

CHAPTER 3

**SOCIAL CONTEXT CONDITIONS FOR CRITICAL
THINKING**

"By three methods we may learn wisdom:
First, by reflection, which is noblest;
Second, by imitation, which is easiest;
and third by experience, which is the bitterest."
— Confucius

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3.1 Overview of Chapter 3

This chapter follows up the discussion in Chapter 2, particularly drawing from the 'social context of critical thinking' (Barnett, 1997), Piaget's (1971) and Vygotsky's (1978) theories of learning. Drawing from their work, group learning is identified as the social contextual condition for critical thinking in section 3.2. However, due to its broad definition and a brief review of relevant literature on critical thinking in the context of group learning, cooperative learning is identified to provide the theoretical reference for group learning in this study. The theoretical frameworks of cooperative learning are discussed in detail in section 3.3. By using cooperative learning as the theoretical reference, it is substantiated that group learning provides the social contextual conditions for critical thinking. This chapter continues to consider the key factors that promote critical thinking in the context of group learning in section 3.4. After reviewing the relevant literature, particularly the students' perceptions of group learning and cooperative learning in section 3.5, the research objective and the analytical framework for this study are formulated in section 3.6. Methodological issues such as research design and approaches are briefly discussed in this chapter. This chapter, together with Chapter 2, therefore provides sound groundwork for the research methodology for this study, which is discussed in Chapter 4.

3.2 Justifying Group learning as a social contextual condition for critical thinking

3.2.1 Defining group learning for the study

Similar to critical thinking, group learning also suffers from a lack of a unifying definition (Wilson, Goodman and Cronin, 2007). For example, Ravenscroft, Buckless and Hassall (1999) note that most of the literature uses the terms 'cooperative learning' and 'collaborative learning' interchangeably, while the European literature uses 'group learning' as an umbrella to cover both terms. Wilson *et al.* (2007) note that definitions of group learning vary in terms of their foci. They argue that some authors focus on the processes while others focus on the outcomes. For example, Edmondson (1999) defines group learning as "an on-going process of reflection and action, characterised by asking questions, seeking feedback, experimenting, reflecting on results, and discussing errors or unexpected outcomes of actions" (p.129, cited in Wilson *et al.*, 2007). This definition of group learning focuses on the process.

Jaques (2000) suggests that there are eight key characteristics of a 'group': collective perception; needs; shared aims; interdependence; social organisation; interactions; cohesiveness and membership. These characteristics help to differentiate between 'groups' and collections of individuals. This is helpful especially in the constructivist model of learning within HE, because all gatherings for educational purposes have some elements of group interaction, be they large lectures, seminars, tutorials or group projects, inside or outside of the classroom. However, there must be some characteristics that differentiate between group learning and group gathering for a group task. The former emphasises learning together as encouraged in a constructivist model of learning; by contrast, the latter focuses on completing the group tasks. With the constructivism stance in mind, this study takes the view that group learning should encompass these characteristics and facilitate learning. In other words, just placing students in groups and expecting them to work together does not necessarily represent group learning.

This study takes the view that group learning can be an overarching term defining any learning models that require learners to come together for an educational purpose, such as team learning, cooperative learning, small group learning and collaboration learning. Educators often use group learning without being aware of its pedagogical benefits and disadvantages. With this in mind, section 3.2.2 considers previous studies on the relationship between group learning and critical thinking.

3.2.2 Studies on the relationship between group learning and critical thinking

A number of studies have linked group learning and critical thinking, which support the assumption of group learning providing the social contextual condition for critical thinking. For example, Thayer-Bacon (2000) highlights the importance of working together in developing critical thinking skills because, like Barnett (1997), he argues for a social model of critical thinking that is based on a relational ontology and a relational epistemology. In other words, Thayer-Bacon (2000) takes a constructivist stance towards critical thinking. As mentioned earlier, group learning can be an overarching term that includes any learning contexts that require students to collaborate and work together for any educational purposes. In this sense, the review of studies is not limited to the term 'group learning' alone.

Several studies have used collaborative learning to enhance critical thinking (Gokhale, 1995; Waite and Davis, 2006). Gokhale (1995) compared the effects of individualistic learning and collaborative learning on critical thinking with forty-eight undergraduate students in Industrial Technology at one US University. Gokhale (1995) developed the pre-test and post-test according to Bloom's taxonomy for the study. Using statistical analysis, he found that students who participated in collaborative learning performed significantly better in a critical thinking test than students who studied individually. This study concluded that collaborative learning facilitated the development of critical thinking through interaction, discussion and evaluation of others' perspectives.

Likewise, Waite and Davis (2006) examined the potential for collaboration to act as a catalyst for the development of critical thinking with final year undergraduates on a BA Early Childhood Studies programme in UK. This paper reported that students' perceptions of cooperation had offered an appropriate way to foster critical thinking. They combined their students to form a single collaborative group of nine, including themselves as tutor participants. They held seven collaborative meetings and audio-taped the latter six. They listened to and transcribed those tapes, and provided a summary of the discussions after each meeting, which was circulated to the collaborative research group. Emergent themes were discussed and refined and informed the authors' responses to students and their plans for support. Students' responses generated themes such as critical appraisal of their own and others' views, alternative perspectives, precision and focus, and valid and comprehensive information. Students were also asked to fill out a questionnaire about their attitudes and their experiences of collaboration; they were positive about their experiences. This study also concluded that the principal catalytic contribution to critical thinking was the collaborative context that generated alternative viewpoints for consideration.

Only two publications that involve group learning, critical thinking and accounting education have been identified. Sullivan (1996) discussed the use cooperative learning to teach financial statement analysis while at the same time developing students' critical thinking. Sullivan (1996) encouraged accounting teachers to reconsider their teaching style, adopting more cooperative techniques that allow students to develop problem solving skills and critical thinking. However, this paper was a teaching note rather than an empirical study. There is no evidence of such a relationship between cooperative learning and critical thinking in accounting students.

Similarly, Kern (2000) documented her project, which required analysis of financial statements in a cooperative learning setting. She provided a description of the project and believed that it would help students to develop

critical thinking by integrating affective, cognitive and behavioural components into the project. She also argued that by doing so, such instructional strategy could be adapted to other subjects, such as assessing risk in an auditing class. However, this article was also written as a teaching note, and it did not provide any results or analysis from the project.

On the other hand, there have been some studies on peer interaction, peer coaching and co-reflection pertaining to critical thinking (Topping, 1988; Falchikov and Blythman, 2002; Yukawa, 2006; Guiller, Durndell and Ross, 2008; Quitadamo, Brahler and Crouch, 2009). However, since this study is focusing on group learning, which involves more than two members, these few studies are not relevant. However, the principles for such methods are similar and they report positive contributions to critical thinking.

3.2.3 Linking cooperative learning with group learning

Drawing from the discussion above, given that this study takes the view that group learning can be an overarching term defining any learning models that require learners to come together for an educational purpose, a clear understanding of what constitutes group learning will enhance our understanding of this important phenomenon. Drawing from the review of studies above, cooperative learning has been one of the specific group learning models used and studied in relation to critical thinking. Therefore, cooperative learning is identified and considered for this purpose.

Before proceeding to section 3.3, it must be noted that cooperative learning and group learning are often used synonymously in the literature (Ballantine and Larres, 2009). Ballantine and Larres (2009) suggest differentiating them by conceiving a continuum, where at one end, there is a simple form of group learning that may or may not include the five key elements of cooperative learning (discussed in section 3.3.1 later). At the other end, a formal structure of group learning must include the five key elements. This is a helpful suggestion but it can be a challenging task, especially considering ethical issues during the

operationalisation stage of the research. The next section examines cooperative learning in detail to demonstrate how it provides the theoretical reference for group learning, which in turn provides the social contextual conditions for critical thinking, and its role in the research design and approaches in this study.

3.3 Identifying theoretical reference for group learning – cooperative learning

In this section, cooperative learning is identified not only for the purpose of demonstrating how group learning can provide the social contextual conditions for critical thinking, but also because it provides the theoretical reference for the research design and approaches in this study with its tested and validated framework.

Why cooperative learning? To answer this question, this study suggests considering Johnson and Johnson's cooperative learning model, which defines cooperative learning as "the instructional use of small groups in which students work together to maximize their own and each other's learning" (Johnson & Johnson, 1999, p.5). Johnson and Johnson's (1999) model fits well with the model of critical thinking for this study, as it considers the issues of context, process and result of the learning. In addition, it also aligns with the constructivist model of learning within HE and the view the study takes on group learning.

The rationales for considering cooperative learning in this study are as follows:

1. The underpinning theory of cooperative learning refers to the constructivist model of learning, which is advanced by both Piaget's and Vygotsky's work (see section 2.5.2). Particularly, Vygotsky's (1978) social constructivist theory promotes the use of group learning in the classroom.
2. Johnson *et al.* (1983) and Johnson and Johnson's papers (2009, 2005 and 1989) clearly celebrate what they argue to be the success stories of the widespread use of cooperative learning. The Johnsons' body of work

(2009, 2005 and 1989) shows how cooperative learning and social interdependence theory (SIT), discussed in the next section, had been evaluated empirically for several decades. One particular benefit that would be relevant for this study, which was confirmed in their enormous numbers of research studies, is the positive outcome of developing students' higher-level reasoning, critical thinking and meta-cognitive skills. Johnson and Johnson (1989) claim in their studies that cooperative learning experiences promote the development of critical thinking.

3. To draw on the theoretical framework of cooperative learning and consider the extent of its use to provide guidelines and principals for group learning to be designed and structured purposefully in the study.

With this in mind, the following discussion refers mainly to Johnson and Johnson's body of work on SIT and Constructive Controversy theory (Johnson and Johnson, 2009a, b, 1989, 1985, 1979,). This body of work is considered here to give a brief overview and to explain how both theories work with critical thinking for the purpose of this study.

3.3.1 Cooperative learning and Social Interdependence Theory (SIT)

Johnson and Johnson (1989) suggest that there are at least three general theoretical perspectives that have guided the foundations and research on cooperative learning, namely cognitive-developmental, behavioural and social interdependence, as illustrated in Figure 3.1 below. These three perspectives emphasise the role of interdependency in cooperative learning, which is considered below.

The **behavioural perspective** suggests that cooperative efforts are driven by extrinsic motivation to achieve group rewards. This perspective reinforces the need for extrinsic group rewards to motivate group members to work in cooperation in order to achieve group tasks and goals (Slavin, 1990); this is illustrated in Figure 3.1. One way to achieve this is to assess the group work

based on each member's contribution (task interdependence) and having a common reward such as a shared grade (reward interdependence).

The **cognitive developmental perspective** is largely grounded in the theories of Piaget (1971) and Vygotsky (1978). Piaget and related theorists argue that when individuals work together, "socio-cognitive conflict occurs that creates cognitive disequilibrium, which in turn stimulates perspective-taking ability and cognitive development" (Johnson and Johnson, 1989, p.89). On the other hand, the work of Vygotsky and related theorists is based on the premise that knowledge is "social, constructed from cooperative efforts to learn, understand, and solve problems" (Johnson and Johnson 1989, p.89).

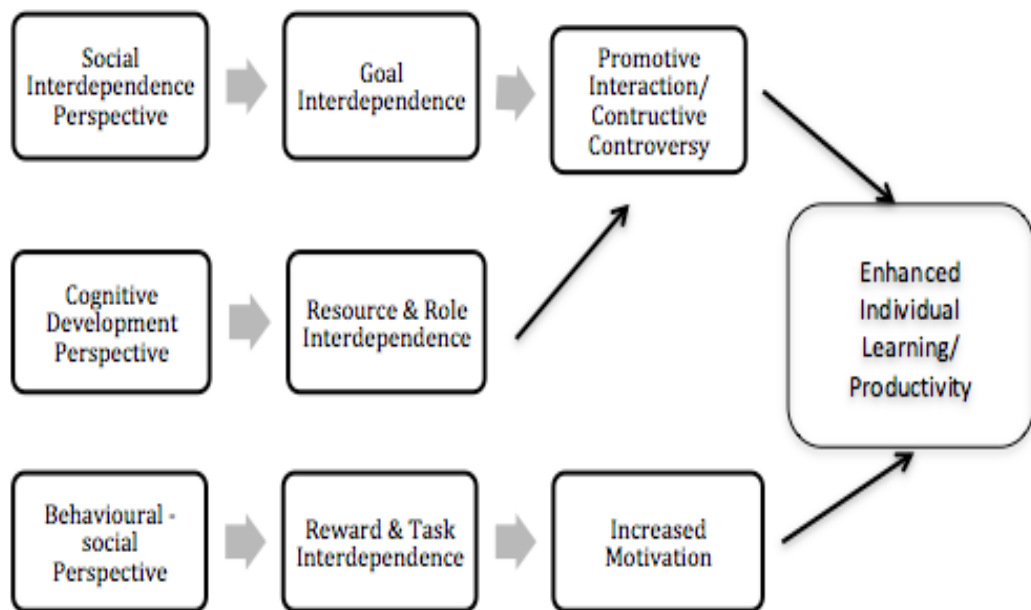


Figure 3.1: A General Theoretical Framework of Cooperative Learning (adapted from Johnson *et al*, 1989, p.3:6). Used with permission of the authors.

The cognitive developmental perspective views cooperation as an essential prerequisite for cognitive growth. It flows from the coordination of perspectives as individuals work to attain common goals. In this sense, it emphasises the importance of having shared resources, such as shared information and

contribution from group members (resource interdependence); and fulfilling assigned responsibilities (role interdependence).

Notably, Piaget stresses that when individuals co-operate, healthy socio-cognitive conflict occurs that creates cognitive disequilibrium, which in turn stimulates perspective-taking ability and cognitive development. On the other hand, Vygotsky believes that cooperative efforts to learn, understand and solve problems are essential for constructing knowledge and transforming the joint perspectives into internal mental functioning. For both Piaget and Vygotsky, working cooperatively with more capable peers and instructors results in cognitive development and intellectual growth.

In other words, the theoretical framework of cooperative learning draws from the major theme of Vygotsky's theories: that social interaction plays a vital role in the development of cognition. Vygotsky's (1978) theories stress the significant role of social interaction in the development of cognition, as he believed strongly that the community played a central role in the process of "making meaning." This is the social constructivist orientation to learning, as examined in Table 2.4 in Chapter 2, which plays a central role in cooperative learning.

To draw links with critical thinking, the cognitive development perspectives of cooperative learning, which use Piaget's and Vygotsky's theories, claim that knowledge is socially constructed from social interaction (in this study, group learning) and cognitive disequilibrium (conflict, different perspectives, different meaning-making and discussion in the cooperative learning group), which exists when there is a constructive controversy, and that this phenomenon stimulates cognitive development (in this case, critical thinking). Therefore, it can be argued that critical thinking can be developed when we rely on others for their resources and their roles in the group, as seen in Figure 3.1. This also aligns with Barnett's (1997) notion of the social context of critical thinking and the social influences on critical thinking.

However, while the cognitive developmental and behavioural theoretical orientations have their roles in the cooperative learning theoretical framework, Johnson and Johnson (1989) argue that the most important theory dealing with cooperation is **Social Interdependence theory (SIT)**. This perspective emphasises the importance of goal interdependence, which can be achieved, for example, by asking members to agree with an answer for the group (goal interdependence). According to Figure 3.1 above, SIT argues that positive interdependence results in Promotive interaction as members encourage one another to learn. When this Promotive interaction is combined with increased motivation, it results in enhanced learning and productivity (Johnson, Johnson and Holubec, 1993). This study suggests that constructive controversy occurs when there is Promotive interaction; therefore, it is added to the same box in Figure 3.1.

SIT proposes that there are three different ways in which students can interact with each other as they learn. They can compete to see who is the best, they can each work on their own or they can work cooperatively with others' interests in mind as well as their own.

To inculcate the essence of SIT into a group learning setting, there are five essential components that need to be systematically structured into group learning situations to ensure that maximum cooperation efforts. These five elements of cooperative learning are important to achieve cooperative work. It can be observed that these five elements are derived from the theoretical framework of cooperative learning (see Figure 3.1), and the vital role of interdependence is considered together with the five elements below.

1. Positive interdependence – members understand that they must learn together to accomplish the goal. Students must realise that they can achieve their learning goal only if all other members also achieve their goals (goal interdependence).
2. Individual accountability – holding an individual accountable for contributing to the group's success (role interdependence), which in

turn makes that member a stronger individual. Johnson et al. (1993) explain that this is a measurement of whether each member has achieved the group goal. One way to structure this in cooperative learning is to have random oral examinations to keep track of students' contribution to the group task.

3. Face-to-face promotive interaction – students need to do real work together (task interdependence) in which they promote each other's success by sharing resources (resource interdependence) and helping, supporting, encouraging and praising each other's efforts to learn.
4. Interpersonal and small group social skills - the ability to communicate effectively with one another.
5. Group processing - a reflection of how well the group is functioning, how well they are doing to achieve the common goal (goal and reward interdependence).

Besides the five key elements, Johnson and Johnson also argue that conflict could be an important tool; nonetheless, it is rarely used in the classroom because of its presumed destructive nature. For example, conflict can be destructive when it results in damaged relationships and distrust among members. However, Johnson and Johnson believe that conflicts can be *constructive*, hence the development of Constructive Controversy Theory.

Johnson and Johnson, in line with Piaget and Vygotsky, believe that intellectual conflict is the catalyst for learning; in other words, it energizes learning. They claim that intellectual conflict can bring potential benefits to students. For example, it can produce higher levels of cognitive reasoning and creativity and divergent thinking (Johnson and Johnson, 2009b).

Constructive controversy “exists when one person's ideas, information, conclusions, theories, and opinions are incompatible with those of another and the two seek to reach an agreement” (Johnson and Johnson, 2007, cited in Johnson and Johnson 2009b, p.38). Constructive controversy is commonly

contrasted with concurrence-seeking, debate and individualistic learning. Table 3.1, below, summarises the key features of these four processes.

It is important to note the differences among these four processes with regard to the level of uncertainty, motivation or epistemic curiosity and the revised conclusion. For instance, students could quickly agree and reach a conclusion by compromising on the issues (concurrence-seeking) or an acting judge (who could be a group member or a teacher) could decide who wins based on the best arguments made when two students are arguing a point (debate). Finally, students could choose to work independently with their material at their own pace and using their own views.

The most important differentiating factor is the level of epistemic curiosity and the responses from this motivation. It can be noticed that all positions except Constructive Controversy adopt a closed-minded stance towards others' views or continue to have high certainty about the correctness of one's own views. In other words, if students were satisfied with what they already know, they would conclude that they have learned all there is to know and have no interest in considering what others have to offer in their learning. Students may bring with them an open or closed-minded stance to group learning. Therefore, if students were to take a close-minded stance to their group learning, they might not engage in critical thinking. This can be linked with the epistemology development discussed in section 2.5.1 and related to critical thinking. The personal stance has been introduced in Chapter 1 and it will be considered more fully in Chapter 4.

Table 3.1: Constructive Controversy, Debate, Concurrence Seeking and Individualistic Processes (Johnson and Johnson 2009b, p.39). Used with permission of the authors.

Process	Constructive Controversy	Debate	Concurrence Seeking	Individualistic Efforts
Initial conclusion	Categorising and organising information to derive conclusion	Categorising and organising information to derive conclusion	Categorising and organising information to derive conclusion	Categorising and organising information to derive conclusion
Oral presentation	Presenting, advocating and elaborating position and rationale.	Presenting, advocating and elaborating position and rationale.	Presenting, advocating and elaborating position and rationale.	No oral statement of positions.
Level of uncertainty	Being challenged by opposing views results in conceptual conflict and uncertainty about correctness of own views.	Being challenged by opposing views results in conceptual conflict and uncertainty about correctness of own views.	Being challenged by opposing views results in conceptual conflict and uncertainty about correctness of own views.	Presence of only one view results in high certainty about correctness of own views.
Motivation	Epistemic curiosity motivates active search for new information and perspectives.	Closed-minded rejection of opposing information and perspective.	Apprehension about differences and closed-minded adherence to own point of view.	Continued high certainty about the correctness of own views.
Revised conclusion	Reconceptualisation, synthesis, integration.	Closed-minded rejection of opposing information and perspectives.	Quick compromise to dominant view	Adherence to own point of view
Relative outcomes	High achievement, relationship quality and psychological health.	Moderate achievement, relationship quality and psychological health.	Low achievement, relationship quality and psychological health.	Low achievement, relationship quality and psychological health.

Therefore, constructive controversy will encourage students to consider others' views and perspectives even if a conflict occurs during their interaction and discussion. Students will process the information and arguments given and reach conclusions together with group members. However, it is not as simple as it seems to be. Constructive controversy theory suggests that for students to reach a conclusion, a series of processes are involved. The process of constructive controversy is illustrated in Figure 3.2 below.

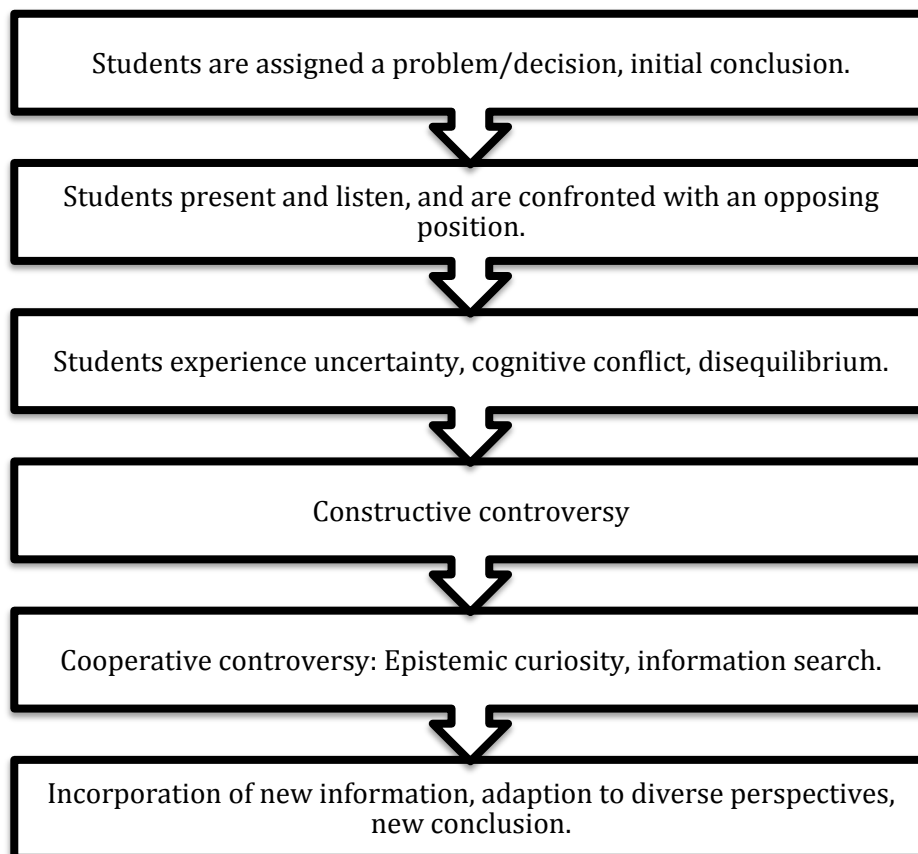


Figure 3.2: Process of Constructive Controversy (Johnson & Johnson 2009b, p.240). Used with permission of the authors.

To explain the process further, here are some key points:

1. When students are presented with a problem, they form an initial conclusion based on their limited information, experience and perspectives.
2. When they present their views to the group in cooperative learning, they tend to engage in cognitive rehearsal and high-level reasoning, thereby deepening their understanding of the problem.
3. When the students are confronted and challenged with their presented views, based on others' new information, experiences and perspectives, they tend to be uncertain about the correctness of their initial views. This creates intellectual conflict or disequilibrium.
4. Such uncertainty, intellectual conflict or disequilibrium arouses epistemic curiosity. This curiosity motivates students to search for more information and new experiences and more adequate cognitive perspectives and reasoning to increase and validate their knowledge about the problem, hoping to resolve the uncertainty.
5. Finally, by adapting their cognitive perspective and reasoning through understanding others' views, students then accommodate these views, experiences and perspectives to derive a new, reconceptualised and reorganised conclusion.

Johnson and Johnson (1999) also list five prerequisite conditions to promote constructive controversy, which are considered below:

1. Structuring learning activities cooperatively: In other words, the learning activities or tasks should be structured with the key five elements of cooperative learning mentioned earlier.
2. Heterogeneous group forming: Johnson and Johnson argue that the heterogeneity leads to potential controversy. The differences among students in terms of personality, gender, attitudes, social background, cognitive reasoning strategies, cognitive perspectives and skills potentially lead to diverse information and experiences.

3. **Balanced distribution of information:** Students must have information that is relevant to the task they are working on. However, having relevant information does not mean that it will be fully utilised. This depends on the task and whether its answers are immediately recognisable and accepted, hence leading to a situation of constructive controversy.
4. **Level of social skills:** In order to manage controversies constructively, students must have a minimal level of communication skills, skills for exchanging information and opinions.
5. **Active involvement of all members:** This condition again reinforces the importance of interdependence, where every member in the group shall participate and contribute toward achieving the group goal.

Johnson and Johnson (2009b) claim that the constructive controversy theory provides empirical evidence that shows positive outcomes. Those outcomes that are relevant to this study are:

1. **Cognitive reasoning** – they posit that such interaction and argument create disequilibrium within individual cognitive structures, which motivate deeper and more mature reasoning processes.
2. **Perspective taking** – Most students tend to have high certainty about their views and perspectives if they work alone, and to be unaware of others' alternative views. This has been explained by referring to individualistic effort in Table 3.2. In addition, most students do not see the whole picture, but only see what their perspective and experience lead them to see, and they tend to be biased towards their own view. Their research has showed that constructive controversy tends to promote an accurate and complete understanding of the opposing view. This is because students are more engaged in the constructive controversy process.
3. **Open-mindedness** – Similarly, their studies also showed that students participating in constructive controversy tended to be more open-

mindful in listening to opposing ideas. This aligns with the point above. Moreover, it also possibly relates to critical thinking disposition, students' personal stance and motivation in learning.

4. Critical thinking through structured controversy (Johnson and Johnson, 1988) – this article reinforces the evidence of the appropriateness of this theory to develop critical thinking in students.

Johnson and Johnson (2009, 2005, 1989) claim that SIT has been tested and validated over the years. This is one of the main reasons why cooperative learning is considered for this study. The sound theoretical base provides a framework to gain better understanding of events and experiences from the students' perspectives. Cooperative learning, therefore, provides the guidelines and principles for group learning to be structured purposefully, and particularly for students to engage with critical thinking.

Drawing from the discussion above, cooperative learning is therefore considered for its theoretical foundations, its instructional effectiveness and its unique key principles, particularly in relation to critical thinking. The theoretical framework of cooperative learning is examined above, with the intention to justify its suitability for this purpose, and at the same time to claim its rightful place for this study.

In summary, this study suggests that group learning, informed by the theoretical framework of cooperative learning, could provide the social contextual conditions for students to engage in critical thinking. It is important to note that this framework is congruent with Piaget's and Vygotsky's theories, proposing that cooperative learning is an appropriate vehicle to provide the social contextual conditions for critical thinking in this study.

So, why use cooperative learning for critical thinking? Perhaps Johnson & Johnson (1989, p.40) sum it up best in the following:

...cooperative learning is indicated whenever the learning goals are highly important...the task is complex or conceptual, problem solving is

desired, divergent thinking or creativity is desired, quality of performance is expected, and higher level reasoning strategies and critical thinking are needed.

In other words, cooperative learning not only fits well with Barnett's (1997) notion of the social context of critical thinking, but also aligns well with the model of critical thinking for this study in respect of the skills, reflections and dispositions considered in Chapter 2.

3.4 Identifying key factors that promote critical thinking in the context of group learning

After understanding and identifying that group learning, with the theoretical reference of cooperative learning, is the social contextual condition for critical thinking, this section turns to the question of what might happen in this social learning context in order to facilitate or promote critical thinking. To put this into another perspective, it asks what might encourage students to engage in critical thinking in group learning? Four factors are identified after reviewing literature on group learning and cooperative learning, especially drawing from SIT and Constructive Controversy theory. The following sections identify and describe these four factors in more detail respectively. They are promotive interaction (Section 3.4.1), constructive controversy (Section 3.4.2), motivation (Section 3.4.3) and the use of case study (Section 3.4.4).

3.4.1 Promotive Interaction

Promotive interaction, discussed in section 3.3, is one of the five key elements of cooperative learning in Johnson and Johnson's model (Johnson and Johnson, 1999). This element emphasises that team members need to recognise that the success of the group depends on the contributions of each member. Therefore, they need to appreciate that constant interactions, particularly face-to-face interactions, are the key to success. The way individuals interact depends on how the interdependence is structured into the situation. Group learning with cooperative learning principles therefore provides the condition for Promotive

interaction to play a role in the engagement of critical thinking. Promotive interaction can take the form of group presentations or group assignments that require everyone's input to achieve group goals.

The agency of promotive interaction for this study will be the following:

1. It contributes to the socialisation of values, attitudes and ways of knowing. According to Johnson (1981), peer interaction allows students to reinforce social behaviour, attitudes and perspectives. It challenges students' ways of perceiving the self, knowledge and the world when they interact with others with different perspectives.
2. Johnson (1981) also suggests that this interaction contributes to the emergence of perspective-taking abilities. This allows students to consider views other than their own. This is where critical thinking starts to take place.

Interaction among peers plays an important role in facilitating critical thinking in learning. This again supports the notion of social context of critical thinking. Though critical thinking can take place through individual learning, group learning with this promotive interaction provides more opportunity and possibility for critical thinking to take place. In other words, this element must exist in group learning to encourage students to engage effectively in critical thinking. This is because it is possible that students are coming together to *work* in the group, rather than to *learn* in the group. The difference between these two scenarios depends on whether the students come to the group to interact, exchange knowledge and perspectives, discuss and debate, or just to divide tasks equally between members and work individually. Therefore, promotive interaction is an essential condition for group learning, as well as a key factor for the engagement of critical thinking for this study.

Promotive interaction works hand-in-hand with the next factor, constructive controversy, to facilitate and promote the engagement of critical thinking in group learning. Again, this is based on the assumption that students learn from

the cognitive conflict and curiosity in group learning. This factor is considered in section 3.4.2.

3.4.2 Constructive Controversy

To reiterate, constructive controversy “exists when one person’s ideas, information, conclusions, theories, and opinions are incompatible with those of another and the two seek to reach an agreement” (Johnson and Johnson 2007, cited in Johnson and Johnson 2009b, p.38). This can happen when students interact in group learning, and it is facilitated by Promotive interaction, preferably in the form of face-to-face interaction. The process of constructive controversy theory points out that when students are assigned a problem, they first form their initial conclusions. When they meet with others to deliberate the problem, i.e. discuss, analyse and explain, in cooperative learning, they are likely to face confrontation and challenges to their initial conclusions. They will start to feel uncertain about their initial conclusions and be motivated to search for more information and clarification from others’ knowledge and experience. Then, they reach a new conclusion by adapting their initial one with new ideas and taking in others’ perspectives. It is argued here that as the students are willing to move along this process, it indicates that they are beginning to have the disposition and capacity to engage in critical thinking. Johnson and Johnson (1988) claim that constructive controversy has the ability to facilitate and promote the development of critical thinking. However, this study hopes to incorporate this element to encourage students to *engage* in critical thinking.

Constructive controversy theory has been considered in detail in section 3.3.1. The theory introduces the process of controversy into students’ learning context. Promotive interaction works closely with this theory because without face-to-face interaction, the process of controversy cannot take place in the most effective manner. A simplified version of the process of Constructive controversy theory is presented below.

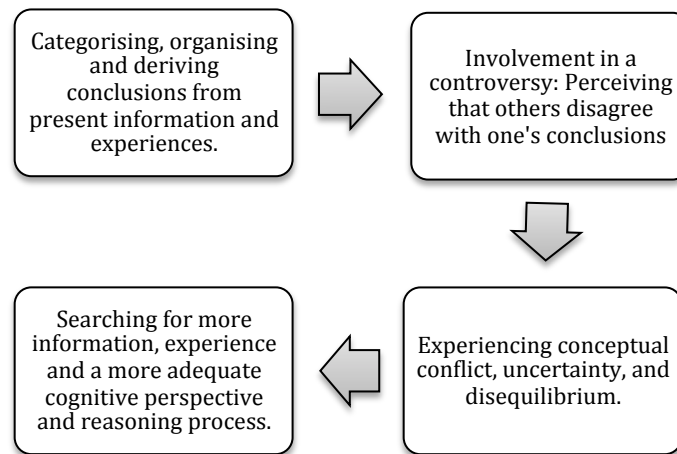


Figure 3.3: Simplified version of the process of Constructive Controversy (Johnson, 1981). Used with permission of the author.

Two key elements for constructive controversy are conceptual conflict and epistemic curiosity (Johnson and Johnson, 1979, 2009). Arguments and challenges from others can be a source of conceptual conflict. This provokes the epistemic curiosity (Johnson and Johnson, 1979) that encourages students to search for more information or to reorganise their existing knowledge. This process gives rise to the transition from one level of reasoning/criticality to another.

To conclude, the processes in the Constructive Controversy theory are important mediators for the engagement of critical thinking in this study. When the students come together for their group assignment (group learning), they meet, discuss, contribute and work towards the completion of the task (promotive interaction). During the group meeting and discussion (group learning and promotive interaction), there will probably be incidences of arguments, challenges to views and disagreements (conceptual conflict and epistemic curiosity), and students are likely to work out an agreed outcome after a few meetings, deliberations, agreements and disagreements (the processes of Constructive Controversy theory).

Cooper (1995) suggests that cooperative learning fosters critical thinking in students. He points out the importance of featuring promotive interaction and constructive controversy in group learning. Cooper (1995) agrees that cognitive disequilibrium in group learning could in turn produce epistemic curiosity. He links this with Perry's (1970) Scheme of Intellectual and Ethical Development model. Students in such structured cooperative learning environments could move from egocentric and dualistic thinking to more mature and relativistic thinking.

Cooper (1995) quotes Astin's (1992) longitudinal study, which found that curricular issues had little impact on students' cognitive outcomes, but student-student and student-faculty interaction had the most impact. Astin (1992) promotes the use of cooperative learning in the undergraduate curriculum *for fostering critical thinking* (italics mine). This again reinforces the importance of promotive interaction in group learning. Cooper (1995) suggests that when students are teaching other members, elaboration and other metacognitive strategies are required, which foster critical thinking. Again, promotive interaction and constructive controversy provide those conditions for students to engage in critical thinking.

Cooper's (1995) paper applies the first two elements to testing and concludes that they help to encourage students to engage in critical thinking. However, none of the above factors will occur without motivation. In other words, motivation is key for students to interact and think critically in group learning. This factor is considered in the next section.

3.4.3 Motivation

Slavin (1990) argues that motivation is one of the theories that explain the superiority of cooperative learning. Johnson and Johnson (2003) comment that motivation, goals, emotions and social relationships are interrelated. First, they claim that committing oneself to achieve a goal creates motivation and motivation is aimed at achieving goals. Therefore, goal and motivation are

inseparable. For effective cooperative learning, goals must be structured interdependently among the members, so that they work together to achieve the same goal. In other words, students' goal attainment depends on one another in the context. Second, they posit that motivation is powered by emotions that are "contagious" and interdependent with one another's emotions, especially in a group. For example, pride in the success of one member might be a joint pride for the team (ibid, p.139). Third, they claim that motivation occurs in a social setting and is a basic human instinct. They explain that human beings are social beings, and therefore would act in the interest of the group or community. This is because they believe that selfishness has a low survival value because individuals depend on one another for basic things in society, such as food. With all these in mind, Johnson and Johnson (2003) conclude that motivation is a product of social interdependence. This also explains the role of motivation in SIT and Constructive controversy theory where epistemic curiosity motivates students to search for information when conflicting views are presented. Hence, they are motivated to engage in critical thinking.

While Johnson and Johnson (2003) advocate SIT as the major influence on students' motivation to learn in group learning, other researchers have argued that there are four orientations to motivation when studying student learning: *behavioural, humanistic, cognitive* and *social*. With these four orientations to motivation, many researchers adopt aspects of more than one orientation when studying learning, such as a cognitive-social orientation (Pintrich, 2003). However, Ryan and Deci (2000) claim that intrinsic and extrinsic motivation are the types most widely studied in the literature. Intrinsic motivation is defined as "the doing of an activity for its inherent satisfactions rather than for some separable consequence" (ibid, p.56). By contrast, extrinsic motivation is "a construct that pertains whenever an activity is done in order to attain some separable outcome" (ibid, p.60). For example, some students like to learn and do not require reward because the process itself is inherently rewarding and

satisfying. On the other hand, others learn to achieve good grades and employment prospects: for them, motivation is extrinsic.

Glynn, Aultman and Owens (2005) suggest that there are motivational constructs to students' motivation to learn. These constructs are commonly observed when students learn, namely activity level and anxiety; interest and curiosity; self-determination; goal orientation, self-regulation, self-efficacy and expectations. These constructs, which can take place in any student, even in group learning, are discussed in detail below:

1. Activity level and anxiety - The authors suggest that if the activity level is too low, it might lead to boredom. On the other hand, if it is too high, then it might create anxiety. They argue that a moderate level of anxiety can be good for learning. In other words, students are motivated to learn by a manageable yet challenging task.
2. Interest and Curiosity - The authors explain that these terms are used interchangeably in the motivation literature. They argue that when students are very familiar with a particular set of learning material, they will ignore it. On the other hand, if they are unfamiliar with the subject matter and if it is complex, they tend to find it irrelevant or meaningless. Therefore, they suggest using analogies to make concepts relevant to students in their learning.
3. Intrinsic and extrinsic motivation – The authors agree with Ryan and Deci (2000) that this revolves around the matter of whether students learn for the sake of incentives or rewards. However, they point out that students' performance of a task could be for both intrinsic and extrinsic reasons. For example, students may enjoy learning because of the process itself; at the same time, they may be motivated by praise and recognition from peers or tutors.
4. Self-Determination – The authors cite Deci's (1996) theory of self-determination, which suggests that students need to feel competent and independent, because Deci found that students with self-

determined motivation are more likely to achieve at a high level and to be well adjusted emotionally. They suggest that self-determination could be cultivated by providing students with suitable challenges and feedback, by giving them leadership opportunities, by cultivating their relationships with peers and by giving positive learning environments. They argue that when students have no self-determination, they are not likely to be intrinsically motivated and might start to believe that their successes and failures are mostly uncontrollable. As a result, they are reluctant to engage in learning.

5. Goal orientation – The authors point out that this is another common construct held by students. According to them, students with learning goals are motivated to master the task to success and take failures as opportunities to learn. By contrast, students with performance goals are motivated by getting good grades and ‘looking smart’ to their peers and tutors. These goal orientations can be short-term, such as passing an exam, or long-term, such as securing a good job in the future.
6. Self-regulation - The authors believe that students’ perceptions of control are closely related to self-regulation. They explain that students who feel that they are in control of their own learning are likely to put in more effort and work hard in their learning. They are adaptive and will pick themselves up when they fail, and they work towards their future success.
7. Self-efficacy – The authors use Bandura’s (1997) definition of self-efficacy as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3). They argue that if students have high self-efficacy for a given task, they will set higher goals, persist for longer, apply greater effort and endeavour to find progressively better strategies
8. Expectation – The authors relate this to tutors’ expectations of their students. They argue that tutors’ expectations affect students’ performance. Tutors with high expectations often give constructive

feedback on their students' learning. They argue that students would maintain their intrinsic motivation when given this constructive feedback.

The work of Glyn *et al.* (2005) is deliberated in detail here because it offers a comprehensive explanation of the roles of motivation in any general education program, which can be applied to the accounting and finance subjects and the contexts for this study.

In brief, motivation is another factor that facilitates critical thinking. Students are first to be motivated to learn, and by achieving that, students are encouraged to engage in critical thinking in group learning.

3.4.4 Case study

Many articles have also discussed, evaluated and recommended instructional strategies to facilitate or promote critical thinking in student learning. For example, the case study is one of the strategies to promote critical thinking in the classroom.

Kimmel (1995) presents a framework for integrating critical thinking into the accounting curriculum. He also regards cases as useful strategies in advancing critical thinking in students. He divides cases into three different types, namely basic, intermediate and advanced. For each type, he then identifies critical thinking elements that can be taught by using cases. His finding can be summarised as below. According to Kimmel (1995), the tutors should use the appropriate type of case to develop the desired critical thinking elements. For example, an intermediate case can be used to promote elements such as recognising personal biases, whereas an advanced case can then develop students in applying new knowledge to new situations (see figure 3.4). Kimmel's (1995) work provides good recommendations for future research that relates case study and critical thinking.

<i>Critical thinking element</i>	<i>Basic case</i>	<i>Intermediate case</i>	<i>Advanced case</i>
Welcoming divergent views	X		
Tolerating ambiguity		X	
Recognizing personal biases		X	
Resisting overgeneralization		X	
Analysing data for value and content			X
Synthesizing			X
Defining problems accurately		X	X
Variety of thinking processes			X
Employing precise terms	X		
Modifying judgments			X
Gathering facts			X
Applying knowledge to new situations		X	X
Distinguishing fact from opinion			X

Figure 3.4: Strategies for developing critical thinking using cases (adapted from Kimmel 1995, table 3, pp.306-307). Used with permission of the author.

Similarly, in relation to critical thinking, Bonk and Smith (1998) support the use of case studies because they argue that case studies provide a powerful and flexible framework for interpretation for students to discuss and reflect upon. This paper considers instructional strategies for creative and critical thinking. Bonk and Smith (1998) suggest that a student-centre model of teaching could meet the challenge universities faced in developing higher order thinking skills in the accounting curriculum.

Likewise, McDade (1995) advocates the use of case studies and discussion methods to advance critical thinking. McDade (1995) describes how the use of case studies and discussion methods provides a unique learning experience for students. In case studies, students are required to go through a process of identifying and analysing information, assessing consequences, decision-making and action-taking. Most importantly, the learning outcomes associated with these two methods must be different from small group discussion and lectures. In other words, they suggest that it should be about the critical thinking process itself. As a result, conventional testing such as examination might not be appropriate for evaluating the thinking process. Consequently, case study might not be the solution for all teaching goals. However, McDade (1995) stresses that case study teaching is a better pedagogy for teaching and modelling thinking processes, particularly in advancing critical thinking. McDade (1995) then

explains the ways in which case study teaching can help in advancing critical thinking, such as challenging students to identify and challenge assumptions of the situations and scenarios of the case, facilitating the consideration of different perspectives and helping students to experience, explore and test alternative ways of thinking.

On the other hand, Popil (2011) examined the use of case studies as teaching strategies to promote critical thinking in nursing education. Popil (2011) argues that case studies provide students with a “hands-on” experience - real client situations that they might not have access to in a clinical setting - and that cases enhance the listening and cooperative learning skills of the students, encouraging attention to assumptions and conceptions, help students learn to monitor their own thinking, and promote thinking and brainstorming. As a result, case studies promote the development of critical thinking skills by offering the chance for direct data analysis that included consideration of the outcomes. Popil (2011) also provides a literature review investigating research studies that indicates how case studies encouraged the development of critical thinking skills. Popil (2011) argues that using case studies in teaching would assist nurse educators in promoting active learning and it would also help in developing critical thinking skills, which are extremely important for nurses and other health care professionals.

In brief, it is argued that ‘purposefully and meaningfully structured’ interaction among students can bring about powerful learning. In such a social context of learning environment, with the identified four factors, students have the opportunity and capacity to engage in critical thinking. Informed by the research focus on students’ perception in this constructivist model of learning, the next section 3.5 turns to consider the relevant studies on students’ perceptions of group learning and cooperative learning before generating the research objective(s) for this study.

3.5 Reviewing relevant studies on perceptions of group learning and cooperative learning

The selection of relevant literature for review is vital in appraising existing research in the field and identifying knowledge gaps. This study identified the research interest and drew out group learning, critical thinking and students' perceptions in Chapter 1. With this in mind, together with the literature review for both research interests in Chapters 2 and 3, the next section reviews the relevant empirical studies of group learning and cooperative learning, particularly in relation to postgraduate accounting and finance students' perceptions in this social context of learning. By doing so, this study is able to formulate the research objective(s) for this thesis after the review exercise.

3.5.1 Studies on perceptions of group learning and cooperative learning

Many studies have focused on perceptions of the effectiveness of group learning. By attempting to understand their perceptions of effective group learning, students' responses usually reported many related issues emerging from group learning. This observation is evident in the review of the studies below.

In the accounting education context, Lindquist (1995) used a group investigation method in cooperative learning with university audit students and found that they had better self-esteem, better interpersonal skills and better perceptions of their exam results compared to those who worked independently. The cooperative learning experience reported positive effects and impacts on those variables mentioned above.

On the other hand, Phipps *et al.*, (2001) used a Likert-scale questionnaire to investigate students' perceptions of cooperative learning in the US. The questionnaire was completed by 210 freshmen, sophomore and junior university students, male and female, from four different disciplines (health services management, psychology, economics, and parks and recreation management) at the same university. These students were members of classes

where cooperative learning techniques were being used. The questionnaire was coded in relation to the five key elements of cooperative learning and three questions, in a separate section, asked about the perceptions of cooperative learning on learning, motivation and study time.

The study showed that overall, the students perceived cooperative learning as an effective method for learning but ineffective in terms of motivation. This can be explained in students' written comments in the questionnaire. Themes that were generated from the comments were:

1. Many students' expectations of university classes seemed to be memorization of "good notes" through passive note taking. Cooperative learning is by comparison active, requiring student preparation and active participation.
2. Students often did not know how to work together. Many also commented that they had difficulty in keeping on task, inequalities in sharing the work and difficulty in focusing on the task.
3. This study also showed that students resented depending on others for grades, especially for exam grades compared to projects. Grades had a significant effect on their group learning, particularly their motivation to work towards a common goal. Different motivations regarding grades to be achieved could cause conflict and made cooperation difficult.
4. Some students commented that it was pointless and a waste of time and believed they could do better on their own.

Phipps *et al.* (2001) explain that such perception could possibly be due to students perceiving group work to be inefficient because more time and more skills were needed in cooperative learning, and especially because note taking and memorisation of lecture notes by comparison involved less work and time. This study points out that many students will not be motivated to learn in groups in light of some of the comments and perceptions above. In other words, this study highlights that it is vital to understand students' perceptions

of group learning. It also demonstrates that the application of group learning/cooperative learning is very complex.

Gillies (2003) also examined the perception of small group learning with 137 junior high school students in Australia, who participated in structured and unstructured cooperative learning groups. Structured cooperative learning groups were those that incorporated the five essential elements advocated by Johnson and Johnson (1999). Students' perceptions were gathered from a three-part *Students' perceptions of small-group Questionnaire* focusing on (a) cooperative learning; (b) motivation, participation and attitude; and (c) students' behaviours in small cooperative learning groups. Questions in these three parts were informed by work developed by Johnson and Johnson (1990), Gillies and Ashman (1996) and Sharan and Shaulov (1990).

This study reported no significant results for part (a) and part (c) of the questionnaire, but there was a major difference with regard to motivation, participation and attitudes between the two groups. Students in the structured cooperative learning group reported significant scores on their perceptions of group learning being fun and giving the opportunity to do quality work. This study contradicts the findings of Phipps *et al.* (2001) in relation to motivation, but the participants' age and level of education could be the reasons for this deviation. Gillies (2003) was conducting her research with junior high school students, while Phipps *et al.* (2001) were working with university students. This shows that age and levels of education could possibly influence students' perceptions of group learning.

Steinert (2004) used focus groups with forty-six undergraduate year 1 and 2 medical students in the US to assess their perceptions of the effectiveness of small groups. The term 'effective' was not defined for the students in order to assess their perceptions of effectiveness. This study reports that students' perceptions of effective small groups included an effective tutor, a positive group atmosphere, active student participation and interaction, adherence to small group goals, appropriate teaching materials and cases that promote

thinking and problem solving. In relation to critical thinking in this social context of learning, these students particularly commented about the 'effective tutors' who had the facilitation skills to promote problem solving and critical thinking. These students also highlighted the importance of the cases, which should have clear objectives that encouraged problem solving, critical thinking and discussion in the group. The cases must not be allowing repetition or regurgitation of previously acquired facts or solutions. As a result, it was not surprising that their perceptions related to the other findings in the study, i.e. a positive group atmosphere, active student participation and interaction and adherence to small group goals. In other words, these were the key variables for effective group learning according to their perception.

Feingold *et al.* (2008) reported similar results about nursing students' perceptions of team learning¹ in their paper. Their study was conducted with forty-eight nursing students in the US. They used non-interactive classroom observation to evaluate whether team learning promoted students' engagement to learn, and they also interviewed them about their overall perceptions of each team learning session. They reported that students were concerned about their grades. The majority of them agreed that the team learning was an effective learning strategy, but found it stressful because it was graded. They expressed the same concerns that their grades were dependent on other members' behaviours. This supported Phipps *et al.*'s (2001) result. It highlighted motivation about grade as one of the key factors in group learning. Feingold *et al.* (2008) also reported that students valued the opportunity to learn from others through discussion. They perceived that it would allow them to have different points of view and look at things from different perspectives. This finding highlighted the role of discussion and interaction in developing the ability to take different views and perspectives. Such perception also supports

¹ Team learning in this paper was described as a group of 4 to 5 members learning together in a team (Feingold *et al.*, 2008, p.215). Therefore, it could be understood as group learning. This could be the choice of term used by the authors.

the consideration earlier that promotive interaction is identified as one of the key factors in developing critical thinking. Lastly, they also shared that their perception about working as a team allowed them to arrive at the correct answer through team effort and group discussion more easily compared to individual effort.

On the other hand, Ward-Smith, Peterson and Schmer (2010) examined master's-level nurses' perceptions of working together in a group for a particular project. Responses from students in a traditional course (face-to-face format) were compared to those in an online course (using Blackboard technology). Overall, students shared that working together enhanced their subject knowledge through the opportunity for interaction and discussion. They also shared that this learning environment made studying easier and less stressful than completing tasks individually. However, their findings also revealed that students were not happy about the inequality in workload division and unequal effort and contribution from members. The paper also reported some students (19%) who found group learning was stressful for them when there was a conflict in the group. The conflict they referred to was about members who were inactive and self-imposed leaders.

Drawing from the discussion above, studies on perceptions of group learning have mainly focused on its effectiveness or outcomes. Questions were directed to investigate students' perceptions of group learning's effects "on something". For example, Gillies (2003) examined perceptions of group learning with regard to behaviours and interaction in structured and unstructured groups. It can be observed from the review of the studies above that the issues or findings faced by studies specifically relate to cooperative learning and studies in group learning do not differ significantly. They revolve mostly around the perceptions of working together, the value of motivation, discussion and interaction, and role of group members in this social setting of learning. However, the review suggests that studies on accounting and finance students' perceptions of group learning are rare and offer a potential gap for future research.

3.6 Mapping research issues for the Research Methodology

This study identifies a close relationship between critical thinking and group learning. It is argued here that group learning provides the social contextual conditions for students to engage in critical thinking. This study aims to explore further the relationship between group learning and critical thinking. Drawing from the literature review in Chapter 2 and this chapter, the research objective of this study is to enquire into postgraduate accounting and finance students' perceptions of critical thinking in the context of group learning.

3.6.1 Identify research gaps for the study

Drawing from the review of studies on critical thinking, most of the published studies are concerned with teaching and learning and with putting theory into practice. These few articles reviewed above confirm that many studies focus on the effectiveness of teaching and learning of critical thinking, as Norris (1985) has already identified.

Drawing from the observation and discussion above, many studies within HE relating to critical thinking focus on teaching and learning issues. Only a few examine students' perceptions of critical thinking, for example Duchscher (2003) and Philips and Bond (2004), discussed above.

There appears to be a lack of interest in delving into the minds of the students with regard to critical thinking; instead, many studies have focused on the educators' perceptions. This is, therefore, a potential gap for research in critical thinking and a contribution that this study can offer. It has drawn my attention and interest towards this particular area of students' perceptions, as considered in Chapter 1.

At this juncture, the review of the relevant literature in critical thinking offers the following potential areas for research:

1. There are potential opportunities to further examine the role of critical thinking in postgraduate study, as the majority of the previous studies

were administered in schools, colleges and at undergraduate level at university. This also links with the relationship of epistemology development with critical thinking.

2. There are potential areas to study critical thinking, particularly relating to accounting and finance.
3. These are potential areas for research pertaining to students' experience, perception and understanding of critical thinking.

On the other hand, there are many studies of group learning/cooperative learning in accounting education and its benefits and effectiveness could be further explored and established (Lindquist, 1995). Questions such as 'What are the main reasons for students to work/learn effectively in the group learning/cooperative learning environment?' remain to be answered. These areas should be considered in cooperative learning and group learning research.

It is evident that group learning/cooperative learning research has been and is still attracting the attention of researchers in the fields of education and business. To reiterate, these literatures show that particularly cooperative learning has not drawn as much attention in the UK compared to the US, Canada and Australia, particularly in professional accounting education and higher education. Also, the research methodology adopted so far has been heavily skewed toward quasi-experimental designs and quantitative research. There is a vacuum or a need for qualitative research into cooperative learning. This study hopes to contribute to group learning research, particularly on critical thinking, and to the qualitative approach.

While group learning research usually reports that it has positive results on students' academic performance, this is not the aim of the present study. Many studies have already been undertaken in this area; this study is more interested in students' learning in this context. Moreover, this study is more interested in critical thinking rather than the effect of group learning on students' performance. However, future research opportunities could link critical thinking

with performance achievement. For example, research could be conducted to examine the links between critical thinking and performance achievement.

One area to note in relation to group learning research based on the observation from the literature review is the **research methodology** generally adopted in the studies. It can be observed that most of the studies to date have employed quasi-experimental designs using both treatment and control groups. Most of the time, the treatment groups adopt cooperative learning and the control group use a traditional teaching or learning environment such as lectures and individual learning. Often, quantitative data are generated to examine the effects of cooperative learning between the two groups (for example, in Parry, 1990; Ravenscroft and Buckless, 1995; Caldwell, Weishar and Glezen, 1996; Ciccitello, D'Amico and Grant, 1997).

In brief, the review of group learning literature above has identified the following points:

1. Group learning, defined in a broad sense, has attracted considerable attention, such that there is an enormous wealth of related studies across disciplines, levels of study and countries. Research on the pedagogical benefits of group learning is still the focus in the contexts of students' learning within HE. However, the literature review indicates that cooperative learning research is usually undertaken at the levels of schools and general education. There is potential to relate it to postgraduate accounting and finance students in this study.
2. Group learning research, like cooperative learning research, has focused heavily on classroom research. However, there is a lack of research in relation to critical thinking.
3. Many group learning studies have adopted the quantitative approach and assessed its causal effects in learning. There is a need for the qualitative approach to understand the effects behind the hard data.

Group learning in this study only provides a social contextual condition for critical thinking. The study then refers to cooperative learning to provide the theoretical framework, guidelines and principles for effective conditions for critical thinking. Slavin (1999) points out that many educators are actually using informal versions of cooperative learning models. In other words, the five elements of cooperative learning may not *ALL* be fully incorporated in the lesson. Therefore, many studies on cooperative learning classrooms may not be the same as in Johnson and Johnson's (1989) model or other cooperative learning developers' models. In other words, Slavin (1999) also points out that it is not an easy task to administer a *genuine* cooperative learning model in any classroom: as a result, many educators have attempted to develop their own models of cooperative learning, capturing all or part of its five key elements in the classroom. This explains why I refer to cooperative learning only for its theoretical references to provide the guidelines for group learning in the study. The study also acknowledges the difficulty of administering a genuine cooperative learning model (Slavin, 1999). In other words, group learning for the study falls between group learning and cooperative learning on the continuum, as suggested by Ballantine and Larres (2009). In addition, this study has no interest in administering a cooperative learning instructional method to test with critical thinking, but seeks rather to utilise it as the social contextual condition for critical thinking.

3.6.2 Developing the research design and approach

In light of all discussion and considerations in Chapter 2 and this chapter, this study is better informed in relation to research design and approaches:

1. The research design and approach shall adopt a social constructive orientation to learning, where research participants (accounting and finance students) will learn in a social setting. In this case, this social setting must take the form of a group learning environment incorporating the principles of cooperative learning. However, this study has already set out the expectation that it will not be classroom research

on cooperative learning due to resource-based constraints and ethical issues. Conducting a *genuine* cooperative learning model in any classroom is not easy (Slavin, 1999) and requires expertise, knowledge, training and time. Moreover, having a control group that is taught under a cooperative learning structure may raise questions as to whether it could demerit the non-cooperative learning groups.

2. Promotive interaction, constructive controversy and motivation must be present in the group learning environment, since they are considered as the key elements for cooperative learning to work and as the key factors for critical thinking to take place. In other words, the element of promotive interaction must be cultivated in the study to facilitate the use of constructive controversy theory, together with motivation, to allow critical thinking to take place when students interact.
3. Point 2 above leads to the consideration to use the case study to cultivate the elements or factors that promote critical thinking in learning.

With this in mind, Biggs' (1999) 3P model, discussed in Chapter 1, is also considered, as the study takes a constructivist model of learning. This model aligns with the research issues identified above, particularly students' perceptions, as considered in the Presage element of the model. This 3P model also helps to explore the relationships between students' perceptions and their responses in the context of group learning.

3.6.3 Formulating the research objective for the study

Thus far, I have deliberated and considered at length the two core components of this study, i.e. critical thinking in Chapter 2 and group learning as the social context of critical thinking in Chapter 3. Drawing from all the discussion and deliberation in both chapters, I now attempt to identify and establish the issues of research methodology, particularly the research objective(s), design and approaches. Accordingly, the research objective is to enquire into postgraduate

accounting and finance students' perceptions of critical thinking in the context of group learning.

With this in mind, the analytical framework adapted from Biggs' (1999) 3P model for this study is developed and presented in Figure 3.5 below.

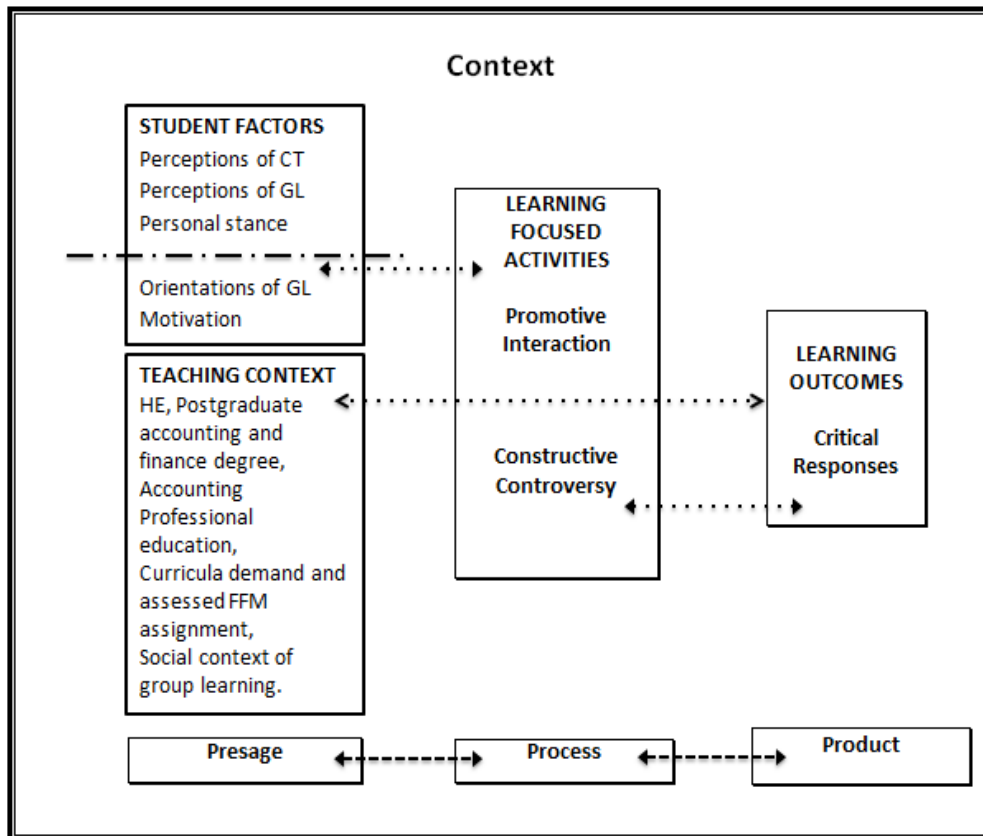


Figure 3.5: Analytical Framework for the study (E, Tew, 2015)

To illustrate, this analytical framework adopts the three key factors in the 3P model, which are Presage, Process and Product. However, the study uses different elements within the three Ps, as Biggs (1999) argues that no two classes or learning engagements are exactly the same. In other words, the analytical framework uses elements that are more suited to the research objectives of the study: these are considered below.

Presage comprises student factors and teaching context. Rather than focusing on students' prior knowledge and ability (as shown in Biggs's 3P model, p.18),

this study would like to examine students' perceptions of critical thinking and group learning, as they are the key foci of the study.

Salmon's (1989) personal stance is of interest in this study and it is one of the elements under the Presage factor of the 3p model. The study is interested to see what stance a student may bring into learning. Students' orientations to group learning are also considered as a stance in this study, because it refers to the position/preference that students take toward the social setting of learning. I argue that when students are asked to participate in group learning, they have already brought in their stance to this context of learning.

On the other hand, the teaching context in the 3P model refers to situational factors that define the learning environment for the students. The analytical framework extends the elements and includes those that are more relevant to the context of the study, such as the social context of group learning, which denotes the climate of the classroom.

Adopting the 3P constructivist learning model, Presage is mainly concerned with the students' stance and perceptions. However, orientations to group learning and motivation may lie between the stance and contextual responses that relate closely to the context or situations students experience in this study. Nonetheless, I argue that they lean more towards the stance that students 'take up in life', so a dashed line separates them from the perceptions in the diagram to indicate they could be analysed in both positions at a later stage.

The Process factor in the 3P model describes how students approach their learning. Biggs (1999) focuses on the surface and deep approaches to learning in his model, which are not the research areas of the study. As a result, drawing from the deliberation of Chapter 2 and this chapter, the analytical framework focuses on Promotive Interaction and Constructive Controversy as the learning activities that relate to the social context of critical thinking (Barnett, 1997).

The study is also interested to find out the actions or responses students describe, especially when their views or ideas are challenged during interaction and discussion in the context of group learning. Their actions and responses are the elements for the Product factors in the analytical framework. In other words, rather than looking at skills, learning transfer and involvement as suggested in Biggs's (1999) 3P model, the study is interested in their actions and responses during their learning activities (Process factor), which are termed as '*critical responses*' in this study.

Biggs (1999) explains the interactive nature of his model by marking the factors with heavy and light arrows. Similarly, the dotted arrow lines in the analytical framework also indicate that their interrelationship with the elements is another core area to be analysed. It is also worth highlighting here that the framework is heavily contextually dependent: hence the word **context** is placed in the centre of the box to highlight its significant role in this study, as seen in Figure 3.5.

With this in mind, the analytical framework for this study involves two stages. The first stage is to identify the significant variations of the ways in which students respond to the interview questions. To start with, I attempt to capture the features or characteristics of students' responses in relation to their perceptions, critical responses and orientations. The second stage is to explore/examine the relationships among all the findings of the study.

The next chapter deliberates in detail how the research methodology for this study is crafted, considered and justified in order to achieve the research objective mentioned above.