The Role of a Facilitator in Multidisciplinary Collaboration and Student's Experienced-Based Learning

Mamoru Miyazawa
Toyo University, Japan

s3f102300089@iniad.org

Abstract: This paper focuses on the necessity of experiential learning models and the importance of facilitators in the implementation of collaborative learning for students who have had no prior experience to such collaboration. It proposes a new role for educators in this. Multidisciplinary collaboration is defined as the process where by individuals with different perspectives recognize each other's expertise. In today's world, a high-tech business cannot succeed with a team specializing in only one field; business experts are required to collaborate with engineering experts to launch new high-tech businesses. Thus, university students must learn how to collaborate with multiple experts. The research adopts a case study of a Japanese university workshop where engineering, business, and design students, jointly create a high-tech business idea, and test their hypothesis. This multi-disciplinary collaboration develops student's ability to work with other specialized students. Past literature emphasizes the importance of experience-based learning: a learner recognizes specialized forms of knowledge through team discussion. For students who don't receive such learning, it's hard to understand how they learn from their experiences. As most Japanese students don't practice collaborating with other specialized people, they don't understand how to learn from their experiences. They are beginners in learning multidisciplinary collaboration, revealed by the fact that university students couldn't hold effective discussions and explain their own learning experiences. Interviews were conducted with students participating in collaborative learning workshop at university. It was found that novices repeatedly engaged in trial and error without effectively learning from experience, and the presence or absence of a facilitator influenced how they thought and derived value from their experiences. This challenge cannot be adequately addressed by students who are complete beginners; thus, intervention by educators or students who are actively engaged in collaboration is crucial. It was concluded that, irrespective of the outcomes of the workshop, the presence of a facilitator is key in promoting collaborative learning. Using Kolb's (2017) learning model, the study clarifies the impediments to a beginner's experience-based learning and how to overcome them. It proposes the role of a facilitator who is expected to promote experience-based learning. This paper could resolve issues related to multidisciplinary collaboration by adding a new facilitator role to intervene in the learning process and the students' experience-based learning.

Keywords: Multidisciplinary Collaboration, Experience-Based Learning, University Education, Facilitator, Multiple Experts

1. Introduction

This study examines how educators should utilize existing experiential learning models and what points they should consider when aiming to improve university students' multidisciplinary collaboration abilities. Furthermore, it highlights the insufficiently discussed role of facilitators, who are essential for learners' experiential learning, proposing new roles for them. There are many existing models of experiential learning suited for adult education (Kolb & Kolb, 2018; Kolb, 1999; Miettinen, 2010; Jarvis, 2005; Fry, 1979). Experiential learning learners draw from past experiences to bridge theory and practice and encourages reflection. By anchoring learning in the learners' experiences, it facilitates effective knowledge acquisition and enhances educational outcomes (Lewis, 1994). Diverse approaches to experiential learning exist, including methods that focus on encouraging learners to reflect on their experiences (Dewey, 2017; Ord, 2012; Lewis, 1994) and those fostering self-awareness through the contemplation of past experiences (Mezirow, 2014; Lewis, 1994).

The skill set required for multidisciplinary collaboration is essential in fields such as healthcare and engineering, and it is being fostered through different learning in universities and corporations (Lary, 2008; Heikkinen, 2015).

The ability to manage conflict and foster mutual understanding among students is a critical aspect of the knowledge base needed to function effectively in an organization and to drive innovation (Remenyi, 2009; Brown, 2008; Sanders, 2008; Allison, 2011; Nonaka, 2015). Universities have established departments focused on multidisciplinary collaboration skills, and ongoing discussions concern the development of various learning methods and the most advantageous ways to introduce them to cultivate these skills (Laura, 2006; Estes, 2004; McKelvey, 2006; Koch, 2017).

Despite the literature introduced and expanded learning opportunities, there is a gap in the discussion concerning the effectiveness of experiential learning for learners (Serda & Alsina, 2018; Kirschner, 2006; Koch, 2017). Educators have concentrated on providing the most affective learning opportunities. Additionally, emphasis has been placed solely on learners' experiences in teams, and the notable absence of facilitator engagement in the experiential learning process is problematic (Lary, 2008; Heikkinen, 2015; Kirschner, 2006;

Cindy, 2015). The presence of a facilitator in experiential learning is pivotal because they facilitate reflection and support the process by which learners acquire necessary knowledge (Boud, 1990; Kolmos, 2008).

Furthermore, future discussions will be required involving many facilitators to propose methods for facilitator development, using examples in businesses and universities, regardless of the field (Ames, 2011; Jones, 2006; Cindy, 2006). Facilitations focusing on business projects and collaborations in enterprises (Beranek, 2014; Den Hengst, 2005; Den Hengst, 2007) and the promotion of learning within communities and individuals to foster innovation in universities have been particularly noted (Yang, 2008; Harvey, 2001). However, this paper focuses on students who are unfamiliar with facilitation and collaborative learning, examining the role of the facilitator in supporting Kolb's experiential learning model. (Kayes, 2005)

Therefore, the present paper discusses methods around multidisciplinary collaboration skills, critically examining and enhancing Kolb's experiential learning cycle. In particular, Kolb's cycle recognizes the role of a facilitator in the experiential learning process, allowing them to engage with learners' experiences and promote learning and knowledge acquisition (Kolb, 2014). This enables a discourse and proposal of facilitator roles that are absent from current methods and those focused on experiential learning in multidisciplinary collaboration skills. Nevertheless, there is a lack of in-depth discussion on adapting Kolb's experiential learning cycle to education centred around multidisciplinary collaboration skills (Sato, 2015; Masuo, 2015; Morris, 2018). This study seizes the opportunity to examine exercises at Japanese universities aimed at students with no prior experience in multidisciplinary collaboration skills, discussing the significance of experiential learning for learners who are new to these competencies, as well as the indispensable role of facilitators in the process.

2. Literature Review

2.1 Experiential Learning

Past literature on experiential learning capitalizes on learners' experiences, engaging them in reflection and introspection to facilitate learning processes. With the proliferation of collegiate learners, the leveraging of student experiences has enhanced diverse educational outcomes (Miettinen, 2010). Among the various approaches and models predicated on experiential learning, John Dewey's paradigm serves as a foundation, focusing on the learner's self-reflection to achieve conceptual understanding and further learning (Dewey, 2017; Miettinen, 2010; Lewis, 1994). Mezirow's transformative learning posits that learning from experiences not only fosters personal growth but also endows individuals with fresh perspectives (Mezirow, 2014; Lewis, 1994). In addition, Jarvis (2006), with his theory of human learning and association with lifelong educational support, has highlighted experiential learning in the context of education, suggesting that learning occurs through the confluence of the inner person with the outside world. Despite the availability of experiential learning models that aid in the acquisition of knowledge and perspectives, prior discussions – such as Kolb's experiential learning cycle (Kolb & Kolb, 2018) – have not explicitly delineated the facilitative roles or the learning processes involved.

2.2 Kolb's Experiential Learning and Facilitators

This paper discusses Kolb's experiential learning cycle, which is comprised of four processes: experiencing, reflecting, thinking, and acting. Learners pass through these stages with facilitator intervention, moving from experience to reflection. According to Kolb (2014), experiential educators in this learning cycle embody roles as facilitators, subject experts, standard setters and evaluators, and coaches. Kolb's model posits that learners, through experience, engage in reflection, which then informs their thinking and subsequent actions (Kolb, 2015). The facilitator's profile – defined as possessing a warm, affirming style and focusing on 'inside-out learning' to motivate and foster self-knowledge – is critical for transitioning through the learning stages and building personal relationships and dialogues (Kolb, 2014). Furthermore, educators must accommodate the nine learning styles and the four dialectics of the learning cycle, tailoring their facilitation to the learners' styles. This paper examines the role of facilitators as defined by Kolb's cycle, especially within the context of learning aimed at interdisciplinary collaboration capabilities. However, Kolb's experiential learning doesn't focus on students who are complete novices. Additionally, it doesn't provide facilitators with examples of how to best utilize collaborative learning. Therefore, this paper discusses which aspects of students' experiences should be intervened to promote collaborative learning among novices.

2.3 2-3 Multidisciplinary Collaboration Skills, Experiential Learning, and Facilitators

Learning that centres on multidisciplinary collaboration skills is becoming increasingly prominent in universities and businesses, with emphasis placed on methods of collaboration and instructional strategies. Project-based learning, as an example of such learning, has been critiqued for lacking facilitator intervention in the learners' experiences (Cindy, 2015). The complementarity of lecture-based knowledge transmission and self-directed learning (as in project-based learning and reflective learning) suggests that combining the knowledge from lectures with self-guided learning can yield the benefits of collaborative and project-based learning education. However, existing methods fall short in providing appropriate reflection and action strategies for student experiences (Bernat-Carles Serda & Ángel Alsina, 2018). According to Kirschner (2006), the education-psychological stance is that experiential-based learning and project-based learning are mostly learner-centred, with educators minimally involved in learners' experiential activities. He advocates for experts and educators to actively engage with learners' experiences. Heikkinen (2015) claims that educators in existing collaborative learning scenarios focus too much on the introduction of learning opportunities while being involved in learners' experiential learning. He argues for educators to facilitate the transition of learners' experiences into practical applications within the context of interdisciplinary team projects.

Laura (2006) suggests that educators' negligence in engaging with student experiences can hinder the acquisition of the desired interdisciplinary collaboration skills; intervention by educators is crucial to maximizing the educational potential of varied experiences within projects. Koch (2017) emphasizes the enhancement of experiential learning through facilitators who engage with learners' motivations at technical universities. The role of facilitators is under-defined despite their necessity for supporting learners and fostering broader perspectives to facilitate learning (Goodyear & Dudley, 2015). Boud (1990) deliberates on how educators can draw from learner's to affect learning experiences, underscoring the critical interaction between students' and facilitators' joint learning endeavours.

(Ames, 2011) states that in higher education programs for university students, the impact of facilitation programs varies depending on students' learning attitudes and participation motivation. Additionally, facilitation in project-based learning at universities involves posing questions, encouraging thinking, and defining problems for learners. This paper concludes that the success of such programs is determined by facilitation. Similarly, (Jones, 2006) discusses the necessity of promoting shared understanding among students when using facilitation in collaborative learning (Cindy, 2006).

However, these studies don't focus on students who have never experienced collaboration or facilitation. In practice, (Hengst, 2005; Hengst, 2007) highlight the challenges facilitators face. Furthermore, (Harvey, 2001) analyses the roles and functions of facilitation in practice and works on conceptualizing facilitation.

Past literature claims that multidisciplinary collaborative capability is recognized as a critical skill that facilitates mutual understanding and conflict acceptance among people within organizations and sparking innovation (Remenyi, 2009; Brown, 2008; Sanders, 2008; Allison, 2011; Nonaka, 2015). This capacity is referenced throughout concepts, models, and philosophies such as design thinking (Brown, 2008) and co-creation (Sanders, 2008), which emphasize the sharing of knowledge and perspectives across diverse fields to conduct business effectively. Allison (2011) has discussed sharing methodologies for the knowledge necessary to generate innovation and train proactive business leaders. Additionally, McKelvey (2006) has argued for the necessity of bridging what students learn in academic education and research with practical applications. Nonaka's 'A Dynamic Theory of Organizational Knowledge Creation' (2015) has been noted as prominent, representing a collaboration method that is different from the workshop collaboration discussed in this paper.

Therefore, while collaborative-themed learning opportunities are considered, the absence of facilitators renders experiential learning inadequate. The specificity of facilitator roles should be examined depending on the field and learning method. This paper discusses the significance of experiential learning and elaborates on the essential role of facilitators in supporting learners' acquisition of interdisciplinary collaboration skills.

3. Case Study

This study discusses the existence and functions of facilitators with an emphasis on multidisciplinary collaboration capabilities through the Kolb's experiential learning cycle. The workshop involves students from technical and business disciplines teaming up to address a given theme – from identifying the problem to proposing solutions – over a one-year period. These students begin with little to no training or perspective on multidisciplinary collaboration, and they are uncertain about how best to leverage their expertise. Especially in

Japan, learning centred on collaboration is developing, and the students exhibit characteristics different from those in other countries. For instance, their passive and reticent attitudes can impede the experiential learning that would enhance their interdisciplinary collaboration skills (Sato, 2015). Additionally, there is a limited presence of educators capable of intervening in student experiences. Japanese universities possess structured learning and education systems where students generally adopt a passive stance. The emphasis tends to lie on credentialism, such as whether an experience contributes to job hunting success, or on sensory experiences like the ability to converse with others rather than on experiential learning that could impart multidisciplinary collaborative abilities. Moreover, concern often centres on whether students can complete a given learning process rather than engaging in effective discussion (Sato, 2015).

In this study, we conducted interviews with five respondents who had experienced workshops at the undergraduate level, focusing on their remarks about collaboration, experiences, and leadership. Each respondent was interviewed individually for 30 minutes. Students A, B, and C participated in workshops as members of team's conscious of facilitators and collaboration. Regardless of their workshop grades, these students reflected on their roles and awareness of collaboration, finding their experiences beneficial for future opportunities such as internships. In contrast, students D and E reported that the workshops weren't useful for their learning and that they had limited experiences. Although their teams had leaders, these students expressed discomfort and frustration with the facilitators and the ultimate team activities, describing their experiences as negative.

It analyses the experiences of learners in an ongoing year-long workshop concerning what they have learned and how they perceive multidisciplinary collaboration. Table 1 summarizes the interview results with students who participated in multidisciplinary collaboration practice, showing how this study aggregates the experiences of participants who were in teams both with and without a student fulfilling the role of a facilitator. Consequently, facilitators are intentionally left undefined, requiring the participating students to undertake a process of self-guided exploration and experimentation to ascertain their roles. Starting with questions regarding the importance of discussion that embraces conflicting viewpoints to bolster collaboration capabilities, the study explores university students' understanding of multidisciplinary collaboration and the experiences throughout the workshop.

Table 1: Interview results with students who participated in multidisciplinary collaboration workshops

	Presence of a facilitator	**Experience-based learning**	**Recognition of multidisciplinary collaboration skills**	**Consciousness of the learning process**
Student A, B, C	Exists	Occurs Through experience, recognizing one's own lacking expertise or elements	Encouraging mutual understanding among students Complementing each other	By having experiences Applying it to one's own field of expertise or practices such as internships
Student D, E	Does not exist	Does not occur Failures and disagreements of opinion Only directional and idea discrepancies	Working independently as individuals Seeking direction from the team leader to avoid friction Conforming unduly to each other's ideas	Experiencing only dissatisfaction through the experience No experiencing of proactive collaboration or active discussions Learning differs in content

4. Findings

The case study examining multidisciplinary collaboration workshops for university students suggests that when they operated within teams with a facilitator, they were capable of converting their experience into learning, gained awareness of collaborative skills, and became cognizant of their learning processes.

From the interviews, it was revealed that the role of the facilitator, along with the experience of the collaborative learning process, is crucial in promoting multidisciplinary collaboration. Students who experienced collaboration had different impressions of the workshop compared to those who didn't. The presence of a facilitator enabled the students who were conscious of collaboration to act more proactively, and even those who were not initially

aware started to think about contributing to the team and making efforts to engage. Moreover, students attempted to bridge the gap between the technical and business domains, striving to excel from their respective perspectives through trial and error. As a result, they were able to apply the experience gained from the workshop to internships and other practical endeavours.

In contrast, without a role that facilitates collaboration, even if students were aware of the importance of collaboration, the workshop became a routine group activity rather than a truly collaborative effort. Particularly, students D and E felt that the absence of an effective leader resulted in a team structure that didn't foster multidisciplinary collaboration. For them, the workshop ended up being an opportunity to experience the failure of collaboration.

The workshop participants responded as follows in the interviews;

Student A, specializing in programming, expressed initial bewilderment concerning multidisciplinary collaborative skills but acknowledged that participation in the workshop provided an opportunity to recognize and experience these capacities. The experience led to active participation in discussions and subsequent actionable behaviours.

Student B, with a design specialization, demonstrated an understanding of multidisciplinary collaborative skills. Compared to learning opportunities with passive students and absent facilitators, the workshops served as first-time experiences and understandings of these skills.

Student C, through their experience, recognized a personal deficiency in perspective regarding multidisciplinary collaboration and has since learned and applied this understanding, utilizing their newfound knowledge for practical action.

Conversely, students who participated in teams without a facilitator lacked experiential learning, recognition of multidisciplinary collaboration skills, and awareness of their learning processes, significantly deviating from the cases and models discussed in this paper.

Student D struggled to understand multidisciplinary collaboration through the workshop and reported an inability to achieve teamwork among peers. Instead of embracing 'frictions and conflicts', a quality typically associated with multidisciplinary collaboration, avoidance was prevalent, resulting in a lack of assertive collaboration. Student misinterpreted multiple disciplines working separately as collaboration. Not knowing about the role of facilitators meant that there was no one to guide the experiential learning process.

Student E had a narrow interpretation of multidisciplinary collaboration, equating it solely with experiencing inconsistencies and misalignments without any mention of embracing conflicts. The awareness of a learning process was absent, with learning equated only to experience and personal sentiment. Individual work, being straightforward, was preferred, signifying a misunderstanding of collaboration.

The interviews revealed that for students being introduced to workshops and the concept of multidisciplinary collaboration for the first time, the presence of a facilitator is crucial. For those without experiential learning perspective, the workshops served as an opportunity for experience, not for learning transformation and action. Facilitators are necessary to guide learners through the experiential learning cycle. Rather than attributing significance to mere experiences, facilitators are required to direct learners towards experiences that can be utilized in experiential learning.

In particular, the interviews elucidated that within the context of Japanese education, where one-sided instruction traditionally prevails, students have mentioned a lack of knowledge about collaborative discussions, experiences, and facilitators when it comes to multidisciplinary collaboration. Thus, when implementing experiential learning for learners with no multidisciplinary collaborative capabilities, facilitators who can guide them through Kolb's experiential learning cycle are essential. Moreover, facilitators who can create experiences that lead to knowledge and skill enhancement are needed.

For instance, Kolmos (2008) defined the role of a facilitator as someone who assists in motivating students and determining their direction, which is crucial at the learning initiation stage. In collaborative education in Norway, the introduction of facilitators has been shown to promote students' experiential learning (Kolmos, 2008). Similarly, Matsuo (2015) critiqued Kolb's experiential learning model and proposed roles for facilitators, suggesting that factors such as seeking challenging tasks, critical reflection, enjoyment of work, learning goal orientation, and a developmental network can foster learning. Moreover, the literature on leadership skills

indicates that educators and learners should discuss and construct the learning process, competency development, and the role of the facilitator (Estes, 2004).

In the present paper, we focus our attention on Kolb's experiential learning cycle (Figure 1). In particular, our discourse revolves around the learning steps of Concrete Experience (CE) and Reflective Observation (RO), contemplating the necessity of facilitators (Figure 2). These facilitators are entrusted with pivotal roles to target completely novice students, make them aware of effective experiences, and provide opportunities. Without the presence of a facilitator, learners may find themselves merely repeating experiences without deriving learning from them.

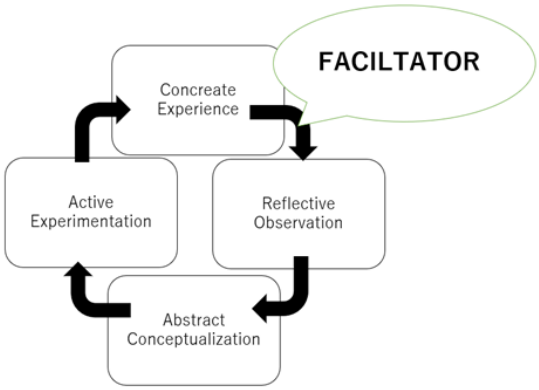

Figure 1: Kolb's experiential learning and the facilitator role

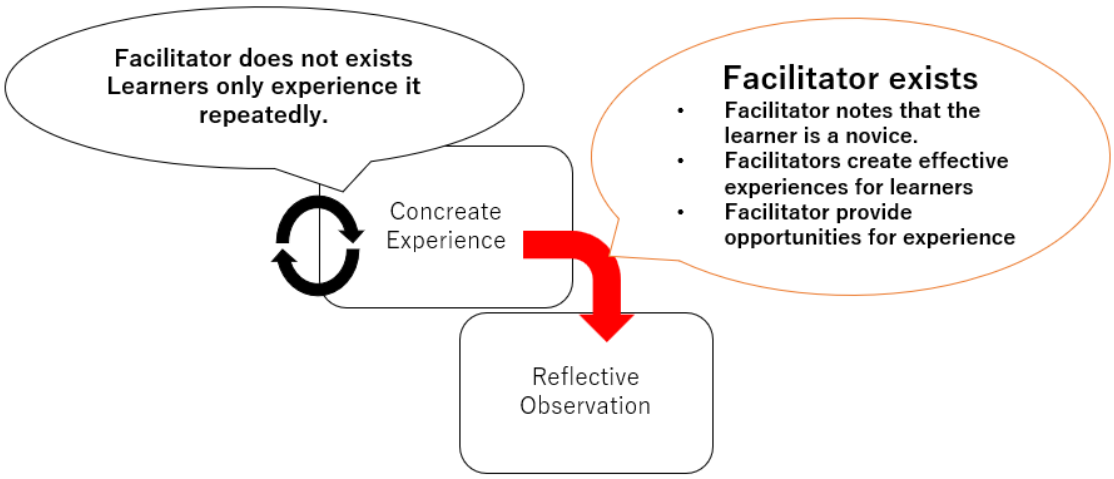

Figure 2: Learning processes and facilitators

5. Discussion, Conclusion, and Limitations

This paper has demonstrated the necessity of experiential learning models and the importance of facilitators when implementing collaborative learning for students who have had no prior experience to collaboration. Firstly, the presence of a facilitator enables the promotion of collaborative learning and the intervention in experiential learning, thus leading to transformative changes in students. Specifically, the role of the facilitator as utilized in Kolb's Experiential Learning Cycle is considered instrumental in providing experiential learning opportunities and advancing the learning process for students not accustomed to collaboration.

Past literature has focused on increasing the frequency of experiential learning and collaborative learning sessions, as well as reviewing methods of implementation and ensuring a student-centred learning approach. Therefore, this paper examined a workshop designed to impart multidisciplinary collaboration skills based on experiential learning as a case study, concluding that facilitator intervention is a critical element in the experiential learning of novices. Specifically, grounded in Kolb's learning model, this study proposed the elements of experiential learning that can be utilized for multidisciplinary collaboration learning and the role of facilitators

for novices. Kolb's learning model (2017) employs an experiential learning approach that uses nine cycles to transform learners' experiences into more reliable and effective encounters. The study identifies the obstacles beginners face in experiential learning and the methods to overcome them.

The case study and findings show that facilitators play a crucial role in experiential learning by encouraging learners' experiential learning and guiding them through Kolb's experiential learning cycle. It was especially noted that the Japanese students featured in the case study aren't accustomed to the premise of experiencing, reflecting, and engaging actively. Furthermore, Japan has a scarcity of educators trained to deliver experiential learning (Sato, 2015). Therefore, for learners who have never engaged in experiential learning, facilitators are necessary, and Kolb's experiential learning requires refinement. This paper highlights that the presence of a facilitator is an essential element when providing knowledge of multidisciplinary collaboration skills to novices who have no prior perspective on collaboration. Past arguments have emphasized the absence of facilitator intervention, valuing the mere experience of existing experiential learning. In this context, focusing on the role of facilitators as defined in Kolb's experiential learning, this paper found that the presence of a facilitator is instrumental in guiding novices through the learning cycle and in supporting their learning.

In terms of future directions, several aspects weren't addressed in the main text, such as methods for training facilitators necessary for collaborative learning and how to provide experiential learning tailored to the needs of organizations and communities. Specifically, this paper doesn't analyse how novices should create concrete experiences through Kolb's experiential learning cycle. Kolb's experiential learning doesn't define the specifics of what constitutes a concrete experience. Therefore, it is essential to discuss what types of experiences can accelerate learning for learners. Morris (2018) claims that Kolb's model has a lack of clarity regarding what constitutes a concrete experience, and past literature has debated about the elements a facilitator should have and who should do it. Matsuo (2015) developed a model in which five facilitators (seeking challenging tasks, critical reflection, enjoyment of work, learning goal orientation, and developmental network) directly and indirectly facilitate the performance of the four steps of Kolb's experiential learning process. In coaching, which resembles facilitation, peer coaching has developed among students and within businesses, enhancing mutual learning (Jones, 2019; Parker, 2008) Japan's deficiency in educators able to support learners as facilitators necessitates a discussion on how to cultivate such skills. Thus, future research is expected to clarify the role of facilitators in experiential learning for multidisciplinary collaboration.

References

Ames, M.E., Pratt, M.W., Pancer, S.M., Wintre, M.G., Polivy, J., Birnie-Lefcovitch, S. and Adams, G. (2011) The moderating effects of attachment style on students' experience of a transition to university group facilitation program. American Psychological Association (APA).

Beranek, P.M., Beise, C.M. and Niederman, F.A. (2014) Facilitation and group support systems IEEE.

Boud, D., & Walker, D. (1990). Making the most of experience. Studies in Continuing Education, Vol 12, No 2, pp 61-80.

Brown, T. (2008). Design thinking. Harvard Business Review, Vol 86, No 6, pp 84.

Dahl, A., Lawrence, J., & Pierce, J. (2011). Building an innovation community. Research Technology Management, Vol 54, No 5, pp 19-27.

Den Hengst, M. Collaborative Modeling of Processes: What facilitation support does a group need?.

Den Hengst, M. and Adkins, M. (2007) Which collaboration patterns are most challenging: A global survey of facilitators IEEE.

Dewey, J. (2017). Democracy and education & experience and education: How to encourage experiential education, problem-based learning & pragmatic philosophy of scholarship e-artnow.

Edwards, R., Hanson, A., & Raggatt, P. (2013). Boundaries of adult learning Routledge.

Estes, C. A. (2004). Promoting student-centered learning in experiential education. Journal of Experiential Education, Vol 27, No 2, pp 141-160.

Fry, R., & Kolb, D. (1979). Experiential learning theory and learning experiences in liberal arts education. New directions for experiential learning, Vol 6, No 79.

Goodyear, V., & Dudley, D. (2015). "I'm a facilitator of learning!" understanding what teachers and students do within student-centered physical education models. Quest, Vol 67, No 3, pp 274-289.

Gill, H., Bnurs, R.R., Dn, Loftus-Hills Ba, A., Bsw, M., Rycroft-Malone Bsc, J., Rgn, M., Titchen, A., Dphil, M., Kitson, A., Dphil, B., Frcn, R.N., Mccormack, B., Rmn, R., Seers, K., Phd, B. and Rycroft-Malone, J. Getting evidence into practice: the role and function of facilitation.

Heikkinen, J., & Isomöttönen, V. (2015). Learning mechanisms in multidisciplinary teamwork with real customers and open-ended problems. European Journal of Engineering Education, Vol 40, No 6, pp 653-670.

Helle, L., Tynjälä, P., & Olkinuora, E. (2006). Project-based learning in post-secondary education. Higher Education, Vol 51, No 2, pp 287-314.

Hmelo-Silver, C.E. and Barrows, H.S. (2006) Goals and Strategies of a Problem-based Learning Facilitator Purdue University (bepress).
Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? , Educational psychology review, Vol 16, pp 235-266.
Jarvis, P. (2006). Towards a philosophy of human learning: An existentialist perspective. Human learning (pp. 1-15) Routledge.
Jarvis, P. (2012). Towards a comprehensive theory of human learning Routledge.
Jones, R. J., & Andrews, H. (2019). Understanding the rise of Faculty–Student coaching: An academic capitalism perspective. Academy of Management Learning & Education, Vol 18, No 4, pp 606-625.
Kayes, A.B., Kayes, D.C. and Kolb, D.A. (2005) Developing teams using the Kolb Team Learning Experience SAGE Publications, pp. 355.
Kirschner, P. A., Sweller, J., & Clark, R. E. (2006). Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. Educational Psychologist, Vo 41, No 2, pp 75-86.
Koch, F. D., Dirsch-Weigand, A., Awolin, M., Pinkelman, R. J., & Hampe, M. J. (2017). Motivating first-year university students by interdisciplinary study projects. European Journal of Engineering Education, Vol 42, No 1, pp 17-31.
Kolb, A. Y., Kolb, D. A., Passarelli, A., & Sharma, G. (2014). On becoming an experiential educator SAGE Publications.
Kolb, A., & Kolb, D. (2018). Eight important things to know about the experiential learning cycle. Australian Educational Leader, Vol 40, No 3, pp 8-14.
Kolmos, A., Du, X., Holgaard, J. E., & Jensen, L. P. (2008). Facilitation in a PBL environment.
Lary, M. J., Lavigne, S. E., Muma, R. D., Jones, S. E., & Hoeft, H. J. Breaking down barriers: Multidisciplinary education Model
Lewis, L. H., & Williams, C. Experiential learning: Past and present
Matsuo, M. (2015). A framework for facilitating experiential learning SAGE Publications.
McKelvey, B. (2006). Van de ven and johnson's “engaged scholarship”: Nice try, but…. Academy of Management Review, Vol 31, No 4, pp 822-829.
Mezirow, J. (2014). A critical theory of adult learning and education. Education for adults (pp. 124-138) Routledge.
Miettinen, R. (2000). The concept of experiential learning and john dewey's theory of reflective thought and action Informa UK Limited.
Morris, T. H. (2020). Experiential learning–a systematic review and revision of kolb’s model. Interactive Learning Environments, Vol 28, No 8, pp 1064-1077.
Ord, J, John Dewey and experiential learning: Developing the theory of youth work
Parker, P., Hall, D. T., & Kram, K. E. (2008). Peer coaching. Academy of Management Learning & Education, Vol 7, No 4, pp 487-503.
Prichard, J.S., Stratford, R.J. and Bizo, L.A. (2006) Team-skills training enhances collaborative learning Elsevier BV, pp. 256.
Remenyi, D., & Griffiths, The Socratic dialogue in the work place: Theory and practice
Sanders, E. B. -., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. CoDesign, Vol 4, No 1, pp 5-18.
Serdà, B., & Alsina, Á. (2018). Knowledge-transfer and self-directed methodologies in university students' learning. Reflective Practice, Vol 19, No 5, pp 573-585.
Sato Osam. (2011). Obstacles to introduction of Problem – Based Learning into Higher Education in Japan. Japan Society for Information and Management, Vol 32, No 1, pp 3-8.
Thomas, G. (2008). Preparing facilitators for experiential education: The role of intentionality and intuition. Journal of Adventure Education & Outdoor Learning, Vol 8, No 1, pp 3-20.
Yang, Y.C.C. and Yang, Y.-.C. (2007) A catalyst for teaching critical thinking in a large university class in Taiwan: asynchronous online discussions with the facilitation of teaching assistants Springer Science and Business Media LLC, pp. 241.