
How are Adventure Education Program Outcomes Achieved?: A review of the literature

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Abstract

This article provides an overview of the existing literature on how program outcomes are achieved. It is divided into categories of program characteristics that the literature suggests contribute to program outcomes, including: the physical environment, activities, processing, the group, instructors, and the participant. Outcomes referred to throughout the article are those generally associated with adventure education programs, such as increases in participants' self-concepts and interpersonal skills. The reviewed literature indicates that the current understanding of how adventure education program outcomes are achieved is based largely on theory, rather than on empirical research. Further research could provide adventure educators with a better understanding of why programs work and enable them to tailor programs to increase their effectiveness. Before quantitative methods can become useful in an examination of how outcomes are achieved, it seems necessary to use qualitative methods to inductively discover all the program characteristics that are possibly affecting the outcomes experienced by participants.

The research literature...has been uni-dimensional; it has focused on outcome issues (self-concept, locus of control, etc.) and has held a blind eye to their relationship to programmatic types of issues (...activity mix, instructional staff). In essence, we have discovered an educational black box; we know something works but we don't know why or how. (Ewert, 1983, p. 27)

Although Ewert wrote this in 1983, the "black box" he refers to, still exists. Much of adventure education research continues to focus on the beneficial outcomes derived from programs, rather than on how these outcomes are achieved. The theoretical literature (e.g., Walsh & Golins, 1976) suggests that program outcomes, such as increases in participants' self-concepts and interpersonal skills, are achieved as a result of a combination of program characteristics. Although a few studies

have researched the relationships between some program characteristics and program outcomes (e.g., Conrad & Hedin, 1981; Dyson, 1995; Hattie, Marsh, Neill, & Richards, 1997; Meyer & Wegner, 1998; Riggins, 1985 and Witman, 1995), the relationships between many other program characteristics and outcomes remain unresearched and, perhaps, unidentified. More information on how the various characteristics of a program interact to achieve program outcomes would better enable adventure educators to tailor the design and implementation of programs to maximize their effectiveness.

This article takes a step towards gathering this information. It reviews the existing literature on how program outcomes are achieved, identifies gaps in the current knowledge base, and makes suggestions for closing these gaps. The article is divided into categories of program characteristics that the literature suggests contribute to program outcomes. These include: the physical

environment, activities, processing, the group, instructors, and the participant. The program outcomes referred to throughout the article are those generally associated with adventure education programs, such as increases in participants' self-concepts and interpersonal skills (e.g., Hattie et al., 1997).

The Physical Environment

A number of theorists have identified an unfamiliar physical environment as contributing to the program outcomes experienced by adventure education participants (Kimball & Bacon, 1993; Nadler, 1993; Walsh & Golins, 1976). Walsh and Golins (1976) suggest that the contrast provided by an unfamiliar environment can enable participants to gain new perspectives on the familiar environments from which they came. Others have supported the idea that an unfamiliar environment is important because it causes participants to experience a state of dissonance by creating a "constructive level of anxiety, a sense of the unknown, and a perception of risk" (Nadler, 1993, p. 61). It is by overcoming this dissonance through the mastery of the tasks presented by the environment that participants are believed to experience positive benefits, such as enhanced self-concept (Nadler, 1993). An unfamiliar environment is also credited with providing participants with "the freedom to experiment with new psychological strategies or a fresh sense of identity" (Kimball & Bacon, 1993, p. 26).

Although several types of environments can provide these benefits, some sources suggest a wilderness environment offers additional advantages and is therefore optimal (Hattie et al., 1997; Kimball & Bacon, 1993; Walsh & Golins, 1976). The wilderness environment is thought to encourage self-awareness and self-responsibility (Walsh & Golins, 1976) by providing "rules" in the form of natural consequences which participants are unlikely to discount as being unfair or inappropriate (Kimball & Bacon, 1993). In addition, the straightforward nature of the tasks associated with the wilderness environment is believed to encourage mastery (Walsh & Golins, 1976), and ultimately to lead to enhanced self-concept (Nadler, 1993). Finally, the aesthetic and spiritual qualities of the wilderness environment are considered by

some to facilitate personal restoration (Hattie et al., 1997) and transformation (Bacon, 1983).

Although a number of sources suggest that the physical environment is important to achieving adventure education program outcomes, little, if any, research has explored this relationship. Future research could compare the role of the physical environment in determining the effectiveness of programs set in the wilderness, in non-wilderness unfamiliar environments such as ropes courses, and in familiar environments such as the classroom or workplace.

Activities

The research indicates that a range of activities can lead to the positive outcomes typically associated with adventure education. For example, high ropes activities, rock climbing, and canoeing can all be used as tools to engender participant growth (Marsh, Richards, & Barnes, 1986). This suggests that it is the qualities of these and other activities that are responsible for the outcomes, rather than the activities themselves. A number of people have theorized on what these qualities are (e.g., Gass, 1995; Luckner & Nadler, 1997; Schoel, Prouty, & Radcliffe, 1988; Walsh & Golins, 1976), and some have linked specific qualities to outcomes through research (e.g., Conrad & Hedin, 1981; Dyson, 1995; Hattie et al., 1997; Meyer & Wegner, 1998; Witman, 1995).

Several of the qualities of activities that are thought to lead to program outcomes are contained within a model supported by much of the literature. In this model, the challenge involved in adventure education activities contributes to creating a state of dissonance, or constructive level of anxiety, in participants (e.g., Luckner & Nadler, 1997; Walsh & Golins, 1976). It is believed that participants must achieve success, or "master" the skills associated with the prescribed activities, to overcome this state of dissonance (Walsh & Golins, 1976). A number of studies have shown that this combination of challenge, mastery, and success can lead to participant growth (e.g., Conrad & Hedin, 1981; Dyson, 1995; Iso-Ahola & Graefe, 1988; Witman, 1995).

The theoretical literature indicates that the challenges present in activities should be holistic in

order to maximize program outcomes (Gass, 1995; Kimball & Bacon, 1993; Walsh & Golins, 1976). Walsh and Golins (1976) suggest that by requiring participants to use their mental, emotional, and physical resources in combination, adventure education activities encourage concurrent mastery in all three domains. Others believe it is particularly important that adventure education activities engage the physical domain, as this requires participants to “‘walk’ rather than merely ‘talk’ their behaviors” (Gass, 1995, p. 104; Kimball & Bacon, 1993).

The challenges present in activities are also thought to have the greatest influence on program outcomes if they increase incrementally (Kimball & Bacon, 1993 and Walsh & Golins, 1976). As explained, challenge is believed to set in motion a series of reactions leading ultimately to the growth of participants. Kimball and Bacon (1993) explain that “often the challenges are structured so that they appear to be insurmountable or dangerous” (p. 14) in order to cause dissonance in participants. However, as participants master new skills, a more challenging activity is required to achieve the same level of dissonance (Csikszentmihalyi, 1990; Walsh & Golins, 1976). Therefore, to enable growth throughout a program, it is thought that there must be incremental increases in the degree of challenge in the program activities (Kimball & Bacon, 1993; Walsh & Golins, 1976). A study by Bisson (1998) supports these theories and indicates that the sequence of activities included in a program is related to program effectiveness.

Walsh and Golins (1976) maintain that the activities included in an adventure education program should be well organized in order to cause participants to have “educative” rather than “miseducative” experiences (Dewey, 1938/1966). According to Dewey, to ensure that experiences are educative, it is important to consider the internal conditions of participants when deciding how to structure the external conditions of an experience (pp. 45-46). Hopkins and Putnam (1993) support this idea by stating that it is essential to “match students to an activity which suits their particular needs and requirements. If the match has been carefully facilitated, the learner will strive for mastery” (p. 103). Schoel et al. (1988) address this issue by suggesting the use of the GRABBS modality checklist to determine the appropriateness of an activity by assessing the Goals, Readiness,

Affect, Behaviour, Body, and Stage of Development of a group (p. 80). Walsh and Golins (1976) suggest that by using tools such as this to plan and manage the activities included in adventure education programs, positive program outcomes can be assured.

Because mastery and success are believed to increase positive program outcomes, a necessary quality of programs is thought to be activities in which success is achievable (Kiewa, 1994; Nadler, 1993; Walsh & Golins, 1976). Bandura (1997) states that “successes build a robust belief in one’s personal efficacy,” and that “a resilient sense of efficacy requires experience in overcoming obstacles through perseverant effort” (p. 80). This theory is backed by the research of Iso-Ahola and Graefe (1988), which found that success in rock climbing led to increases in participants’ self-esteem. Riggins (1986) states that research on traditional education has shown that “students are more likely to be motivated when they are able to praise themselves and feel good about their performance because they have achieved or exceeded the goals they set” (p. 3). Walsh and Golins (1976) suggest that concrete activities with a beginning and an end are more likely to encourage success, and that a needs assessment of students is necessary in order to choose activities that will maximize participants’ potential for success. Kimball and Bacon (1993) explain that adventure education activities are typically “structured so that success and mastery are not only possible, but probable” (pp. 20-21).

Despite the importance of success, it appears that failure may also play a role in achieving positive outcomes (Bandura, 1997; Witman, 1995). Bandura (1997) states that “some difficulties and setbacks...serve a beneficial purpose in teaching that success usually requires sustained effort. Difficulties provide opportunities to learn how to turn failure into success by honing one’s capabilities to exercise better control over events” (p. 80). The value of failure is supported by a research study by Witman (1995) in which “learning from failures” was ranked by participants as the 9th most valuable program component out of a total of 16. A panel of experts ranked “learning from failures” 15 out of a total of 16 in the same study.

Several sources indicate that both individual and group goal setting are critical components of

adventure education programs (Marsh et al., 1986; Meyer & Wegner, 1998; Schoel et al., 1988). Schoel et al. (1988) maintain that participants are more likely to experience success if they are able to define their own applicable and realistic goals. A recent study by Meyer and Wenger (1998) found that individual goal setting appeared to result in increases in participants' confidence and concentration. Witman (1995) found that participants ranked "setting/accomplishing goals" as the 7th most valuable program component out of a total of 16, while experts ranked it 13 out of 16.

Personal choice is also thought by some to lead to positive outcomes (Dyson, 1995; Schoel et al., 1988; Witman, 1995). Schoel et al. (1988) suggest that a "challenge by choice" policy, in which participants choose their own level of participation, creates a respectful and supportive environment in which effort is valued over performance. Dyson (1995) found that participants felt "challenge...was more meaningful when they took some ownership for what they were trying to achieve" (p. 398). In Witman's study (1995), participants ranked "choosing levels of participation and risk" as the 15th most valuable program component out of a total of 16, while experts ranked it 16 out of 16.

Finally, specific types of activities may be important to achieving specific outcomes. Schoel et al. (1988) discuss several types of activities including "trust and empathy activities," "communication activities," "decision-making/problem-solving activities," "social responsibility activities," and "personal responsibility activities" (pp.70-73). These activity types appear to be named for the outcomes they are hoped to achieve (Schoel et al., 1988). Witman (1995) found that participants valued "helping others," "getting support," "having fun," "doing problem solving activities," "doing cooperative activities," "doing ropes course activities," "doing communication activities," and "being a leader" (p. 133). Although the literature suggests that each of these is important to achieving outcomes, little research has linked specific types of activities with specific outcomes.

As a result of the theoretical literature, many adventure education programs are designed to include activities that are holistic, incremental, and organized; that enable success, failure, goal setting, and choice; and that are chosen to produce specific outcomes. Although these, or similar,

characteristics seem to be generally accepted as those that should be included in adventure education activities, there is remarkably little research to support this.

Processing

"Processing" can be defined as the "sorting and ordering of information" that enables participants to internalize meaning from an adventure education experience and, therefore, contributes to program outcomes (Luckner & Nadler, 1997, p. xvi). Bacon (1987) outlines three possible models for facilitating processing on adventure education programs. In the "Mountains Speak for Themselves" model, participants are responsible for reflecting on the adventure education experience on their own. Although time may be provided for reflection, the instructors do not facilitate processing through discussion or feedback. This model is also known as the first generation of facilitation (Priest & Gass, 1997). In the "Outward Bound Plus" model, the instructor takes on the roles of "discussion leader, counselor, and group process facilitator" (p. 9). This model focuses on making links between activities and participants' daily life, and encourages reflection and discussion. Priest and Gass' (1997) second, third, fourth, and sixth generations of facilitation can be considered to be different techniques that can be used within the Outward Bound Plus model.

The third model outlined by Bacon (1987) is the metaphoric model, in which activities are consciously framed so that they become experiential metaphors for challenges in participants' daily lives. This model builds on the characteristics of the other two models by including direct experience, reflection, and discussion. The metaphoric model is thought by some to be the most effective (Bacon, 1997; Gass 1993), and is analogous to Priest and Gass' (1997) fifth generation of facilitation.

A limited amount of research has been conducted on how the amount and type of processing affects program outcomes. Data on the effectiveness of different processing models and techniques in a variety of settings would be useful in enabling adventure educators to enhance programs.

The Group

Several characteristics of the groups typically used in adventure education are thought to contribute to program effectiveness (Conrad & Hedin, 1981; Gass, 1993; Hopkins & Putnam, 1993; Kimball & Bacon, 1993; Walsh & Golins, 1976; and Witman, 1995). Kimball and Bacon (1993) suggest that "because personality is formed and shaped largely through our contact and involvement with others, it can be reshaped through this same intimate contact" (p. 21).

Group size is thought to be an important characteristic in determining the effectiveness of an adventure education program (Walsh & Golins, 1976). Walsh & Golins (1976) define the ideal sized group as a "ten-group," and as containing anywhere from 7-15 participants. The benefits of this size of a group are thought to include being large enough for diversity and conflict, and yet small enough to avoid cliques and enable conflict resolution (Walsh & Golins, 1976). Riggins (1986) reports that research in the traditional classroom setting has shown a positive correlation between small group size and learning effectiveness.

The reciprocity that evolves within a group is also considered to be an important factor in the personal growth of group members (Hopkins & Putnam, 1993; Kimball & Bacon, 1993; Walsh & Golins, 1976; Witman, 1995). As they progress through a program, "the group realises [sic] it needs its individual members, 'warts and all,'" and as a result, learns to cooperate and capitalize on the strengths of each group member (Hopkins & Putnam, 1993, p. 108). This reciprocity is thought to provide participants with a sense that they are valued and supported by other group members (Kimball & Bacon, 1993), and to force participants to learn to balance individual needs with the needs of the group (Gass, 1995). Witman (1995) found that "helping/assisting others," "realizing the importance of caring about self and others," and "getting support of other participants" were three of the four program characteristics most valued by participants.

This feeling of mutual dependence, combined with the group's common objectives, is thought to create a group bond between participants that can be linked to program outcomes (Kimball & Bacon,

1993; Walsh & Golins, 1976). Kimball and Bacon (1993) indicate that "group cohesion results in an atmosphere that promotes honest emotional expression and sharing" and can lead to a sense of family within a group (pp. 22-23). This feeling of belonging is thought to fulfill a basic human need which is often not met in participants' daily lives (Walsh & Golins, 1976), and to result in "a greater likelihood that [participants] will re-examine and explore their own values" (Chapman, McPhee, & Proudman, 1995, p. 246). Witman (1995) found that participants ranked "feeling like part of the group" as the 6th most valuable program characteristic out of a total of 16.

Autonomy for individuals within the group may also be linked to program outcomes (Conrad & Hedin, 1981; Walsh & Golins, 1976). This independence could take the form of making independent decisions, of learning individual skills, or of engaging in self-reflection. A study by Conrad and Hedin (1981) found participants' feelings of autonomy made significant contributions to their personal development.

Finally, the personal relationships that develop between individual group members may also be important in determining program outcomes (Conrad & Hedin, 1981). Conrad and Hedin (1981) found that developing personal relations with others influenced both participants' personal and social development.

As can be seen from the minimal amount of research in this area, there appear to be many gaps in our knowledge of how the characteristics of a participant's group affect the impact an adventure education program has on them. For example, the following questions are not addressed in the literature: How does program effectiveness vary according to the range of physical fitness levels, ages, backgrounds, etc. in a group? And are there any group dynamics that decrease program effectiveness?

Instructors

A considerable amount of research literature has explored the characteristics of "effective" instructors (Aguiar, 1986; Bartley & Williams, 1988; Hendy, 1975; Hopkins, 1982; Phipps & Claxton, 1997; Riggins, 1985; Riggins, 1986; Thomas, 1985;

Wood, 1978). Most of this literature uses participant or supervisor ratings to determine instructor effectiveness and does not specifically measure and compare the outcomes of programs instructed by different individuals. However, it still provides useful information on the characteristics of instructors that may be influencing program outcomes. Although there are many aspects of instructor competency that could potentially influence program outcomes if inadequate (i.e., technical, organizational, problem-solving, and decision-making skills), this article will focus on the less obviously influential characteristics related to biographical background, personality and interpersonal interactions.

The biographical characteristics of instructors are thought by some to contribute to program effectiveness (Aguiar, 1986; Phipps & Claxton, 1997; Riggins, 1985). Riggins (1985) used participants' evaluations of Outward Bound instructors to link several biographical characteristics to enhanced instructor effectiveness. These characteristics included: experience, not having participated in an Outward Bound course as a student, age, education, having four or more siblings, having traveled for "long periods of time," and being male (p. 8). Using the ratings of instructor supervisors, Aguiar (1986) also found a relationship between instructor effectiveness and instructors' levels of education and experience, but did not find a significant relationship between instructor effectiveness and instructors' leadership opinions, personality characteristics, vocational/leisure interests, age, or gender. In contrast, Phipps and Claxton (1997) found that participants rated female instructors as significantly more effective than male instructors.

Instructor personality may also be a factor in determining program outcomes (Bartley & Williams, 1988; Hendy, 1975; Hopkins, 1982; Thomas, 1985). A study by Hendy (1975) revealed that those instructors rated as most effective by superiors were typically reserved, bright, dominant, tender-minded, imaginative, forthright, experimenting, and creative. Bartley and Williams (1988) report finding that "instructor personality...had small but significant direct effects on course outcomes" (p. 6). However, they do not provide details on which personality characteristics were linked to which outcomes. Finally, Thomas (1985) found that a positive relationship exists between an instructor's self-concept and the

amount of self-concept change their participants realize.

The interpersonal interactions of instructors are also thought to influence program effectiveness (Bartley & Williams, 1988; Conrad & Hedin, 1981; Dyson, 1995; Hattie et al., 1997; Hopkins, 1982; Hopkins & Putnam, 1993; Riggins, 1986; Wood, 1978). Dyson (1995) and Riggins (1986) both identify a relationship between "teacher expectations" and "student growth." Riggins (1986) indicates that by having high, yet attainable, expectations of participants, instructors create "a type of self-fulfilling prophecy" (p. 3). Accepting, encouraging, and nonjudgmental instructor feedback is also believed to contribute to participant growth (Brackenreg, Luckner, & Pinch, 1994; Conrad & Hedin, 1981; Hattie et al., 1997; Hopkins & Putnam, 1993; Wood, 1978). Communicating individually with participants (Conrad & Hedin, 1981) and being empathetic (Dyson, 1995; Hopkins & Putnam, 1993) have likewise been identified as important instructor characteristics. A study by Hopkins (1982) found that the "positive effect of the adventure experience on the growth of self-concept" (p. 11) could be negated by the influence of a "competitive, confrontational and unsympathetic" instructor (Hopkins & Putnam, 1993, p. 98).

Of all the potential factors contributing to the effectiveness of adventure education programs, the characteristics of instructors seem to have received the most attention from researchers. Although this research hints at what the important characteristics of instructors may be, it does not provide enough information to be useful in increasing program effectiveness. To inform practice, it seems that more specific data is needed on how various instructor styles, behaviours, and attitudes affect program effectiveness

The Participant

The age, gender, background, and expectations of participants may influence the outcomes they experience as a result of an adventure education program (Conrad & Hedin, 1981; Estes & Ewert, 1988; Ewert, 1989; Hattie et al., 1997; Hopkins, 1982; Witman, 1995; Walsh & Golins, 1976). A meta-analysis by Hattie et al. (1997) discovered that the short-term effects of participation in adventure

education programs were greater for adults than for youth. They suggest that this difference may be a result of differences in reasons for participation; adults are more likely to be participating voluntarily and may therefore be more motivated. A study by Conrad and Hedin (1981) also found that older participants experienced somewhat greater growth, and reported a relationship between maturity and the degree of approval given to an experience-based program. In contrast, Witman (1995) found that the perceived value of participation in a ropes course program was lower among older participants. He suggests that this may be a result of more mature individuals perceiving less challenge in a ropes course.

The effects of participants' gender on program outcomes have also been discussed in the literature (Hattie et al., 1997; Witman, 1995). Hattie et al. (1997) found that the effects of programs appear to be similarly positive for males and females. A study by Witman (1995) revealed that females valued "trust activities," whereas males valued those related to "power or dominance" (p. 134). Estes and Ewert (1988) hypothesize that because of "sex-role stereotypes," males and females may participate and react to programs in different ways. For example, while a male's success is more likely to be attributed to his abilities, both males and females are more likely to attribute a female's success to luck or special efforts. Estes and Ewert (1988) propose that these views are likely to result in different levels of self-efficacy in males and females. They also suggest that females are typically looking for spiritual development in adventure education programs, whereas males are seeking challenge and adventure. These differences in motivation are believed to affect participants' behaviours and ultimately, program outcomes.

Participants' backgrounds may also be a factor in determining program outcomes. A study by Hattie et al. (1997) found no differences in the effect sizes of "'normal' participants, managers, and delinquents" (p. 59). Similarly, Conrad and Hedin (1981) did not find a significant relationship between program effectiveness and grade-point-average or socio-economic status. Ewert (1989), however, suggests that a participant's past experience can influence their attitudes and behavior, and ultimately can influence the outcomes they experience as a result of participation in an adventure education program.

Hopkins (1982) proposes that there may be a connection between participants' expectations and the benefits they derive from a program. Walsh and Golins (1976) support this notion by explaining the importance of "thinking, feeling, and behaving as if there is something to be gained by participating" (p. 3). They suggest that high expectations provide the motivation necessary for participants to benefit from an adventure education program.

Although there has been some research conducted on how the age, gender, background, and expectations of participants impact program effectiveness, the findings are inconclusive. It seems there could also be other characteristics of participants that may affect program effectiveness, such as a participant's previous knowledge of other participants in their program. Another important area of inquiry that remains unresearched is if, and how, the characteristics of participants determine the specific program characteristics that are responsible for achieving outcomes. For example, do program characteristics such as "time for self-reflection" and "instructors as role models" typically have different impacts on youth and on adults? Determining any trends in what works best for different types of participants would be extremely useful information in making programs maximally effective for all participants.

Conclusions

The available literature indicates that the current understanding of how adventure education program outcomes are achieved is based largely on theory, rather than on empirical research. As a result, practice is grounded in assumptions and, perhaps, in an incomplete understanding of why programs are effective. It may be that some of the current theories are inaccurate, or that there are program characteristics that are influencing program effectiveness that have yet to be considered. Before programs can be optimally effective, a number of questions need to be addressed by research: Which program characteristics are important to achieving positive program outcomes? Are there program characteristics that are unnecessary or miseducative? Which program characteristics achieve which outcomes? And how do the

characteristics of participants affect the specific program characteristics that are responsible for achieving outcomes?

The few studies that have attempted to evaluate how adventure education program outcomes are achieved have used a variety of research techniques (e.g., Conrad & Hedin, Dyson, 1995; 1981; Hattie et al., 1997; Meyer & Wegner, 1998; Witman, 1995). A recent meta-analysis by Hattie et al. (1997) compared the effectiveness of a number of different adventure education programs. Because many of the studies used in the meta-analysis did not include much information about the characteristics of the program being studied, Hattie et al. were limited in the linkages they could make between program characteristics and outcomes. In addition to this limitation, it is difficult in a meta-analysis to control the variables enough to ascertain that differences in the outcomes of programs are caused by variations in a specific program characteristic.

To get more detailed information on how the various aspects of a program are affecting the outcomes experienced by participants, it may be preferable to follow the lead of Conrad and Hedin (1981), Dyson (1995), Meyer and Wegner (1998), and Witman (1995), and get information directly from participants, instructors, and researcher observation. Future studies could use qualitative data collection techniques, such as interviews, surveys, and observation, to gather in-depth data, as well as to inductively discover any "new" program characteristics that may be influencing outcomes. An expanded list of potentially influential program characteristics could then be used to develop quantitative instruments. Quantitative data collection would facilitate the comparison of the relative impact of various program characteristics on program outcomes, and might also enable the discovery of any links between participant characteristics and the effectiveness of different program characteristics.

By identifying gaps in the existing literature and making suggestions for future research, this article aimed to help make "how adventure education program outcomes are achieved" more accessible as a research topic. It is a topic that has important implications for practice and one that contains a myriad of possibilities for future research.

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