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Evaluating Personal Ecolography Surveying to Help Personalize Learning

Michael Maser

E-mail: mmaser@sfu.ca

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Abstract

Personalized learning is increasingly being adopted across North America. Grounded in multiple intelligence theory, holistic learning theory, whole-child development theory, and other domains, personalized learning requires, first, that educators perceive their students as unique individuals and discover, through inquiry, how their students are unique. Following this inquiry, educators modify or adapt their pedagogical approach to better support individual students' learning in service of curriculum goals or individual aspirations. The Principal Investigator of this paper–a career educator–has created a suite of three Personal Ecolography survey instruments to help educators deepen awareness of students' learning backgrounds and subsequently better personalize learning. The research herein is based on a questionnaire eliciting feedback from educators about the perceived value and efficacy of the instruments. Results confirm a favorable response and recommendations for future use.

Keywords: personalized learning, pedagogy, pedagogical relationality, influences on learning

Personalized learning is an educational orientation or strategy in which educators adjust pedagogic gestures (e.g., assignment guidelines, agency locus, orientation to student competencies and interests, etc.) so that students might have better success in meeting educational goals (Armstrong, 2018; Bishop et al., 2020).

Attempts to personalize learning have punctuated education history since at least the late 1800s. However, in the face of the standardization movement that has dominated modern education, few pioneering efforts at personalizing learning have succeeded in becoming widely established (Dockterman, 2018). More recent attempts to personalize learning reflect insights from the learning sciences (e.g., cognitive science, neuroscience, psychology) emphasizing how human learning reflects characteristics common to all people at the same time learning also arises uniquely for each person (Gardner, 2006; National Academies of Sciences, Engineering, Medicine, 2018; Rose et al., 2013). Closely aligned with this is educational theory circumscribing notions of holistic learning grounded in beliefs that every child reflects a unique amalgam of biological, sociological, psychological and spiritual characteristics shaping their dispositions and learning sensibilities (Miller, 2000). The notion of holistic learning also extends to beliefs about child development and learning extant in indigenous and First Nations pedagogies (Cajete, 1994; Ermine, 1995) and in the field of whole-child learning (ASCD, 2012; Darling-Hammond et al., 2018).

Concurrent with these insights has been an emerging critique that, in the face of increasing social demographic complexities, conventional education−schools−must do more to help all students overcome challenges and meet with educational success (DeMink-Carthew et al., 2020; Kallick & Zmuda, 2017; Karten, 2017). As a result of these converging paths, a renewed proposition that education should be more personalized to better engage with and motivate any and all students in a given classroom or assigned group has gained momentum across many education jurisdictions since the early 2000s (Bingham et al., 2018; KnowledgeWorks, 2018; Rickabaugh, 2016).

Personalizing learning, while a practice of increasing adoption, may be situated in contrast with conventional schooling procedures that largely ignore or omit students' personal information excepting grade transcripts and other reports recording details of a student's performance history normalized to standardized procedures.

Purpose of the Present Study

Personalizing learning is predicated on educators first perceiving students as individual *persons* arising uniquely; to this end, educators must discover *how* their students are uniquely constituted, through background information about students obtained from historical (educational) files and through soliciting information directly from students. On the basis of their discoveries, educators can then adapt their pedagogical approach to help students achieve greater learning success. To aid in this discovery process, educators should be equipped with tools and instruments to acquire deeper insights into students' learning backgrounds, just as practitioners in other professional domains commonly strive to learn details about clients' backgrounds through survey instruments and interview procedures. These techniques help counselors, coaches and consultants better learn about clients and subsequently better personalize client services. To this end, Guo et al. (2012) asserts questionnaire-style survey tools as part of patient intake in clinical counselling is "essential" and the basis of "effective client-counsellor relations".

This paper seeks to explore the efficacy and perceived value of three instruments created and implemented by the PI–a long-time educator-advocate for personalizing learning–for use in educational (K-12) settings under the guise of *Personal Ecolography* surveying[1].

The instruments comprising *Personal Ecolography* surveying seeks personal reflections and judgments from students about factors and 'elements'[2] they perceive as influencing their learning, positively or negatively, in school but also beyond the purview of schooling. The design of the current version of instruments follows initial trialing of *Personal Ecolography* surveying when the PI worked as a middle and high school educator from 2009 - 2017. Only one other such approach in service of personalizing learning is known to the PI[3].

Motivated by positive responses from students and parents about the initial trial surveying and coinciding with the rise of personalized learning initiatives across North American educational jurisdictions, the PI designed this research to solicit open-ended feedback from a group of educators known to the PI for their interest and experience in personalizing learning. Specifically, this research comprises six lines of inquiry posed to survey participants to help determine the efficacy and perceived utility of using one or more of the (three) *Personal Ecolography* surveying instruments.

While increasingly adopted in K-12 educational jurisdictions across North America, personalized learning, in its more recent forms (1990-2020), has been minimally researched and many questions exist about its nature and efficacy (Cuban, 2018; DeMink-Carthew et al., 2020; Netcoh & Bishop, 2017). This research, and the suite of *Personal Ecolography* surveying instruments, is informed by emerging insights about personalized learning as well as the learning sciences, approaches to learning, pedagogy, phenomenology, and notions of ecology. Hopefully, this research will help educators and administrators better understand how personalized learning might be supported.

At a time when the current Covid-19 pandemic has disrupted K-12 education, worldwide, (Gallagher-Mackay, 2020; Lewis et al., 2020), this research may likewise contribute to better understanding and support of unique issues influencing students' learning.

Academic Context for Research

The nature of human learning is multi-faceted, arising from dynamic, interacting factors rooted in neurobiology, sociology, biography, and other domains (E. P. Jensen, 2008; Lave & Wenger, 1990; National Academies of Sciences, Engineering, Medicine, 2018). Human history reflects deep generational integration with learning across all cultures and as observed in the guidance, gestures, conversations and thinking that have emerged from the enterprise of education.

In modern, western pedagogical practice, educators have ongoingly faced a challenge: how are they to best understand, perceive and nurture learning in their students given intersecting and compounding complexities arising via challenges they commonly face. These include large class sizes and notable differences among students' cognitive functioning, functional competencies, motivations and backgrounds. Conventional, standardized approaches to schooling leave little room for personalization. Yet, in recognizing how learning and learning challenges arise

[1] *Personal Ecolography* surveying is a form of individual student surveying so named by the PI to indicate, etymologically, the conjoined qualities of: i. *Ecology,* the "branch of science dealing with the relationship of living things to their environments" (ref: etymonline.com), and ii. *Graphy*, meaning "process of writing, recording or description" (ref: etymonline.com).

[2] 'Elements' refer to various and particular processes, conditions and circumstances that are recognized by the PI as influencing learning and well-being of individual students. The nine elements addressed in Personal Ecolography survey number III are: Nutritional Habits, Physical Health, Sleep, Socialization, Emotional Life, Mindset, Lifestyle Activities, Substance Use/Abuse, and 'Learnscape' (reflecting factors influencing one's learning environment)

[3] One other such instrument known to the PI has been developed and implemented in educational settings. The 'Learner Variability Navigator' designed by 'Digital Promise' is a sophisticated online tool that is mainly referenced to conventional school norms, e.g. subject and grade levels, and nominally to issues arising beyond the purview of schooling. The Navigator project states that it is aligned with the precepts of 'Universal Design for Learning', a reference frame that draws on recent insights from cognitive and neurological science, but its foundational basis is otherwise thin. Ref: https://lvp.digitalpromiseglobal.org

uniquely for each student, it is logical to infer that a personalized approach to learning may be of benefit. As summarized below, the history of modern education testifies to different attempts to achieve this by educators.

History of Personalized Learning

In 2016, the U.S. Department of Education defined personalized learning as:

> "…instruction in which the pace of learning and the instructional approach are optimized for the needs of each learner. Learning objectives, instructional approaches, and instructional content (and its sequencing) all may vary based on learner needs. In addition, learning activities are meaningful and relevant to learners, driven by their interests, and often self-initiated." (2016, https://tech.ed.gov/netp/learning/)

This definition is consistent with many efforts that have emerged to support broad-based personalized learning in western education recently and historically. Some of the earliest efforts to personalize learning may be traced back to Victorian England and the praxis of Charlotte Mason, an educator who established a home-based method of learning rooted in an approach of curriculum matched to student interests they "naturally take to" (Andreola, 1998, p. 255). But with the rise of industrialization in the early 1900s, mainstream education in North America was dominated by efforts to standardize education as espoused by advocates like engineer Frederick Taylor (Gatto, 2000; Wikipedia, 2021a). "Taylorism", as it became known, essentially vanquished the individual in educational praxis. But standardization faced opposition from some, including American educator-philosopher John Dewey. In his essay, *My Pedagogic Creed* (1929), Dewey asserted that education should begin with learning about students' lives in their homes and communities as well as in school, and "psychological insight into the child's capacities, interests, and habits" (p. 292). Student's interests and habits, he posited, were "signs and symptoms of growing power" and "dawning capacities," (p. 294) something he insisted as "utmost importance for the educator" (Dewey, 1929).

As an example of Dewey's influence, Hansman (2016) reported that in the 1930s the British Columbia (Canada) Ministry of Education published guidance to BC schools based on Dewey's theories, including a new elementary school curriculum emphasizing, "the curriculum must be made for the student, not the student for the curriculum" (Hansman, 2016, p. 7).

Another boost for personalizing learning came to North America in the form of a method originating in the *Reggio Emilia* region of Italy in the 1970s. The *Reggio* method, developed in the aftermath of World War II, conjoined theories of child development with theories grounded in constructivist learning attributed to individual volition. To Reggio's founding pedagogue, Loris Malaguzzi, young children innately reference and express myriad "languages" of learning and development (Edwards et al., 1998) and Malaguzzi advocated that educational environments and pedagogy should accommodate and reflect this. Proctor (2007), a Reggio-trained teacher, described the adoption of *Reggio* methodology in early childhood programming across North America since its arrival.

In the 1980s, the impetus for personalizing learning increased in North American educational jurisdictions due to various factors. Two factors included the popularization of Multiple Intelligences theory developed by psychologist Dr. Howard Gardner (Armstrong, 2018), as well as the rise of "holistic" approaches to learning urging educators to engage students in a broader realm of learning experiences than typically offered, reflecting a basic belief that human nature is constituted in highly individualized and diverse ways (Miller, 2000). In the 1990s, scientific insights confirmed how human neurology reflected a common biology at the same time it recognized that each individual's neurological system possessed many unique characteristics. The insights from neuroscience helped spawn the rise of "brain-based" learning approaches that endure as tools supporting personalized learning (E. P. Jensen, 2008)

Today, innovative experiments in personalizing learning may be found in many schools and jurisdictions across North America (Gross et al., 2018), in some cases supported by government mandates. Though fairly new, institutional approaches emphasizing personalized learning generally comprise one or a blend of several frames ranging from self-directed learning to project-or-interest-based learning to curriculum-grounded, 'differentiated' instruction (Cuban, 2018). These frames reflect broad agreement among educators and administrators leading or seeking to personalize learning about its scientific basis and that its adoption may be enhanced by technological innovations (e.g. internet-based resources and devices affording connectivity) and social media developments (Bingham et al., 2018; Friend et al., 2017).

Differentiated instruction, identified as the most widely-adopted method of personalized learning in schools (Tomlinson & Moon, 2013), is a methodology offering increased flexibility to students of varying backgrounds and competencies in service of pre-determined curriculum goals. Other personalized methodologies offer students more agency and opportunities for self-directing their learning. 'Individualized' learning, generally oriented to supporting special education students as articulated and managed through an Individual Education Plan (IEP) reflecting a diagnosed issue, some personal characteristic(s) and educational, behavioral or therapeutic recommendations (Wikipedia, 2021b), shares characteristics with personalized learning. In the opinion of this investigator, who has served as educator for special education students following IEP

guidelines, personalized learning is based on more personal interactions with students, and thus of a slightly different character than individualized learning.

Educators and administrators implementing personalized learning generally express enthusiasm for it (Bill & Melinda Gates Foundation, 2014; KnowledgeWorks, 2018; Rickabaugh, 2016) yet they also report facing many challenges. These include adapting to shifting guidance from senior school administrators; learning new technologies; adapting to new curricular, teaching and administrative expectations; addressing concerns from parents and students; harmonizing practices within schools and districts; accommodating extra time requirements intrinsic in personalizing learning; and learning new methodological approaches. In addition to these challenges, which are not uncommon to educators pioneering new projects, a most critical challenge to address vis-à-vis personalized learning lies in the embrace of deeper pedagogical relationality between educator and student.

Pedagogy

Personalizing learning for students may arise as a challenge to an educator who has not experienced personalized learning, either as an educator or a student. In a conventional school setting, an educator follows a standardized approach and adopts a pedagogical gesture reflecting 'Taylorist' precepts emphasizing uniform curriculum content, delivery and assessment (Gatto, 2000; E. Jensen, 2005). In this setting, educators are not expected to accommodate personal differences in student background, competencies, interests, etc.

An educative approach to supporting personalizing learning – no matter the frame – conceives of each student in *personal* terms. This conceptualization reflects the tenets of Multiple Intelligences theory (Armstrong, 2018; Gardner, 2006) and insights from neuroscience that emphasize unique neurological differences in individuals. These have contributed to the shaping of 'Universal Design for Learning' or UDL, a popular reference frame for personalized learning (Rappolt-Schlichtmann et al., 2012). A complementary or additional approach likewise reflects the precepts of holistic learning and "whole-child" developmental schema (Darling-Hammond et al., 2018).

To the PI, personalizing learning also implies a pedagogy acknowledging a learner as a subject, and not an object. To this point, philosopher Martin Buber conceptualized in his landmark book, *I and Thou* (Buber, 1958), a "philosophy of dialogue". In a famous thought-experiment, Buber described how one could view a tree, objectively, as an "it", in myriad ways, but one could also be "bound up in relation" to the tree and no longer consider the tree an "it" but a "thou". "If I face a human being as my Thou," Buber wrote, "he is not a thing among things, and does not consist of things" (Buber, 1958, p. 8). Similarly, educator Nel Noddings articulated a vision of relational ethics in her book *Caring* (1984) writing, "Confirmation, the loveliest of human functions, depends upon and interacts with dialogue and practice. ... To confirm, I must see and receive the other - see clearly what he has actually done and receive the feelings with which it was done" (Noddings, 1984, p. 196).

Deeper exploration of relational pedagogical experiences was well-established in European academic history last century, according to phenomenological scholar Max Van Manen. A phenomenological reflection of a pedagogical gesture helps to reveal "the manner that we see, feel, sense, reflect, and respond to the call of the child before us", (Van Manen, 2013, p. 10). To Van Manen, educators personalizing learning reflect a pedagogical manner that confirms a child's "being" and the child's "coming into being" or "becoming" through his or her learning in all its varied forms, in and beyond school. Van Manen frames such pedagogy as a "tactful" act through which an educator acts as "a child watcher who guards and keeps in view the total existence of the developing child" (Van Manen, 2015, p. 63).

A related, pertinent concept also emerging in phenomenology is that of "Lifeworld" (subst. "Life-World"). This term was introduced by phenomenology pioneer Edmund Husserl to mean a person's "entire sphere of experience of the world" (Creely, 2016, p. 4). Lifeworld research, says Creely, is an undertaking to explore an individual's "particulars of experience" to help reveal "essential" natures and "foundational meaning structures" and consider how they contribute to "holistic" subjective awareness and volition. Locating and analyzing essences, he writes, "are critical for an understanding of the prehension (or a taking hold) of the Lifeworld by a participant and thus vital for engaging with meaning and, by extension, learning" (Creely, 2016, p. 12)

This sentiment is echoed by educational philosopher Tone Saevi who writes, "How teachers see students and their life-worlds is crucial to students and to pedagogical practice," (2011, p. 457), adding that the basis of this practice lies in educators attending to the experience of a student and acknowledging their "utter otherness" (2011, p. 459).

A similar orientation has also been adopted in the field of psychology, as advanced by researcher and author Urie Bronfenbrenner. Particularly, Bronfenbrenner referenced ecology and "ecological exploration" as a way of understanding the composition of different environments impinging on human development (e.g. home, school, workplace) and the interactions between them (Eriksson et al., 2018)[4]. Writing in *The Ecology of Human Development*

[4] This notion of Ecology as a concept constituted from multiple, interacting forces is implied in the *Personal*

(1979), Bronfenbrenner described an ecology of human development as comprising the "scientific study of the progressive, mutual accommodation throughout the life course, between an active growing human being and the changing properties of the immediate settings in which the developing person lives" (Bronfenbrenner, 1989, p. 188).

Educational Praxis to deepen awareness of students

The pedagogical threads mentioned above must be considered pragmatically as well as theoretically. This leaves educators to consider how they are to garner Lifeworld or "ecological" insights about students as a step to personalizing learning. Though eliciting deeper, personal information from students has not been a common feature in mainstream education, this step is fundamental to personalizing learning, for only through this gesture will educators come to a deeper understanding of *who* their students are, individually, and *where* they are at in their learning lives. In this way, educators perceive unique aspects of personhood in all their students and respond reflectively, sensitively and "tactfully" (Van Manen, 2015) to each particular student, helping *this* student better achieve a learning goal and *that* student address an issue that may be impeding learning progress.

In summary, the research herein is informed by insights from multiple intelligences theory, holistic learning, neuroscience, whole-child development, social-emotional learning, phenomenology, relational pedagogy, lifeworld research, and notions of ecology. I now turn to a discussion of the methodology I adopted in this study.

Methodology

Educators are the key personnel in helping initiate personalized learning in schools and school districts across North America. Just as educators use various strategies and instruments to support conventional schooling practices, so, too, is it appropriate to consider strategies and instruments to support personalizing learning.

This research is focused on exploring the perceived efficacy and value of three *Personal Ecolography* surveying tools created by the PI in the service of personalizing learning in schools. To this end, this study seeks feedback and insights from professional educators personalizing learning in various educational situations.

The *Personal Ecolography* surveying tools may be summarized as follows[5]: Survey # 1, the shortest, seeks to elicit from students general information about their learning history, and other non-specified information such as personal out-of-school interests they might share so their teacher can better support and personalize their learning. Survey # 2 requests students self-assess learning competencies and strengths as well as challenges in nine areas, graph results for visual reference, and share reflections about how they might wish to address areas of strength or challenge. Survey # 3, the longest, asks students to self-assess and consider how nine different 'elements' might be influencing their learning lives, graph results for visual reference, and consider the influence of these elements more deeply. The next section details the procedures used in completing this study.

Method

This qualitative study is comprised of an online questionnaire developed by the PI. The questionnaire poses six open-ended inquiries to participants after they have reviewed, or synchronous to their reviewing, a suite of three *Personal Ecolography* surveying instruments (collated in one file).

Before this study was initiated in the fall of 2020 it was certified by the Department of Research Ethics, Simon Fraser University. All participants provided their consent to the PI and were then sent a reference file and questionnaire which they completed over a two-month period. The project, in its entirety, was completed during a time of pandemic (Covid-19) restrictions; in this case, restrictions issued from Simon Fraser University forbidding in-person research not meeting special exemptions, applied to this research.

No personal contact occurred between the PI and any participant following the collection of consent, and all research information collected in this study via online questionnaire has been anonymized.

This survey method, including its design and small sample size was chosen by the PI to elicit general feedback per the research investigation. This is in alignment with Glasow, who writes, "Where the purpose of the study is to gain a general sense of a belief or attitude, a lower level of precision may be acceptable (2005, p. 2). The choice to elicit responses from participants via open-ended responses afforded the opportunity for participants to answer in their own words, and potentially raise issues or perspectives the PI had not previously considered. Glasow (2005) asserts that through such design respondents are more likely to "give greater thought and contemplation" (p. 2-7) in answering. One drawback to posing open-ended questions, according to Glasow (2005) is that the responses elicited may prove difficult to analyze, especially given the subjective nature of response that open-ended questioning elicits.

Ecolographic surveying instruments, the focus of this research project.

[5] A more detailed overview of the surveying tools in provided in the Appendix

Participants

Research participants comprised a group of 18 experienced educators known to the PI for their interest in, and professional praxis of personalizing learning for their students in various K-12 educational situations. Participants' professional teaching experiences spanned all student ages in primary, middle and high schools, mainstream and alternative settings, and experiences working with 'neurotypical', special education, and First Nations (indigenous) students. All participants were working as online and/or in-person educators in public and independent schools in British Columbia at the time of the study excepting one, an educational consultant in the US. Per gender ratio, 10 participants were female, 8 were male. None of the participants had used or been exposed to the *Personal Ecolography* surveying instruments before this research.

Research Inquiries

This research survey solicited feedback from educators given copies of the three *Personal Ecolography* surveying instruments to review and then asked to respond in writing to these six inquiries:

1. Which of the (three) survey instruments do you perceive as easiest to use: Survey 1, Survey 2, or Survey 3? (please answer and describe your reasons in the space provided)

2. Which of the surveys do you perceive as being the most valuable instrument in helping you, as an educator / teacher better support personalized learning of your students? Survey 1, Survey 2, or Survey 3? (please answer and describe your reasons in the space provided)

3. Please rank and explain your preference of survey as 1, 2 or 3, with 1 being most preferred, 2 being next most preferred, and 3 being least preferred. (please answer and describe your reasons in the space provided)

4. Please identify what you perceive as the most important strengths and weaknesses of the three survey instruments (please answer and describe your reasons in the space provided); and

5. Please list any suggestions you have for future use and improvement of these survey instruments (please answer and describe your reasons in the space provided)

6. Please indicate your agreement with the following question: How likely are you to use or recommend using one or all of the *Personal Ecolography* survey tools in the future? (please answer and describe your reasons in the space provided) i. very likely ii. likely iii. not likely

Research Results and Analysis

The inquiry questionnaire elicited anonymized, complete written answers from all participants for all questions. Data collected from the questionnaire, amounting to 37 pages, single-spaced, comprised the entirety of the feedback data. Per analysis, the inquiry responses were reviewed and serialized (i.e. all responses for inquiry #1, all responses for inquiry #2, etc.). Inquiries producing numeric responses (inquiries 1, 2, 3 and 6) were tallied and written answers to inquiries were reviewed and coded according to what presented itself most evidently; to this goal, the PI followed an open-discovery process, free of pre-determinations. In this, the PI heeded the advice of van den Hoonard who writes, "Do not decide on your codes in advance, or you may lose the richness of your data and, in fact, misrepresent them" (van den Hoonaard, 2015, p. 160). Following, the PI grouped the open-coded data according to the overlapping, common sentiments and opinions. This inductive analysis revealed many emergent subjects. Final data organization and analysis reflected a striving to grasp the most significant conceptual and substantive issues intersecting and emerging from analysis per the guidance of Bogdan and Biklen (1998). I now turn to a discussion of the research findings.

Research Findings

Below, research findings are presented, first, according to generalizable results followed by more specific feedback per individual surveys. Some verbatim comments are included for noteworthy details.

Generalizable results

- All respondents valued at least one of the *Personal Ecolographic* survey instruments as a way to assist them in personalizing learning; most identified all instruments as helpful in some manner to their efforts to personalize learning.
- Survey #1 was considered most favorable (preferred by 8 respondents), followed by Survey 2 (5) and Survey 3 (4).
- All respondents indicated they would "likely" or "very likely" use one or more of the survey instruments, and half of respondents confirmed they would recommend the instrument use.
- All surveys are perceived as effective for reaching a diversity of learners

More granular / specified results

Survey #1 values and strengths:

- Most concise and open-ended; good place to start building relationship; elicits important information about personal interests

Some verbatim comments:

Finding out a student's background and life outside of school is key to building core relationships with students.
This gives me a key connection piece with them and can help me learn how best to teach them. Relationships are always the top priority for me as an educator.

Survey #2 values and strengths:

• Easy to administer; covers topics relevant to education; encourages and empowers students to self-assess and reflect on their learning competencies and challenges; deepens educators' insights about student competencies and challenges

Some verbatim comments:
Having a good understanding of competencies and strengths and weaknesses is super helpful for celebrating unique qualities and identifying areas of growth.
Reflection questions following the survey provide opportunity for students to deepen and grow in self-awareness through reflection and writing.
(I like) the focus on varied intelligences and inclusion of visual format.

Survey #3 values and strengths:

• Comprehensive and informative about 'elements' influencing student learning; appropriate and relevant for older (teen) students; linked to holistic, healthy lifestyle; addresses learning factors outside school; allows for deep reflection; potential as high school study unit for self-reflection and growth; complementary to career education study

Some verbatim comments:
Prioritizing these 'elements' of being a healthy human is key in my opinion. I personally value the way this survey focuses on elements of learning coupled with health and frames the learning landscape in more holistic terms.
Allows the respondent to reflect on life and learning more broadly, outside of the confines of school, which is valuable in conceptualizing learning as always happening, forever.

This survey helps direct students towards making improvements in their learning by adjusting lifestyle habits.

I can see using this survey as an "entrance" assessment for a new student. Much better than their IEP.

Generalized weaknesses and concerns of surveys

Few weaknesses and concerns were mentioned though those listed included

• Heavy reliance on text for messaging may limit reach and effectiveness of surveys

• Personal nature of information potentially disclosed by students

• Spirituality missing as a reference system

Additional suggestions

• create more use-case scenarios and examples, and opportunities to engage students visually and graphically, per UDL guidance

• align with core competencies (per official curricula)

• add more technological features to improve reach and mobility of surveys, such as dropdown boxes and video

In the final section, below, I include a synthesis of the major findings. I summarize the answers to each of my research questions, address the limitations of the study, and suggest implications for teaching and learning and possible directions for future research.

Discussion of Research

What do the results signify?

Educators participating in this research actively pursue personalizing learning for their (K-12) students across a range of educational settings and situations, they are keenly focused on assisting all their learners in differing ways and across varying situations in service of learning achievement(s), including beyond the limited purview of school-based activities, and as part of their professional praxis, they embrace deep, relational gestures to engage all their students.

This research confirms that participating educators perceive efficacy and value in *Personal Ecolography* surveying instruments as a means to assist them in personalizing learning for students. Further, participating educators perceive that these instruments can contribute to students' learning, and they confirm they would use and recommend *Personal Ecolograpy* surveying instruments in their work.

Links between research results and academic context

The academic context informing this research posits that learning arises uniquely and diversely for students. This research confirms how educators are confidently and comfortably drawing from and integrating different theoretical and practical streams from this context in their efforts to personalize learning for their students.

To the perception of the PI, pedagogy integrating the insights and approaches listed herein may be noted as a kind of 'relational mindfulness' now also arising in contemporary school support of "Social-Emotional-Learning," or SEL. SEL practices, conventionally focused on inculcating skills of self-awareness, empathy and self-regulation in students (Smith et al., 2016), are also being integrated into

educational programming as part of mental health strategizing in various jurisdictions, including British Columbia (BC Ministry of Education, 2021).

Research Limitations

The relatively small number of research participants poses a limitation to interpreting the findings of this research and extrapolating results. An additional issue to recognize is the subjective nature of the feedback collected.

Future Directions

Questionnaire respondents contributed many suggestions for modifying and improving the existing suite of *Personal Ecolography* instruments to enable their broader use and application in conventional and non-conventional schooling. The PI concurs that these are worthy suggestions to undertake to contribute to the expansion of personalized learning and also to help strengthen support for students experiencing pandemic and post-pandemic issues negatively affecting their learning.

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Michael Maser is a PhD Candidate at Simon Fraser University.