022.4.1.10

Received
2022-01-21

Revised
2022-04-13

Accepted
2022-04-14

Keywords:
Higher Order Thinking Skills; Dialogic Feedback; Portfolios; Multiple Intelligences; Writing

Abstract

This review paper focuses on higher-order thinking skills, the philosophical, psychological, and pedagogical foundations. Moreover, it presents the strategies that foster higher-order thinking skills as far as writing skill is concerned. The improvement of such skill is considered an important issue in education as they can contribute the individuals' ability to deal with the challenges in the contemporary world whose knowledge is rapidly changing. Moreover, several teaching strategies are presented and discussed in this regard. Among the different teaching strategies and assessment methods to cultivate higher-order-thinking skills in EFL students, the infusion of writing-based portfolio assessment, multiple intelligence, and dialogic feedback seem to be productive, interactive assessment methods. It is also suggested to integrate the higher-order thinking skills into the curriculum. It is well-accepted that they help students promptly employ their talents, maintain success in high levels, develop their performance, and become independent lifelong learners.

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Introduction

Fostering students' higher-order thinking skills (HOTS) has been the focus of much research (Baker, 1990; Barak & Shakhman, 2008; Bean, 2011; Bernstein, 1995; Bloom, 1956; Bullen, 1998; Copeland, 2005; Crawford & Brown, 2002; Davidson, 1995; Ennis, 1993; Halpern, 1997; Newmann, 1990; Senk, Beckman, & Thompson, 1997; Stein & Lane 1996; Zohar, 2004). However, HOTS is defined differently by different scholars. It is defined as non-algorithmic thinking to solve a task (Stein & Lane, 1996; Senk et al., 1997). It is believed that HOT happens in activities that embrace analyzing, synthesizing, and evaluating (Barak &

Shakhman, 2008; Bloom, 1956). It is also referred to as the kind of thinking which occurs in all intellectual tasks requiring information retrieval (Baker, 1990). HOTS make students interpret, analyze, or manipulate information (Newmann,1990) and happens when an individual constructs arguments, asks research questions, makes comparisons, solves non-algorithmic problems, deals with controversies, and identifies hidden assumptions (Zohar, 2004).

Some educators use higher order thinking, rational thought, reasoning, problem-solving, and critical thinking interchangeably to describe an intellectual activity beyond primary or lower-order thinking (Lewis & Smith, 1993). However,, critical thinking is an umbrella term for some educators that covers higher order thinking (Crowl, Kaminsky, & Podell; Lewis & Smith, 1993). In contrast, some other educators and scholars (Crawford & Brown, 2002; Lewis & Smith, 1993; Paul, 1992) consider critical thinking an integral part of HOT.

The development of higher-order thinking skills is one of the most important issues in formal education. Such skills like critical thinking help individuals deal with challenges in this contemporary world where knowledge is changing so rapidly (Marin & Halpern, 2011). They are needed for high levels of success (Copeland, 2005). During the last three decades, educators have emphasized on higher order thinking skills (HOTS) and the ways they can be enhanced in the classroom. Despite the bulk of research on the teaching strategies to enhance HOTS, there has been no comprehensive literature review on the psychological and philosophical foundations of HOTS and the possible teaching strategies that may increase thinking skills. Based on the research findings, this paper introduces and mingles some effective teaching strategies to strengthen the occurrence of HOTS in the classrooms.

The Philosophical Foundations of Higher Order Thinking

As the contribution of philosophy to higher order thinking extends from Socrates, Plato, and Aristotle (Lewis & Smith, 1993), the following section provides a brief overview of some philosophers' notions of HOT.

Socrates

Socrates realized that when people are challenged, they often become confused, so they cannot defend their knowledge through reasoning. In attempting to discover this problem, Socrates advocated using a questioning style in teaching (Paul, Elder, & Bartell, 1997). The aim of such a sequential critical and reflective questioning process in the form of a dialectic philosophic conversation is clarification, assumptions, reasoning, evidence, and implications (The world book encyclopedia, cited in Chabeli, 2006).

As Socrates' style of probing questions helps students examine their feelings and beliefs and accept the limitations of their thoughts, Socrates concluded that students could improve their reasoning skills and so move toward rational and critical thinking (Copeland, 2005). The Socratic Method is an eminent strategy to teach critical thinking because it challenges students to use logic and reason to support their conclusions (Paul et al., 1997).

Aristotle

Aristotle asserted that all human beings need to know and understand the world not only because it is useful, but also because people like to know for the sake of knowing (Stratton, 1999). However, what happens in the world is often different from what it appears to be, and only the trained mind can understand the deeper realities beneath the surface (Paul et al., 1997). So, Aristotle differentiated two types of thinking: a) thinking at the deep level named "philosophical, abstract, or theoretical thinking", and b) thinking at the surface level known as "critical, concrete or practical thinking" (Stratton, 1999, p. 2). Aristotle pointed out that critical, concrete, or practical thinking happens when an individual seeks to have a practical result in the world either at present or in the future (Stratton, 1999). Therefore, happiness, success, and goodness can be achieved through critical thinking and reasoning (Chabeli, 2006; Stratton, 1999).

Francis Bacon

In the late 16th century, Francis Bacon emphasized that the nature and tendency of man is to come to conclusions that are not always based on facts. Bacon claimed that information must be processed and gathered in an empirical fashion (Noddings, 1998; Paul et al., 1997).

Bacon argues that careful observation and experimentation which are the basis of sound thinking can lead to a hypothetico-deductive method (Noddings, 1998; Paul et al., 1997) which begins with a careful observation of the phenomena to develop a plausible explanation. Then, the researcher posits a hypothesis and does an experiment to test the hypothesis. If the hypothesis is falsified, the researcher devises a new one that includes information from the first experiment and the process is repeated again (Brookfield, 2011). This process is called inductive reasoning (Paul et al., 1997). The tradition of hypothesis formulation and testing is considered by most people “the apex of scientific reasoning” and has enlightened other traditions of critical thinking by emphasizing the significance of observation and evidence gathering (Brookfield, 2011, p. 38).

Rene Descartes

In the early 17th century, Descartes, like Aristotle, emphasized the need for a systematic disciplining of the mind to have precision and clarity in thought. Descartes argued that every part of thinking must be doubted and questioned (Noddings, 1998); therefore, he developed a method for critical thinking based on the principle of systematic thought through which every part of thinking could be constantly doubted, questioned, and tested (Chartrand et. Al, 2011).

Dewey

Dewey presented his psychological approach in his classic work in 1903 (Lipman, 2003). In this book and offered an outline of different modes of the term thinking:

- Thinking as a stream of consciousness (p. 3)
- Thinking as imagination or mindfulness (p. 5)
- Thinking as belief (p. 6)
- Reflective thinking (p. 9)

Dewey was seemingly more interested in the reflection aspect, which is the same as critical thinking (Xu, 2011). Dewey (1933) defined reflection as "active, persistent and careful consideration of a belief or supposed form of knowledge in light of the grounds which support it and the further conclusions to which it tends" (p.6). Dewey (cited in Xu, 2011, p. 136) explained the process of critical thinking in five phases, including "suggestions, problem definition, hypothesis generation, reasoning, and hypothesis testing". Thus, individuals should participate in their thinking process actively and persistently. Through reflections, they should attempt to provide reasons and interpretations to the conclusions to evaluate them (Xu, 2011). Problems must evoke individuals, questions (Satyaputri. 2020), confusion or doubt. More importantly, critical thinking is characterized as inter-subjective since it is "an open dialogue within a community of peers and a dialectical relationship between reflection and action" (Daniel & Auriac, 2011, p. 422).

Psychological Foundations of Higher Order Thinking

There have been different frameworks to describe the relationship between thinking and learning. As "thinking skills are at the heart of learning in that they make certain learning possible" (Passey, 2006), learning theories can provide a useful context or a framework for revisiting the existing definitions and applications of thinking to learning and teaching (Gruberman, 2005). Furthermore, learning theories can explain the teaching strategies that must be undertaken in order to develop higher order thinking skills (Gruberman, 2005; Singh et el., 2020a, 2020b). In this section, the works of key learning theorists in the field of thinking and learning are explained.

Piaget

Piaget emphasizes the constructive nature of the learning process. In contrast to traditional views that consider learning as the accumulation of facts or the development of skills, the main assumption underlying constructivists like Piaget is that individuals are actively involved right from birth in constructing personal meaning (Saran, 2007). It means that everyone makes his sense of the world and the experiences surrounding him.

Piaget was interested in the way people came to know things as they developed from infancy to adulthood; therefore, his theory is more concerned with the process of learning than what is learnt (Richards, 2009). Piaget believes that people make sense of their personal experiences at different stages of their lives (Saran, 2007). At the first stage of learning, named the sensory-motor stage, the infant explores the environment through basic senses.

The second developmental stage is pre-operational and is divided into pre-conceptual and intuitive thinking stages. In this stage, as the child's language matures, there is a gradual shift from an egocentric position to one which can take account of others and engage in social relationships (Richards, 2009). However, the child still does not use logical operations, relying primarily on perception, especially during the pre-conceptual period. In the intuitive thinking phase, the child begins to form concepts. It also acquires some insight into reversibility and

quantitative conservation concerning specific situations and discovering more complex ways of combining schemata (Richards, 2009).

In the third stage, called by Piaget concrete operations, children become more flexible in their thinking and more able to perform concrete mental operations like conservation which require the simultaneous consideration of multiple pieces of information (Dyer, 2002).

The formal operational stage is the final stage of intellectual development in Piaget's theory. At this stage, the child is able to follow complex rules and logic and can do algebra or play games like chess (Cattell, 2000). Piaget argues that in the formal operational stage children become even more flexible in their thinking. Also, they are able to think about the world more abstractly. During this final stage children can think about hypothetical problems and give hypothetical solutions to those problems, such as how a society would maintain peace if there were no laws (Dyer, 2002).

Piaget's *last stage of formal operations* is closely related to critical thinking. Children cannot think critically until adolescence and the appearance of formal operations (Elkind, cited in Davis-Seaver, Smith, & Leflore, 2003). In other words, Piaget believes that before the period of formal operations, the child does not have the required cognitive structures and the experiences for formal reasoning until adolescence (Davis-Seaver et al., 2003).

Bruner

For Bruner, learning happens when individuals are intrinsically motivated and are actively involved in the processes of inquiry, discovery, and inductive reasoning (Crowl et al., 1997). As Wood (1998) notes, both Piaget and Bruner place action and self-directed problem solving in the center of learning and development. However, Bruner has greatly spotlighted the role of language, communication, and instruction in developing knowledge and understanding (Wood, 1998). As mentioned in Richmond (1970), other factors like neural maturation and interaction with the physical environment are also important in Piaget`s idea.

Bloom

In 1956, Benjamin Bloom and his colleagues Engleheart, Furst, Hill, and Krathwohl developed a famous classification system on the thinking process known as the taxonomy of educational objectives. Bloom's taxonomy which contains six levels of knowledge, comprehension, application, analysis, synthesis, and evaluation, aims to shift thinking from information gathering to information processing (Bloom., Engelhart, Furst, Hill, & Krathwohl, 1956).

Bloom's taxonomy can be used as a framework to help instructors teach thinking skills, regardless of the discipline (p. 320). In this taxonomy, thinking skills are arranged by the level of complexity. So the first three skills, namely knowledge, comprehension, and application, are considered lower order, and other levels of analysis, synthesis, and evaluation are named higher order (McKeachie & Svinicki, 2006). In Bloom's arrangement of thinking skills, higher order

thinking occurs when an individual breaks down complex material into parts, detects the existing relationships, combines new and old information, and uses all previous levels to make judgments (King, Goodson, & Rohani, 1998).

Gardner

For Gardner, the human mind is modular in design, meaning that separate psychological processes deal with linguistic, numerical, pictorial, gestural, and other kinds of symbolic systems. Gardner challenged the notion that knowledge at any particular developmental stage hangs together in a structured whole (Smith, 2002). Therefore, by proposing the theory of multiple intelligences, Gardner designated intelligence as a range of capacities rather than a single phenomenon (Armstrong, 2003). Gardners' radical alternative definition of intelligence, according to Christison (1998), proposes a pluralistic view of the mind, identifying diverse and discrete facets of cognition and conceding that people have different cognitive strengths and contrasting cognitive styles; thus, some finite set of mental processes give rise to a full range of intelligent human activities.

Gardner originally articulated a list of seven intelligences (Smith, 2002), including linguistic, mathematical, spatial, interpersonal, intrapersonal, kinesthetic, and musical intelligences. The first type of intelligence, which is known as linguistic intelligence involves "sensitivity to spoken and written language, the ability to learn languages, and the capacity to use language" to accomplish specific goals (Smith, 2002, p. 3). It is concerned with the effective use of language and good knowledge of words. This intelligence embraces the ability to efficiently use language to express oneself rhetorically or poetically, with language as a means to remember information (Foyil, 2010). Writers, poets, lawyers, and speakers are among those that Gardner remarks as having high linguistic intelligence.

Logical-mathematical intelligence, the second type, entails the capacity to evaluate problems logically, perform mathematical operations, and inspect issues scientifically (Armstrong, 2003). Musical intelligence, which involves the skill in the performance, composition, and appreciation of musical patterns, is conceptualized as the capacity to perceive, differentiate, transform, and express musical forms (Foyil, 2010). The fourth type of intelligence, known as bodily-kinesthetic intelligence, refers to the potential of using one's whole body or parts of the body to solve problems (Gardner, 1999). It uses mental abilities to coordinate bodily movements. Spatial intelligence implicates the potential to spot and use the patterns of wide space and more confined areas (Armstrong, 2003). Interpersonal intelligence is linked with the capacity to comprehend other people` intentions, motivations, and desires (Armstrong, 2003). It is perceived as the ability to understand and make distinctions in the moods, meanings and purposes, motivations, and feelings of other people (Foyil, 2010). Intrapersonal intelligence, according to Smith (2002), involves "the capacity to understand oneself, to appreciate one's feelings, fears and motivations" (p. 4). Gardner (1999) perceived this type of intelligence as self-knowledge, making individuals act adaptively based on their self- knowledge.

Later, Gardner (1999) noticed that the seven intelligences hardly operate independently. After subsequent research and reflection by Gardner, he announced three particular possibilities: a naturalist intelligence, a spiritual intelligence and an existential intelligence. He concluded that the first of these worth to be added to the list of the original seven intelligences.

Vygotsky

Vygotsky suggests that ""social interaction leads to continuous step-by-step development in children's process of thinking and behavior that can vary greatly from culture to culture" (Lund, 2003, p. 25). In this theory, learning occurs through observation, listening, and interacting with the people and elements in one's immediate environment (Vygotsky, 1962). Crowl et al. (1997) summarized Vygotsky's major concepts of cognitive development as follows:

1) Cognitive development progresses as children learn; biological maturity accounts for "elementary processes" such as reflexive responses.
2) When learning a specific skill, students also perceive the underlying principles.
3) Social interaction and social culture play major roles in learning and cognitive development; children internalize knowledge most efficiently when others, such as teachers, parents, or peers, guide and assist them; significant people in an individual's life contribute to the development of "higher mental functions"; people's cognitive processes function differently when working on their own versus working in groups.
4) Everyone has a "zone of proximal development," and asking certain questions or giving suggestions will move the individual toward potentially higher levels; such support helps students in solving problems until they can solve them independently and may include hints, questions, behavior modeling, rewards, feedback, information giving, self-talk, or peer tutoring (p. 69–71).

The influence of psychologists' theories of thinking and learning can be recognized instructional design and productive thinking. Within the various theorists and theories discussed above, scholars have proposed different approaches or models of instruction to foster thinking skills.

Approaches to Teaching Thinking Skills

Instructional approaches to teaching higher order thinking skills, including critical thinking skills, can be delineated into three main types (Ennis, 1989) as follows:

The general Approach

In this approach, where thinking skills are taught separately from the subject matter, thinking is considered as "a skill of know-how that invokes general-purpose heuristics". It can be applied effectively in "a variety of problem situations, along with the meta-knowledge about situations in which specific heuristics are more appropriate" (Angeli & Valanides, 2009, p. 323).

The infusion Approach

This approach is based on the idea that thinking essentially occurs in all disciplines and develops along with human development. It also assumes that critical thinking skills taught within one domain can be transferred to other domains (Prawat, 1991). Therefore, the explicit instruction of critical thinking skills can be embedded within subject matter teaching (Angeli & Valanides, 2009).

The immersion Approach

In the immersion approach, where there is no explicit and direct teaching of complex thinking skills (Ennis, 1989), thinking and subject matter are blended to develop insights, knowledge, and understanding. In other words, in the immersion approach, thinking skills are not explicitly taught but students must think through the subject matter.

Following the immersion approach of teaching thinking skills, educators worked on different teaching strategies to foster effective thinking skills, significantly higher order thinking skills in the curriculum.

Various research studies have shown that numerous immersion teaching strategies enrich the development of higher level thinking. For example, it has been noted that active learning techniques appear to foster critical thinking and significant gains in the students' CT test scores are observed based on content-based instruction (Liaw, 2007). Also, the use of advance organizers helped students to answer higher-order questions. Another effective strategy had been the integration of modes of assessment into a hybrid graduate course which combined face-to-face classroom discussions with online activities, interrelating teaching, learning, and assessment (Barak & Dori, 2009). As an immersion teaching strategy, learning environments that provide ample opportunities for language use and transformative learning will also empower higher order thinking.

Many other reminiscent immersion instructional strategies which can contribute to the enhancement of HOTS include discussion and written assignments (Anderson, Howe, Soden, Halliday, & Low, 2001), negotiation, role play and simulations (Bernstein, 1995), discussion and collaboration (Bullen, 1998), self-reflection and evaluation (Hanley, 1995), portfolio assessment (Faravani, 2006; Genesee & Upshure, 1996), and online discussion and dialogue (Collison, Elbaum, Harind, & Tinker, 2000). However, research findings recommend that the integration of higher order thinking skills, including critical thinking skills, results in more significantgains as far as the writing skill is concerned (Chapman, 2001; Gammill, 2006; Hatcher, 2006; Sianturi, Silalahi, & Purba, 2020).

Writing and Higher Level Thinking Skills

Writing is defined as a highly complex cognitive process through which one's thoughts, ideas, experiences, and even emotions can be expressed. Writing is more than a method of human communication and the skillful management of structure, vocabulary, spelling, and punctuation (Hyland, 2003). The reason is that thinking is the groundwork of writing and lies

at the heart of the learning process. When students write, their general cognitive and intellectual ability develops (Bean, 2011).

Higher level thinking skills are closely linked with writing as it represents the process of thinking. Writing provides a chance for individuals to engage in metacognition (Marzano, 1991;. Similarly, Marzano (1991) considers writing a tool that restructures knowledge and improves higher order thinking.

As self-reflection and evaluation can enrich higher level thinking (Hanley, 1995), writing learning journals as an essential vehicle for reflection can enhance thinking and learning (Moon, 2008). Moon (1999) states that self-reflection includes mental activities such as relating, experimenting, exploring, reinterpreting from different points of view or within different contextual factors, theorizing, and linking theory and practice. Therefore, writing journals can support understanding, develop critical thinking or a questioning attitude, encourage meta-cognition, increase active involvement, increase ability in reflection and thinking, enhance problem-solving skills, enhance creativity, and foster reflective and creative interaction in a group(Moon, 1999).

Portfolio Assessment and Higher Order Thinking

The portfolio is a collection of students work samples developed over time (McKay, 2006), collected systematically and purposefully (Genesse & Upshure, 1996). Portfolio assessment is an ongoing process involving the student, and the teacher in selecting students work samples, and the main purpose is to show the student's progress (Altan, 2002). Portfolios positively affect student learning because of the opportunities they offer to the students to become actively involved in assessment and learning (Genesee & Upshure, 1996). "However, this does not happen automatically just by having students keep portfolios of their work. Rather, it depends on teachers' conscientious efforts to use portfolios as a collaborative assessment process" (p. 99). Portfolios provide multiple opportunities for self-assessment during instruction develop independent second language learners.

Due to portfolio assessment's numerous advantages for second language learners, it is incumbent upon teachers to maintain portfolios in their classrooms. Portfolios, in particular, encourage disenfranchised learners to (1) showcase their deeds, (2) be responsible for their learning, (3) exhibit originality and creativity, (4) think critically and reasonably, (5) make choices, and (6) have a say in the process of decision making (Genesee & Upshur, 1996).

Sunstein (cited in Hirvela & Pierson, 2000) claims that "portfolios provide an invitation for self-evaluation," (p. 114) and growth. In addition to development, learner directed assessment situated in portfolio pedagogy changes the entire learning dynamic of the classroom (Hirvela & Pierson, 2000). As such, portfolio assessment can be considered a method of intellectual growth, since it can be used to record intellectual growth leading to a higher-order, critically reflective process (Zubizarreta & Mills, 2009; Faravani & Ataei, 2015a; Faravani & Ataei, 2015b).

In synthesis, what makes portfolios highly beneficial and relevant in the context of foreign language learning are four essential features of a diachronic framework, an accommodation of learner variation, a notion of learning as an active process, and a component of critical reflection (Gottlieb, 2000).

The conceptualization of Gardner's theory of multiple intelligences led to the call for an intelligence-fair assessment because traditional forms of testing primarily evaluate verbal-linguistic and logical-mathematical intelligence and neglect other types of intelligence (Gardner, 1999). Alternative assessment techniques like portfolio assessments, as suggested by Gardner, can incorporate different types of intelligences as they embrace tasks that challenge and test the individuals' intellectual ability in a way which reflects the individuals' probable experience in the field . Moreover, a synthesis of multiple intelligences with learning styles makes learning more enjoyable (Faravani & Ataei, 2015a; Faravani & Ataei, 2015b). Therefore, it seems that the implementation of portfolios as a kind of teaching strategy, considering learning styles and individual differences as the main features, can be used in a way directed to learners' intelligences , and so it can contributes to more enjoyable learning and subsequently thinking for students who struggle in traditional classrooms.

Multiple-Intelligences and Higher Order Thinking

A practical method of teaching that may expedite the learning of higher level thinking skills is to implement Gardner's (1983) theory of multiple intelligences into teaching strategies. Gardner (1983) contends that course materials should be used in a way that they encompass all the eight intelligences in the classroom. However, Gardner (1999) argues that only mathematical and linguistic types of intelligences have been valued in schools while other intelligences have been ignored. Gardner (1983) suggests that "particular domains of human competence seem to require their own brand of critical thinking" (p. 44).

The theory of Multiple Intelligences is based on three underpinning principles: (a) Individuals are different --individual differences exists; (b) humans have different kinds of minds; and (c) education becomes most conducive if individual differences are considered. The notion of individual differences encouraged Gardner to develop the theoretical bases of Multiple Intelligences (Gardner, 1999).

Hence, an eminent and widely adopted conceptualization from Gardner's Multiple Intelligences theory is individualization. In other words, MI theory accounts for individual differences by providing opportunities for learners to be taught in different ways according to their strengths. Such differences arise because each domain of intellectual capacity is expected to be relatively independent of the other domains, implying that individuals would show very different profiles of strengths and weaknesses across the domains of intelligence (Lalley & Gentile, 2009). A student with a strong linguistic intelligence may produce a creative and original poem but may have difficulties in a task that needs high-level spatial ability. Therefore, when instruction, assessment, grouping, and activities are oriented toward students' dominant intelligence, they are more likely to engage higher order thinking. Likewise, MI-oriented

writing-based portfolio assessment can be implemented to offer different ways of learning for learners with different abilities through different writing activities designed for each type of intelligence.

Moreover, portfolios can be an effective teaching strategy to assess and enrich students' intelligences based on MI, as portfolios nurture the conditions for having diverse and attractive materials, making students aware of their strengths and weaknesses through reflection and ongoing feedback, and making students committed through self/peer assessment. As the provision of continuous feedback on students' work to chronicle development is necessary in portfolio assessment (Cohen & Spenciner, cited in Schlepphege, 2009) and is a major factor in the enhancement of HOTS, including critical thinking (Schlepphege, 2009), MI-oriented writing-based portfolio assessment, as a kind of authentic assessment technique, with an emphasis on providing feedback can contribute to the development of HOTS.

In synthesis, the application of MI theory into the portfolio approach is expected to enable students to utilize their multiple intelligences and improve their higher order thinking skills through a variety of teaching activities. As Armstrong (2003) has suggested, it is essential that educators and teachers integrate MI with instruction through using MI-oriented tasks.

Dialogic Feedback and HOTS

Feedback has a long history in educational systems (Keh, 1990) and has been defined differently by diverse educators. Keh (1990) delineated feedback as giving the results of the learners' functioning to the learners themselves, their parents, and educational system. When teachers give feedback to students, students become aware of the way they learn (Keh, 1990). VanPatten and Benati (2010) conceptualized feedback as the response that learners receive regarding the language they produce. Feedback, as Ferm Lange (2009) perceives, is a natural part of language that people use to elucidate the meaning of what they say, and to help themselves and others understand what they mean, by asking questions. However, generally, feedback is characterized as all kinds of dialogue that support learning.

Pekrun, Goetz, Titz, and Perry (2002) believe that feedback is conducive to student self-regulation--planning, adapting learning strategies to task demands, and evaluating learning. According to Ferm Lange (2009), feedback guides and develops a learner's thinking, and is therefore a crucial part of the learning process. Furthermore, feedback and questions play an essential role in developing students' proficiency (Rasol, et al., 2020). Performances in English Proficiency Course with Students' Ability in Answering Higher Order Thinking Skills Questions. Environment-Behaviour Proceedings Journal, 5(SI1), 157-162., especially writing proficiency, in second language learners. Feedback is not only an essential determinant for the development of second language (L2) writing skills, but also is a vital factor for increasing students' motivation. In its most productive forms, feedback develops students' higher level skills through nurturing their competencies for making judgments, problem-solving, self-appraisal and reflection (Sadler, 2010).

Adopting a rather one-way trans missive view of feedback, which is mostly monologic, has been criticized in the literature as being inefficient in terms of teacher time (Hattie & Timperley, 2007; Nicol, 2010). Furthermore, students may have difficulty understanding the feedback provided, therefore, limiting its contribution to future development (Sadler, 2010).

Nicol (2010) proposes that feedback should be conceptualized as a dialogical and contingent two-way process that involves coordinated teacher–student and peer-to-peer interaction as well as active learner engagement. Dialogic feedback suggests an interactive exchange in which interpretations are shared, meanings negotiated and expectations clarified. Dialogic approaches to assessment can guide students on what is good performance by facilitating discussions of quality in relation to specific assignment tasks, and also support them in developing enhanced ownership of assessment processes.

Juway et al., (2004) provide a list of seven principles of good feedback practice. They believe that good feedback practice should:

Facilitate the development of self-assessment (reflection) in learning.
Encourage teacher and peer dialogue around learning.
Help clarify the nature of good performance (goals, criteria, standards expected).
Provide opportunities to close the gap between current and desired performance.
Deliver high quality information to students about their learning.
Encourage positive motivational beliefs and self-esteem.
Provide information to teachers that can be used to help shape the teaching (p. 6).

Sutton (2009) believes that dialogic feedback has all the seven principles of good feedback practice, provided by Juway et al. (2004). For example, based on the first principle of good feedback practice; that is, facilitating the development of self-assessment (reflection) in learning, Sutton argues that dialogic feedback provides opportunities for students to become reflective learners through the process of understanding and using feedback. Good feedback facilitates the process of students entering into a dialogic relationship with themselves.

Encouraging teacher and peer dialogue around learning is the second principle. Sutton points out that dialogic feedback makes students have a dialogic relationship with themselves and a dialogic relationship with their tutors. Also, dialogic feedback helps students understand the nature of good performance (the third principle).

The meaning of assessment criteria is open to misunderstanding. Through dialogue, students can understand the learning outcomes and assessment criteria. The fourth principle is providing opportunities to improve performance. Sutton proposes that feedback should provide a clear justification of why a particular mark is awarded to improve importance. It should also provide a clear delineation of the shortcomings and strengths of an assessment. He further suggests that dialogic feedback provides "a clear relationship between the written comments and the grade in order to reduce ambiguity" (p.7). Shorthand comments such as weak or strong and question marks written on student work should be avoided since their meaning is unclear. Delivering

high quality information to students about their learning is the fifth principle. Dialogic feedback has a high quality, since it is focused, related to the learning outcomes, and understandable. Based on the sixth principle, dialogic feedback makes students extrinsically and intrinsically motivated by providing grades and positive comments.

The seventh and last principle is providing information to teachers that can help shape their teaching. Sutton believes that dialogic teaching necessitates the creation of opportunities in which students can provide feedback to tutors. Feedback from students can help tutors to adjust their teaching strategies in order to accommodate the learning needs of particular students (Bemani, Zohoorian, Ambigapathy, 2014).

Dialogic feedback can be more effectively used by students, enabling them to become more critical and reflective learners and improve their performance (Sutton, 2009). Dialogic feedback is of great importance within critical and reflective pedagogy. It is central to the process of enabling students to learn how to learn and to become reflective, autonomous learners (Sutton, 2009). In a dialogic-based educational approach, acceptance and encouragement of multiple voices tend to enhance confidence, stimulate memory, promote higher order thinking, and encourage individual expression and style in the students (Van Lier, 1996).

Marchenkova (2005) envisions a dialogic classroom where students are encouraged to participate in a general dialogue to express their unique horizons, values, and world views. In such dialogic and learner-centered classrooms, diversity is celebrated and considered an advantage and a necessary condition for thinking and creativity. Traditional assessment practices, including end-of-module examinations that focus on memorization and direct feedback rather than the evolution of new thoughts or higher order thinking skills, are unlikely to encourage dialogic feedback. However, portfolios can facilitate dialogic feedback.

Conclusion

As thinking can affect the speed, ability, and effectiveness of learning, teaching, and learning of higher order thinking skills is one of the main goals of education. Higher order thinking skills help students use their talents quickly, maintain high levels of success (Copeland, 2005), improve their performance reduce their weaknesses and become independent lifelong learners (Tsui, 2002). Thus, merging higher order thinking skills with the curriculum will be highly valuable.

Among the different teaching strategies and assessment techniques to nurture higher-order-thinking skills in EFL students, the infusion of writing-based portfolio assessment, multiple intelligence, and dialogic feedback seem to be efficacious interactive assessment methods. Portfolios are a method of intellectual growth with the main processes of reflection, evaluation, and revision which, in turn, may lead to the enhancement of higher level thinking skills. Moreover, portfolios allow for the accommodation of learner variation by considering learners' preferences in learning. However, when integrated with Gardner's theory of multiple

intelligences, portfolios can better cater to multiple dimensions of thinking and learning. The learning and higher order thinking skills of an individual, as Gardner (1999) contends, can be improved when the dominant intelligences are utilized in the learning process. Therefore, when instruction, assessment, grouping, and activities are oriented toward students' dominant intelligence, they are more likely to engage in higher order thinking. Likewise, MI-oriented writing-based portfolio assessment can be implemented to offer different ways of learning for learners with different abilities through different writing activities designed for each type of intelligence.

Moreover, portfolios cultivate the conditions for making the students aware of their strengths and weaknesses through reflection and ongoing feedback. On-going feedback on students' work to chronicle development is a major factor in the enhancement of HOTS, including critical thinking (Banfi, 2003; Schlepphege, 2009). Feedback can be delivered in a dialogical and contingent two-way process (Nicol, 2010) to enable the students to become more critical and reflective (Sutton, 2009). Thus, portfolios, multiple intelligence, and dialogical feedback are all teaching strategies that promote higher-level thinking skills.

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