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Risk of Learning Discontinuity for Learning in Unfamiliar Outdoor Environments

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Abstract: Outdoor spaces often have positive connotations for its ability to enhance learning. However, there is a chance that this learning environment unable to provide the expected learning outcomes. This paper explores whether and to what extent the practice of learning in this environment is consistent or conflicting with John Dewey's concept of continuity of experience. Critical reflection was made on two residential outdoor environmental education courses to observe how residential outdoor learning environments courses are exposed to the risk of learning discontinuity. As a result, the study reveals that there is in fact a risk of learning discontinuity when the learning that take place in outdoor environments adopt a threefold relationship between unfamiliarity, contrast and spatial movement. The implication of this paper is the suggestion to find a way to connect and reconnect the learning environments involved in learning.

Keywords: learning environment, outdoor learning, environmental education, experiential learning

1. Introduction

Learning environments nowadays are not limited to traditional classrooms. Learning environments can be out-of-door, online, formal, non-formal or informal and many more. According to Cleveland (2009), the term 'learning environment' also embeds the concept of social, psychological and conceptual environment. Although the study conducted by Barksdale et al, (2019) indicates that there was no association between the environment of the classroom and students' achievement in mathematics and reading, other studies provide contrary evidence. Learning environment is an important variable in learning. It can either decide what types of activities can be done, how students perceive their learning experience, and what the learning outcomes are (Ellis & Goodyear, 2016).

Similarly, in the studies on environmental education, which is the context in which this study centre around, the general consensus is that learning environments do have an influence on learning achievement. In particular, studies suggest that the environment in the outdoor learning space is ideal for learning about the environment and sustainable development. For example, according to Harrison (2010), learning in nature could encourage people to commit to environmental activism through experiential engagement in nature. These researchers further argue that through deep, immersive practices people might learn to understand better the detrimental impact that humans have in their relationship with nature. The suggestion is that knowledge learned from such experiences is developed through affective engagement that develops very specifically from the interactions between those people with that place (Christie & Higgins, 2012).

Consequently, transformative learning environment and other related topics such as place-based learning have emerged in the practice and research in the field of education. The initiatives to transform learning environments in former studies focused on one or more aspects of the environment that were suggested by Cleveland (2009). Subsequently, various scales for evaluating and guiding the development of learning environments have been developed. For example, Yang and Huang (2015) developed a scale for evaluating technology-rich classrooms. Before that, Classroom Environment Scale (CES) (Moos & Trickett,1987) and Science Learning Environment Inventory (LEI) (Anderson & Walberg, 1974) Laboratory Environment Inventory (SLEI) (Fraser et al., 1993) have long been used in the studies of the related area.

Out of the existing scales, one aspect related to the learning environment was found was not addressed. The aspect is regarding the risk of learning discontinuity for learning implemented in unfamiliar

environments. In the next section, this paper presents the theoretical framework that explains the importance of learning continuity from the perspective of John Dewey's concept of continuity learning experience. This then followed by the explanation on the outdoor learning environments used for learning about the environment and sustainable development. Based on these two bodies of literature, the question this paper aims to answer is: How residential outdoor learning environments used for learning about the environment and sustainable development are exposed to the risk of learning discontinuity?

2. Continuity of Learning Experience

John Dewey's (1953) concept of continuity of experience is a central philosophical pillar to describe the importance of learning continuity. In his book Experience and Education, Dewey (1938, p. 35) explains that "the principle of continuity of experience means that every experience both takes up something from those which have gone before and modifies in some way the quality of those which come after". As such, learning should connect experiences in the past, present, and future.

Growth is the example Dewey provides to explain the principle of continuity of experience. According to Dewey (1938, p. 38), "every experience is a moving force. Its value can be judged only on the ground of what it moves toward and into". As an experience grows, the direction it takes could either promote or impede further growth. Moreover, if it promotes growth, the experience could be educative. However, he also states that experiences can be miseducative where they lead to disconnected and dispersive outcomes (Dewey, 1938). In addition, the direction depends on the manner an experience "arouses curiosity, strengthens initiative, and sets up desires and purposes that are sufficiently intense" (Dewey, 1938, p. 38) to resonate and reveal the further direction of the experience's growth (Dewey, 1938). In other words, growth of an experience controls the connections between experiences. Thus, observing the growth of an experience and the connections it forms would provide indications which discriminate between experiences that are educationally worthwhile from those that are not.

A specific circumstance may be required to enable an experience to be educative. The ways people perceive the significance of an experience and process it have some bearing on whether the experience may be deemed as promoting or impeding growth and educative or miseducative. Dewey (1938) proposes that this requires attitudes that value the personal, emotional, and intellectual growth of oneself and others. As such, for this to happen, people are encouraged to see beyond taken-for-granted assumptions, to look for doubt amongst certainty, and develop critically-informed problem-solving modes of enquiry. He described a process by which this might come about (Dewey, 1938, p. 69): (i) observation of surrounding conditions; (ii) knowledge of what has happened in similar situations in the past, a knowledge obtained partly by recollection and partly from the information, advice, and warning of those who have had a wider experience; and, (iii) judgment which puts together what is observed and what is recalled to see what they signify.

Perhaps because it requires judgement with a certain level of intellect and emotion, Dewey (1938) suggests that maturity is needed to enable a person to go through the process of forming a continuity of disintegrated experiences. For this reason, he recommends that adults assist younger people in reorganising connections between experiences in pursuing growth of these experiences. Furthermore, according to Dewey (1938, p. 38), "the greater maturity of experience which should belong to the adult as educator puts him (sic) in a position to evaluate each experience of the young in a way in which the one having the less mature experience cannot do".

Other authors have built on Deweyian thinking. According to Miettinen (2000), continuity of experience occurs in situations where uncertainty and indetermination emerge and the normal course of forming a connection between activities is disturbed, resulting in an impediment to the connection's normal flow. This process requires observation of surrounding conditions. The observation would reveal if disturbance exists and whether efforts to solve the problem are required or not (Miettinen, 2000). If disturbance exists between an individual and surrounding conditions, Miettinen (2000) argues that intellectualisation and reasoning is required to study the conditions causing the problem before the working hypothesis to solve the problem is proposed and tested using overt action or imaginative action. When this

happens, the intellectual outcomes of the process could be used as a resource for emergent problems and moreover, all these processes may reoccur and require constant attention and problem solving (Miettinen, 2000). While the latter part of Miettinen's (2000) explanation reflects Dewey's idea that connecting experiences requires some effort to make judgement, the earlier part on disturbance is rather different. Miettinen (2000) seems confident that connecting experiences that appear disintegrated will also lead to the sort of growth that Dewey is concerned with.

Based on the above discussion on continuity of learning experience, it is noteworthy that in order to choose or design a learning environment, it is important to consider its ability to provide learning continuity. It is to ensure that the learning environment can promote instead of hinder learning.

3. Residential Outdoor Learning Environments for learning about the environment and sustainable development

Residential outdoor learning environments refer to non-formal residential outdoor learning settings where participants spend nights away from their homes. In Malaysia, this learning environment is commonly used but not limited for camping. The lodging can be in different forms, for example dormitory, cabin and chalet.

The definition of residential outdoor learning environment was derived from the description of the fourth zone of a concentric circle of outdoor learning (Figure 1.1) that Beames, Higgins and Nicol (2012) proposed. According to these researchers, characteristics of the fourth zone may involve some logistical challenges such as "transportation, accommodation, equipment, food and instruction" (p.6), which are usually managed by the learning organizer or residential provider (Beames et al., 2012). This model is helpful because it demonstrates how residential outdoor learning environment is geographically remote from the everyday location of learners' schools and homes.

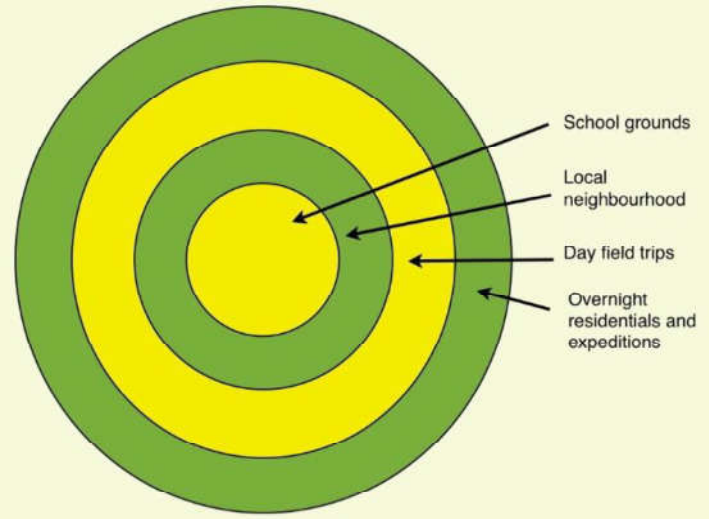

Figure 1. Concentric circles of outdoor learning (Beames, Higgins & Nicol, 2012).

The model helps to show the potential for geographical progression whereby outdoor learning may start within the range of the school grounds (Zone 1) before the students are taken out further into the local neighbourhood (Zone 2), day excursions or field trips (Zone 3), and then further away from home and overnight (Zone 4) (Beames et al., 2012).

As mentioned previously in this paper, residential outdoor learning environments are commonly used to educate people about the environment and sustainable development with many government agencies and non-government organisations (NGOs) using this learning environment for supplementing environmental education in the formal curriculum, in collaboration with schools across the country. To conduct learning in this environment, the learning often organised in close proximity to so-called natural

settings such as jungles, beaches, islands and mountainous regions (Asirvatham, 2009). The aim is to educate the students and teach them about the natural environment and its conservation (Asirvatham, 2009; Bhandari & Abe, 2000). In many cases, students who participate in learning in this environment are transferred from where they live to a residential setting deemed to be closer to nature. For example, learners are transported from a different type of terrain (i.e. mountainous) to wetlands. It would appear, therefore, that the contrast between where participants normally live and their temporary relocation to an ROEE centre might create a degree of unfamiliarity between the ecological settings, although they are generally still in the same climate (Othman, Harun, Muda & Ismail, 2013). This threefold relationship between unfamiliarity, contrast and spatial movement are key to this investigation. Investigating learnings that take place at residential outdoor learning environments, therefore, presents an interesting empirical opportunity.

4. Methodology

This study was conducted using a qualitative exploratory research design. Specifically, the study used critical reflection as a method of inquiry to answer the research questions. Reflection, or being reflective, refers to an in-depth consideration of events or situations by the researchers, for example, by reliving and re-rendering who said and did what, how, when, where, and why (Bolton, 2009). The approach adopted to conduct the critical reflection through the lens of constructivist and experiential approach of learning that have allowed the researcher to recognize and acknowledge that there are multiple social realities. Also, these approaches allow knowledge to be created through a process of interpretation of research data by the researcher (Charmaz, 2014).

The study emerged from the researcher's experience when the researcher was invited to observe two Malaysian ROEE courses that were organized by a city council in collaboration with a local environmental NGO. Both of the ROEE courses involved participants from urban industrial areas. The first course brought 40 primary school students to a coastal residential outdoor centre, while the second course was for 40 secondary school students and took place at a residential outdoor centre in jungle. The reason for selecting the participants from the two schools to attend the free ROEE courses emerged from the organiser's concerns about what they called 'the serious issue of open burning and waste management in the residential area of the participants'.

Sandercock (2000) suggests four phases for conducting critical analysis: identifying; analysing; connecting; and applying. More specifically, the process should consist of "identifying the issues that may influence the research design; analysing the role and impact these issues may have on the research design; connecting these issues with research design and applying the result of this reflection process to the research design focusing on the selection and deployment of research tools and techniques," (Clarke & Turner, 2002, p. 2-3). The current study adapted this suggestion. The researcher did not exactly follow the four phases – in term of the phase fractions and their order. However the overall process of critical reflection did consist of them all. By adapting this suggestion, critical reflection was made through participatory observation and through analysis of photos that were taken during the two ROEE courses. Participatory observation of the courses gave the researcher insights into the types of teaching practices adopted in ROEE courses and how these compared to theories related to environmental learning. Photos analysis was helpful to help the researcher to recall the details of the courses. The photos used are mostly shows the activities conducted with the participants and also the view of the location where the activities took place.

Research data were analysed thematically. Both deductive and inductive methods of data analysis were used to enrich the findings. The deductive data analysis was conducted during the analysis process by comparing data with philosophical and theoretical assumption. The former refers to the way the researcher views the world and how he/she obtain and use knowledge as theoretical lens (Trauth, 2001). The latter reflects potential theory/theories that could influence the way the research is conducted or certain objects perceived (Clarke & Turner, 2002). In particular, in this study, the researcher primarily compared the practice of the ROEE courses with literature on and related to the concept of continuity of learning experience that was presented earlier in this paper.

As the study critically reflected the researcher's own experience, reflexivity was an important to ensure that this research was conducted in a genuinely reflexive manner. Therefore, the researcher attempted to be reflexive at every stage of the study.

5. Findings and Discussion

5.1 Unfamiliarity, Contrast and Spatial Movement

Based on the description on the sample of study, it is noteworthy that there is a contrast between where participants normally live and the location where the ROEE took place. While the participants are from urban industrial areas, the learning environments were in close proximity to nature. Their temporary relocation to an ROEE centre therefore, might create a degree of unfamiliarity between the ecological settings. Although they are generally still in the same climate (Othman et al., 2013), the courses are most likely would neither support continuity of experience nor promote appropriate growth in learning as Dewey (1938) suggested.

As mentioned previously, the observed ROEE courses took place at a coastal residential centre and in the jungle. In fact, it is a common practice where ROEE courses in Malaysia are usually organised in close proximity to so-called natural settings such as jungles, beaches, islands and mountainous regions (Asirvatham, 2009). The purpose is to educate the students and teach them about the natural environment and its conservation (Asirvatham, 2009; Bhandari & Abe, 2000). It could be argued that deep, immersive experiences could lead to greater environmental awareness and activism. However, the ROEE courses presented a real paradox. On the one hand the organisers were promoting the notion of transferable learning by telling the students that their experiences on these ROEE courses would have a direct relevance to their home lives; and on the other hand they appeared to be relying on the power of the experience itself to make the difference and not their own pedagogical practices.

This was evidenced when during the introductions for both courses, the organisers explained that the reason for selecting the participants to attend the free ROEE courses. As mentioned earlier, it was due to the organiser's concerns about what they called 'the serious issue of open burning and waste management in the residential area of the participants'. The introductions also included statistical data that compared the number of cases of these practices in that area with other areas. However, by the end of the course the researcher was struck by the fact that only one learning activity was directly relevant to the environmental issues addressed in the introduction to the courses (the participants were taught how to recycle papers on their own). The other activities were primarily about marine/rainforest ecology, which is different from the participants' daily context.

While Dewey (1938) suggests that it is crucial to make connections between experiences in the past, present, and future, the difference between the contexts involved in the transfer could vary substantially. For Priest and Gass (2005), an unfamiliar environment may represent clear differences that learners need to comprehend if transfer is to be successful.

5.2 Transfer of Learning

The primary school participants were 11 years old, while the secondary school participants were 16 years old. Therefore, transfer of learning could be very challenging, especially given that the age of the participants at the time. As stated by Dewey (1938), it requires judgement with a certain level of intellect and emotion to connect a learning experience to other related experiences. Hence, he suggests that maturity is needed to enable a person to go through the process of forming a continuity of disintegrated experiences.

According to Brown (2010, p. 17), "attempts to transfer skills/knowledge from previous situations in fact hinders rather than aids performance". This critique is based on a particular standpoint which identifies psychology literature as too narrowly defined to embrace the complexity of all social systems that interact and combine to impact on learners' environments (Billett, 1996; Brown, 2010). The danger of this

position is that educators end up adopting an uncritical stance including taken-for-granted assumptions that knowledge and skills can be isolated and removed from their original context and then applied as general or abstract principles in other situations (Brown, 2010; Lobato, 2006).

Whilst the process of generalisation and abstraction could make the transfer of learning possible, Billett (1996) points out that the less relevance there is between the original context and that of its application, the more difficult the transfer is likely to be. For Brown (2010) transfer is mostly likely to happen if situations involved in it are very familiar. Furthermore, Beames and Brown (2016, p. 51) argue that learning something with a higher degree of relatedness to "settings, contents, methods and learning outcomes" in everyday settings is important in helping students to engage with real-world issues.

Recent work on authenticity by Beames and Brown (2016) provide support for the above arguments because the residential settings are far removed from participants' daily surroundings. They suggest that educational encounters based on unfamiliar, contrasting, and spatially specific approaches, such as the model adopted by ROEE in Malaysia, may result in learning that is less effective. According to Beames and Brown (2016, p. 51), "authenticity in education is concerned with learning that takes place in the real world and which can be usefully applied in everyday life". The suggestion is that more effort is required to bridge the settings, content, methods, and learning outcomes with participants' everyday life contexts.

5.3 The need of follow-up interventions

While their venue had already made the researcher question the ability of ROEE courses to encourage actions after the programme ended, another question rose was how ROEE organizers would know if their courses had been successful when the intended actions would take place after the programme had ended. The ROEE courses were one-off. The researcher was alert to the fact that the organizers and/or teachers were supposed to supplement the environmental education that took place in the formal curriculum. However, through an informal conversation with the organizers indicated that no such connections were being made. In addition, the organizers informed that post-learning assessment had never been part of their undertakings in the courses. In addition, teachers usually only involve in the courses as a gatekeeper for the organizers to get access to school participants and also by accompanying participants during the courses. It is uncertain whether the teachers provide follow-up at school, but based on the observation made, the teachers somehow were inattentive during the courses. They rarely participate in any activities.

Dillon et al. (2006) and Uzzell et al. (1995) suggest that an effective follow-up after outdoor experiences is necessary to reinforce learning. According to Uzell et al. (1995), the follow-up should help and enable the participants to make clear links between the outdoor and indoor activities. This link is important because one of the common problems that hinders the effectiveness of an outdoor education course is the transfer of the knowledge that is acquired from the course into a different context or social environment (Brown, 2010). For the same reason, Kendall and Roger (2015) suggest that residential experiences should be more integrated with school-based learning that takes place before and after the trip away. However, the critical reflection of this study supports the claim made by Lobato (2006). Frequently no effort is made to show how such knowledge is potentially influenced by the social processes in a new context, especially when the knowledge acquired is decontextualized and viewed as separate from the situations in which it was developed.

Follow-up learning experiences should not necessarily use the same outdoor learning approaches as the ROEE course. For example, the follow-up activities could be in the form of learning in a classroom, or through an assessment. Howell (2012) and Mair and Laing (2013) propose a number of intervention activities that can be used to promote environmental behavior change, which could also be used as follow-up activities for ROEE. In reference to the cocentric circle in Figure 1, it is suggested that the follow-up courses use school grounds or local neighbourhoods as sites for learning. The key point here is that a more coherent pedagogical approach is required to integrate the zones of learning outlined in Beames et al. (2012). Otherwise, if one were not provided with follow-up work to reinforce learning, he/she should make an effort to seek to interact with the people who possess a certain knowledge and qualities, such as a positive attitude, that would encourage and facilitate his/her environmental behaviour change, which is the pragmatic learning outcomes of environmental education.

6. Conclusion

The purpose of this study was to investigate how residential outdoor learning environments courses are exposed to the risk of learning discontinuity despite being described as an ideal learning environment for learning about the environment and sustainable development. Framed by John Dewey's concept of continuity of experience, findings and discussions of the study reveal that the practices of ROEE courses at unfamiliar outdoor environments are controversial. The ability of the courses and the learning environment to promote environmental attitude and behavior change could be very challenging. One-off, unfamiliar, contrast and spatial movement approach that were adopted in the courses are most likely would neither support continuity of experience nor promote appropriate growth in learning, which are very crucial according to the Deweyian concept of experiential learning.

However, this assumption on the ability of the ROEE courses and unfamiliar ourdoor learning environments to produce the pragmatic outcome of environmental education may be wrong until it is supported by evidence from a more systematic empirical studies. However, very few study has investigated at their effectiveness. In addition, none of the studies address this gap about one-off, unfamiliar, contrast and spatial movement approach. Therefore, the current study suggests that future studies should be conducted to explore if this learning environment could promote learning continuity. In addition, data-driven monitoring and evaluation is critical for guiding, planning, and assessing if the practices have the ability to fulfil the goals set in the local and global policies on environmental education.

Nevertheless, organizers of ROEE can already begin to rethink and reconsider their strategies. For example, instead of transporting students to unfamiliar locations or learning environments, with different ecological, social and geographical environments, it may be that learning environments closer to participants' everyday lives would be more effective. If ROEE courses are to continue with their current mandate to deliver environmental education in unfamiliar learning environments then they need to consider more seriously how participants are taught and how they can apply what they have learned in contrasting ecological, social and geographical environments. An example of this might be how learning on a marine ecology module can be applied to the context of living in an urban industrialised area. In these ways, participants are less concerned with the transfer of learning, so much as with learning about the places and communities in which they normally inhabit. Also, the organizers of ROEE should also consider planning follow-up activities for the participants. As mentioned earlier, follow-up activities can be in any form, as long as the activities can help students to reinforce what they learned at the courses, and most importantly to build continuity in their learning experience.

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