Review

Self-Directed Online Learning in Support of Mental Health to Promote Positive Psychosocial Outcomes in Public Schools

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Self-Directed Online Learning in Support of Mental Health to Promote Positive Psychosocial Outcomes in Public Schools

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Abstract: Negative mental health in students currently is classified as a global crisis with the highest and lowest student achievers recognized at greatest risk. Public schooling, in reproducing accepted psychosocial beliefs through standardized learning, developed separately from necessitating student mental health, in contrast to self-directed learning. Differing from standardized learning, the objective of self-directed learning in public schools is the creation of relevant support structures for student mental health, promoting positive psychosocial outcomes. The designed separation of public schooling from both mental health and self-directed learning was first acknowledged—and lamented—by John Dewey, over 100 years ago, in anticipating today's mental health crisis. Yet, in responding effectively to the limitations of COVID-19, self-directed learning became an acknowledged learning method in public schools, potentially able to be accommodated by them regularly in support of mental health through the use of online technology. This study investigates the COVID-19 results of self-directed online learning in public schools through a Google Scholar search of peer reviewed research regarding self-directed learning, online learning, and mental health during COVID-19, recommending support for self-initiated self-directed online learning so that self-directed learning can continue, post COVID-19, improving student mental health in public schools, leading to positive psychosocial outcomes.

Keywords: mental health; public schooling; self-directed learning; standardized learning; positive psychosocial outcomes; John Dewey; COVID-19; online learning; Google Scholar

1. Introduction

Negative mental health in children and adolescents has been classified as a global crisis [1] such that the World Health Organization created the WHO Special Initiative for Mental Health (2019-2023): Universal Health Coverage for Mental Health, citing suicide as the leading cause of death in young people [2]. Concurrently, it has been noted that young people with diminished mental health are found to be the highest achievers in standardized school settings [3]. This inverse relationship between mental health and academic achievement has been cited as a well-known phenomenon in the scientific literature [4]. In contrast, those with poor academic performance who drop out are found at risk for major depressive symptoms once they reach adulthood as a result of their previous poor academic performance in school, possibly in relation to their then comparatively lower income and an inability to compete in the labor market [5]. As such, in this children's mental health crisis, standardized learning is recognized to have a direct and lasting negative mental health effect on both the most accomplished and the least able students.

The model of public schooling fundamentally is based on the long-accepted understanding of education itself [6]. John Dewey, philosopher, psychologist, and educational reformer, in 1916 defined education as the transmission of experience through communication [7] representing direction, control or guidance [8] towards a later result [9]. Regarding children, Dewey argued, the purpose of education is preparation to become full members of society with the responsibilities and

privileges of adult life [10]. School, then, is that preparatory institution working in this direction [11], with public schools representing a subset of these institutions with a purpose of common education for the masses [12] through the constructive use of governmental agencies—furthering the public good without weakening personal initiative [13]. Yet, Dewey highlighted that these public schools are based on a dichotomy of supplying both too much and too little information to students, focused on "what others pour into them" [14]. In all, Dewey found a "peculiar artificiality attaches to much of what is learned in schools" [15]. Although written over 100 years ago, Dewey's views on education in relation to public schools continue to reflect its present understanding [16].

Public schools are designed instruments for reproducing power relations in society by those associated with the dominant culture controlling public resources [17,18]. As such, a public school is a government-sponsored common school that is open to all students, aiming to stabilize and reproduce public social values intended to guide individual psychological development across generations [19]. From the 1860s onwards, learning in these institutions was standardized [20] (p. 278). with the aim of sorting students into those who understand the most—expected to maintain the accepted psychosocial belief system—and those who understand the least—anticipated to demonstrate psychosocial deviance [21]. As such, the fundamental purpose of standardized educational assessment is reliably discriminating among students differing with respect to the knowledge, skills and abilities assessed [22] regarding accepted psychosocial standards.

In this way, positive mental health in students was not the concern in the creation of public schools because it was assumed student's mental habits would in time conform to the desired standardized methods used in schooling [23] since the focus of public schooling was the creation of "mental discipline or power" [24]. Nevertheless, according to Dewey, this assumption was based on a "thoroughly false psychology of mental development" as students are not passive receivers of sensations [25]. At the time, Dewey noted that when "variations are suppressed in the alleged interests of uniformity, and an attempt is made to have a single mold of method of study and recitation, mental confusion and artificiality inevitably result. Originality is gradually destroyed, confidence in one's own quality of mental operation is undermined, and a docile subjection to the opinion of others is inculcated, or else ideas run wild" [26]. In this way, Dewey's views regarding the outcome of standardized education in public schooling foretold today's student mental health crisis.

Today, public schooling has been greatly affected by the COVID-19 pandemic [27]. COVID-19, a previously unknown corona virus, was identified as a pandemic 11 March 2020 by the World Health Organization (WHO) [28]. On 4 May 2023, the WHO downgraded the COVID-19 pandemic as an established and ongoing health issue which no longer constitutes a public health emergency of international concern [29]. Although there is no single agreed definition of "endemic" in relation to COVID-19 [30], one accepted definition of endemicity is the long-term (multiyear) persistence of a pathogen in a population at a steady annual level of infection [31]. Based on this definition, there are currently individual countries in the world classifying COVID-19 as endemic [32]. Throughout the world, during the three years of COVID-19 as a pandemic, schools were forced to contend with limitations to program delivery that often included full school closure, necessitating an overnight transition to online learning [33]—education delivered in an online environment through the use of the internet [34]. This included areas of the world where online learning was underdeveloped [35]. In each of these cases, teachers had to quickly establish skills related to online learning [36] and students had to adjust to a type of learning that was primarily self-directed [37–39].

Self-directed learning refers to learners taking the initiative in learning on their own without the help of teachers or others [40]. As self-directed learning is widely associated with adult learning [41,42], it is differentiated from self-directed learning in public school students, as maturity brings with it an increasing need for self-direction that may not be identified by public school students during that time [43]. Self-directed learning in public school students became particularly important regarding various psychosocial factors following the shift from teacher-centered classrooms to learner-centered approaches with online learning during COVID-19 [44]. With respect to online learning, self-directed learning has been recognized as a dependent variable in research on the effects, in particular, of smartphone usage, and has a strong correlation with academic achievement when

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the learning activities are self-initiated [45], with a significant relationship among digital literacy competence, academic performance and self-directed learning readiness [46]. Unlike high academic achievement though standardized learning, high academic performance with student-initiated self-directed learning during COVID-19 produced positive psychosocial outcomes [47,48]. However, in contrast, for those students who did not self-initiate their self-directed learning and did not exhibit self-directed learning readiness, the effect of necessitating self-directed learning during COVID-19 has been found detrimental [49].

Positive psychosocial outcomes in students are necessary if the mental health crisis is to be alleviated [50]. Positive psychosocial outcomes in public schooling are those outcomes that reduce anxiety, increase resilience, improve well-being and increase positive mental health in children and adolescents [51]. Particularly in relation to COVID-19, the school closures and education disruptions that removed routine, structure and opportunities for socialization had the potential to increase loneliness and isolation and, in these contexts, young people and adolescents were at risk for unique psychosocial consequences from the pandemic with respect to public schooling [52]. With online learning now a tried and accepted option for public schooling as a result of COVID-19, the ability to support self-directed learning through online learning has become a potentially sustainable feature of public schooling [53]. This is important, as self-initiated self-directed learning has been found able to promote positive psychosocial outcomes in a way that both fundamentally and historically has not been achievable through standardized learning in public school settings [54]. Yet, there are problems associated with self-directed learning, particularly regarding parental expectations [49,55], that can decrease students' school success and mental health if these challenges are not recognized and understood.

The purpose of this study is to highlight the results of a Google Scholar search of relevant articles regarding self-directed learning online learning and mental health regarding public school students during COVID-19. Following an evaluation of the returned articles, it is to suggest in what context recognized difficulties might be overcome so that the result is appropriate use of self-initiated self-directed learning in online learning for improved mental health of public school students leading to positive psychosocial outcomes. This study is valuable because it is the first of its kind to evaluate the results of self-directed online learning of public school students with respect mental health during COVID-19. It is important because self-directed learning, if self-initiated, has been found able to promote mental health in students, leading to positive psychosocial outcomes, unlike the standardized learning of public schooling. The conclusion is difficulties that have been recognized regarding self-directed learning in public schooling are ones that can continue to be overcome post COVID-19 in the aim of supporting public school student mental health if the focus is self-initiation of the self-directed learning unimpeded by parental expectations dependent on standardized learning. As such, self-directed learning, when self-initiated, can lead to positive psychosocial outcomes with online learning, thus leading to improvements in the mental health of public school students in ways inaccessible through standardized learning—potentially aiding in alleviating the current internationally-recognized mental health crisis in students.

2. Materials and Methods

Figure 1 represents the type of materials of this study that were identified using a Google Scholar search on 30 May 2023 with the following parameter inclusive of five keywords: "self-directed learning, online learning, mental health, public schools, COVID-19". Google Scholar was chosen as the search engine for this investigation as a 2019 study of twelve academic search engines recognized it as the most comprehensive academic search engine [56], additionally reconfirmed with 2023 research [57].

To present the methods used by the author to gather the materials, preferred reporting items for the systematic review and meta-analyses (PRISMA) flow of information was developed. The PRISMA diagram represented in Figure 1 is a particular version constructed by the author based on the original (now standard) PRISMA template [58]. However, in contrast to the accepted template, the flow of information in author-designed template clarifies (by the differentiated arrows and text in

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blue on the right) that the filtering operation is separate from the general flow of the activities to determine the resulting appropriate publications. On the other hand, the arrows represent the actual flow—not only the flow related to those articles that remain to be considered after assessing screening and eligibility, as is found in the standard PRISMA template instead {54}. The reason is that the author has judged the original PRISMA template as unable to represent the actual flow of information sorting that takes place. As the purpose of the template is to make the flow of information obvious—demonstrating the actual flow, rather than merely the flow of remaining articles to consider—the standard PRISMA diagram has been adjusted accordingly by this author.

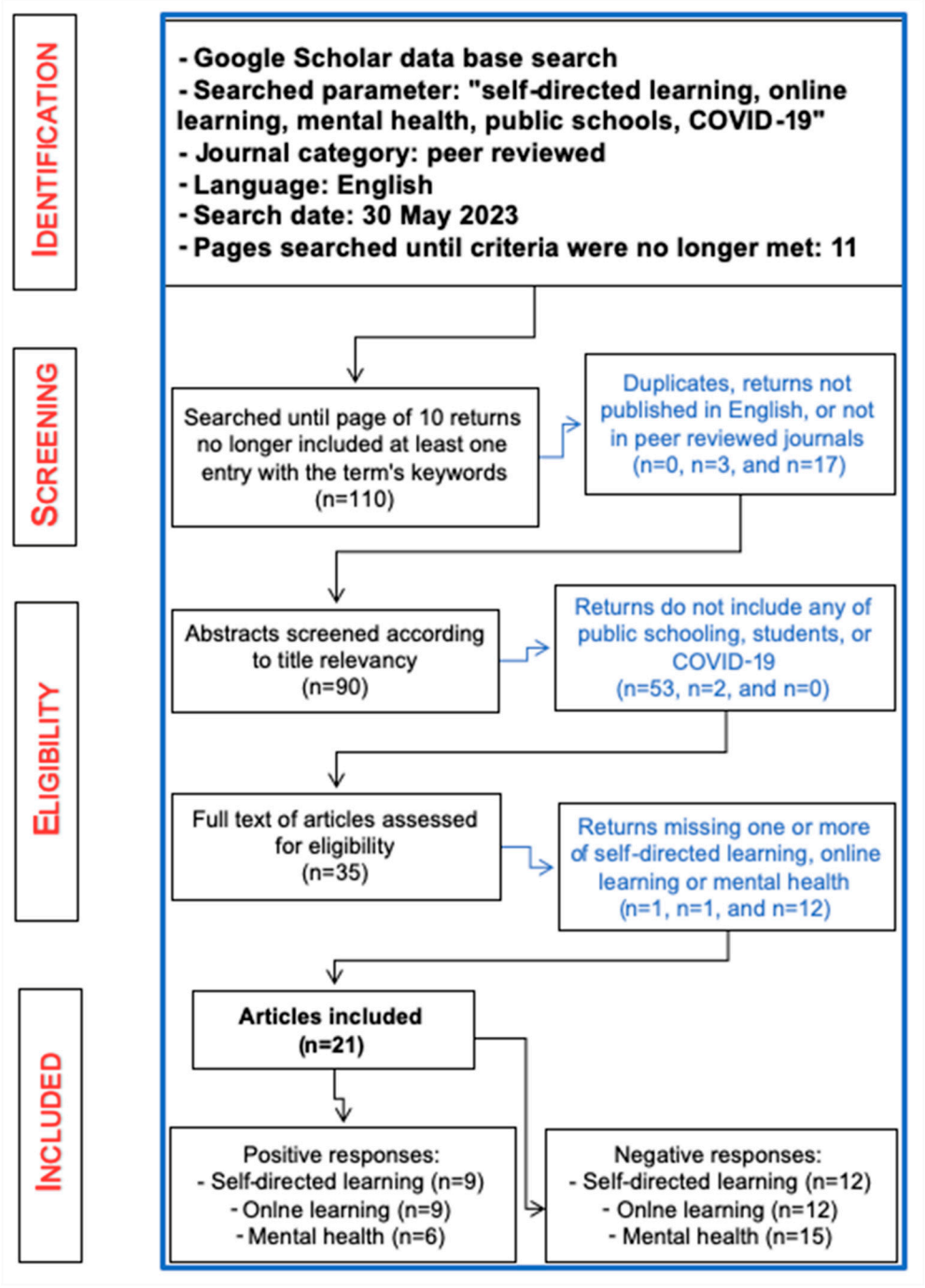

Figure 1. The author-created preferred reporting items for systematic review and meta-analyses (PRISMA) flow of information (inspired by the original Moher, et al. 2009 diagram [58]) for a Google Scholar search of the parameter containing the keywords, "self-directed learning, online learning, mental health, public schools, COVID-19", conducted 30 May 2023. Arrows and information in blue represent the process and result of articles eliminated from consideration.

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The methods used in developing the materials included, firstly, searching Google Scholar until its page of ten separate returns no longer included at least one return with all of the keywords in the parameter. Eleven pages of returns were necessary to meet this criterion on 30 May 2023, equaling 110 distinct entries. The second method was to copy all the entries to a Word document so that a title search could be performed to determine if there were any duplicates. There were none. To perform the next method, a tab was created in the browser used (Safari) for each of the 11 pages of the Google Scholar search. Then, every individual return was checked to ascertain if the article was written in English by skimming the abstracts. At the same time, the publication was checked to confirm if it was a peer reviewed journal. There were 3 articles that were not written in English and 17 published in other than peer reviewed journals. This completed the screening portion of the methods applied, leaving 90 articles.

The methods that followed related to determining the eligibility of the remaining 90 articles. The first depended on reading through every abstract to examine if any of public schooling, students, or COVID-19 were missing from the article. There were 53 that did not include public schooling, 2 that didn't mention students, and none that lacked consideration of COVID-19, leaving 36 eligible articles. These remaining articles were further assessed for eligibility with respect to returns that were missing one or more of self-directed learning, online learning, or mental health. This assessment was done by doing a word search for each of the three terms in the remaining articles. There was 1 article among these that did not mention self-directed learning, 1 that did not refer to online learning, and 12 that failed to comment on mental health. This left 21 articles included for the final assessment.

With respect to the final 21 articles included to be appraised, each was then scrutinized to determine whether the article had a positive or a negative point of view regarding any of self-directed learning, online learning, and mental health. This involved doing a search for these terms in every one of the articles and reading what the articles stated regarding the terms. The positive responses were 9 for self-directed learning, 9 related to online learning, and 6 concerning mental health. In contrast, the negative responses are summarized as 12 regarding self-directed learning, 12 for online learning, and 15 with respect to mental health.

3. Results

The results of applying these methods through the PRISMA flow of information produced 21 articles for inclusion as the materials. These 21 articles are listed by their research topic in Table 1 while comparing whether the article had and positive or negative view on each of self-directed learning, online learning, and mental health. In total, there were 25% more articles with a negative response regarding self-directed learning than positive; a 25% greater percentage of negative responses concerning online learning than positive; and 60% more articles were found negative regarding the mental health of students compared with positive.

Table 1. Articles returned from a 30 May 2023 Google Scholar search of "self-directed learning, online learning, mental health, public schools, COVID-19", listed in order of their return, with each of the following filtered out: (1) duplicates, returns not published in English or not in peer reviewed journals, (2) do not include any of public schooling, students or COVID-19, or (3) missing one or more of self-directed learning, online learning or mental health—examined for positive (+) or negative (–) assessments regarding each of self-direction in learning, online learning, and mental health.

Research Topic on Public Schools Regarding COVID-19	Self-Direction	Online Learning	Mental Health
Impact of information literacy	+	+	+
Motivating online learning	+	–	–
Learning in isolation	–	–	–
High school student-athlete experiences	–	–	–
High school experience of online learning	–	+	–
Self-directed learning on learning outcomes in MOOCs	+	+	+

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Students' self-directed learning in English (foreign language)	+	–	+
Guiding teaching strategies	+	+	+
Students' acceptance towards online learning	–	+	–
Self-directed learning and attitude on online learning	–	–	–
Mental health of high school students	+	+	+
School connectedness still matters	–	–	–
Implementation and challenges of online education	–	–	–
Challenges and opportunities in online distance learning	+	+	–
Student evaluations of transitioned-online courses	–	–	–
Adaptability and high school students' online learning	–	+	–
The impact of learning on science, social and digital literacy	–	–	–
Factors affecting students' happiness on online learning	+	+	+
A comparison of online learning challenges	–	–	–
"Teachers act like we're robots"	–	–	–
A literature review on teaching and learning	+	–	–

Every article assessed included reference to each of self-directed learning, online learning and mental health for public school students during COVID-19. In other words, when an article considered self-directed learning regarding its consequences on public school students, it was in relation to online learning during COVID-19 while mental health also was being assessed. Similarly, when the consequences of online learning were considered regarding public school students, it was with the understanding that during the lockdown period of COVID-19 students were self-directing their learning and their mental health in this regard was a focus. Lastly, in considering the mental health of the public school students, this was done with attention to the role of self-directed learning and online learning during COVID-19. On the other hand, although these variables were dependent, the evaluation by the articles' authors of any one of self-direction, online learning or mental health did not presuppose the result of either of the other two variables. This is evident by recognizing that only 14 of the 21 articles, or 66.7%, have either all negative or all positive assessments of each of the three variables. Of these, there are 4 articles that are entirely positive in their evaluation of self-direction, online learning and mental health. The other 13 have completely negative assessments of each of self-direction, online learning, and mental health.

Regarding those articles that were neither all positive nor all negative in their assessment of self-directed learning, online learning, and mental health concerning public school students during COVID-19: There was 1 article that was positive with respect to both self-direction and the mental health of the public school students during COVID-19, but negative in considering online learning, while there were 2 articles that found self-directed learning and online learning to both provide positive results during the pandemic but, at the same time, these forms of learning also were assessed to create poor mental health. There were no articles that were positive towards online learning and mental health but negative with respect to self-directed learning. There were 2 articles that were positive about self-directed learning but negative with respect to both online learning and the student's mental health, and 3 were positive in their judgment of online learning but negative about both self-direction and the mental health of the public school students. There were no articles in which the authors were positive regarding the mental health of public school students but were negative regarding both self-direction and online learning.

4. Discussion

The aim of this discussion will be to examine the 21 articles included for review and meta-analysis from conducting the 30 May 2023 Google Scholar. The purpose of this examination will be to determine under what conditions self-directed learning is found to have a specific effect on mental health when pursued through online learning and to investigate if reference is made to self-initiated learning in this regard. The reason is that self-initiation of self-directed learning has been found the dependent variable for positive results regarding self-directed learning [47,48]. To accomplish this, the discussion will be divided into categories of positive assessments and negative assessments. Within these divisions, those articles that found positive effects for each of the three variables (self-directed learning, online learning, and mental health) will be considered. Following, those that identified a positive effect for any two of the variables with a negative result for one will be assessed. After this assessment, any articles with the position that there was a positive effect for only one of these variables while a negative effect for two variables will be examined. Once the positive assessments are examined, a similar process will be undertaken with respect to those articles' with all negative evaluations. Lastly, a limitations section for this study will be presented based on the results of this examination.

4.1. Positive and/or Negative Assessmenst for Each of the Three Variables

4.1.1. All Positive

The research topics regarding those articles that had a positive evaluation of all of self-directed learning, online learning, and mental health of public school students during COVID-19 included the following from Table 1: Impact of information literacy [59], Self-directed learning on learning outcomes in MOOCs [60], Guiding teaching strategies [61], Mental health of high school students [62], Factors affecting students' happiness on online learning [63]. In recognizing each of the relevant variables to be positive, what is relevant to determine is if all of these articles mention the importance of the self-directed learning being self-initiated. As noted in the Introduction, self-directed learning has been found to only have a positive outcome in public school students during COVID-19 if the online learning undertaken was self-initiated [47,48]. Otherwise, the research indicates that self-directed learning has a negative impact [49]. Each of the five articles that assessed the three variables as positive will be examined for the conditions under which the self-directed learning was undertaken.

The article on the impact of information literacy [59] is one reporting on a study conducted on Chinese public school students. Although this article found a positive correlation among self-directed learning, online learning, and positive mental health, it was because self-directed learning was understood in this context by the authors to mean that the students self-direct to accomplish what is socially acceptable. This meaning of self-directed learning does not correspond to the intended understanding of the term as learning guided by what the student personally values [64,65]. To become self-directed in the manner envisioned by the authors, the advice provided is that students' self-directed learning skills be developed. In these authors' estimation, this is to be done by the teachers in creating a "harmonious and independent online learning atmosphere" for the purpose of stimulating students' motivation where the students are additionally motivated to work together in teams. This should be done by providing specific homework by the teachers and the parents working in concert with the teachers as "guardians of the students' self-directed learning". In other words, although this article is positively supportive of the three variables, the meaning of self-directed learning is at odds with demonstrating trust in the students' ability to actually self-direct their learning. In this way, it is evident why the article does not mention self-initiated learning—because the learning perceived by these authors is diametrically opposed to that which is self-initiated. Thus, the success of the online learning and positive mental health has come from teacher and parent controlled learning, rather than actual self-directed learning.

The second article that provides a positive assessment of each of the three variables—focused on self-directed learning on learning outcomes in MOOCs [60]—does not mention self-initiated learning.

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However, it does refer to self-regulated, self-managed and self-monitored learning. In reading through the article, it becomes clear that the authors understand self-directed learning to come from learning engagements preferred by of the student, rather than the development of skills by teachers and parents, as in the first article. These authors focus on massive open online courses (MOOCs), which they recognize as learning environments providing learners with "unprecedented autonomy in learning". It is in providing this autonomy to the learner that MOOCS are found to be the particular type of online learning that provides positive mental health. With respect to the role of educators, these authors advise that teachers "need a deeper understanding of the impact of motivation, self-monitoring, and self-management to improve the learning outcomes in MOOCs and to facilitate SDL as a critical factor for MOOC learners' success".

The third article that finds a positive connection among self-directed learning, online learning, and mental health is one concerned with guiding teacher strategies [61]. Again, this is an article from China in which self-directed learning relates to "self-exploration, self-discovery, and self-acquisition of knowledge", where the role of the teacher is to seen to be strengthening this type of autonomous learning through teacher-provided homework materials. The authors advise that there must be "Strict Management of Online Teaching" as one of their section headings, with two of the important goals of the teacher being behavior management and emotional management of the students. In these authors' estimation, it is by this strict management that positive mental health is the result. As a result, this article, although positive regarding each of the variables, does not actually refer to self-directed learning—it can better be considered as self-controlled learning. In this way, this article does not see the necessity of self-initiation because it is actually not concerned with self-directed learning per se.

The fourth article studies the mental health of high school students [62] regarding a positive view of the three variables. Unlike the previous articles that are all positive regard their assessment of self-directed learning, online learning, and mental health, that looked at each of the variables equally, the primary concern of this paper is the mental health of students—the fact of students self-directing their learning and doing so online is only a tangential interest. The main point of the article is that, although the students initially suffered from anxiety related to COVID-19, they were able to find ways to cope with the pandemic and their self-directed online learning to the extent that they had positive mental health. With no actual discussion of the students' learning, it cannot be estimated why these authors had a positive assessment of self-directed online learning other than that this learning was not found detrimental in relation to the mental health of the students.

The final article with a positive assessment of all three variables is one concerned with factors affecting students' happiness regarding online learning [63]. From the perspective of these authors interested in what brings happiness to students, the need for autonomy "to feel free and self-directed" is imperative. Thus, any type of learning that improves the ability of students to self-direct their learning in this way will necessarily make them happier. As such, the self-directed online learning required by COVID-19 had the potential to make students happier if they felt free to self-direct their learning. These authors also found that when students truly felt that they could self-direct their learning that they expressed increased relatedness to other online learners. The study reported in this article was therefore in support of previous research that has found self-directed learning to be a positive experience if this learning is self-initiated.

4.1.2. Two Positive, One Negative

Students' self-directed learning in English (foreign language) [66], and Challenges and opportunities in online distance learning [67], are the topics of the two articles that considered two of the three variables to be positive and one of them negative (see Table 1). For the article that looked at student's self-directed learning in English when studied as foreign language, both self-directed learning and mental health were found to be positive while online learning had a negative effect on the students. In contrast, for the article investigating the challenges and opportunities in online distance learning, self-directed learning and online learning were found to be positive while the mental health of the students was negative.

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The article investigating self-directed learning with respect to English language learning provides the insight that, once COVID-19 demanded self-directed online learning, there were three different types of self-directed learners [66]. The first were those students who self-initiate their learning and prefer self-directed learning. It is for these students that self-directed learning is a positive experience, similar to as was found in previous research [47,48]. For the second group, they were not inclined to begin self-directed learning on their own but, with the right type of support by teachers, they were able to develop into self-directed learners. In the group that were studied for this article, the teachers considered their role of encouraging self-directed learning important to the learning process and, as a result, a number of these students in the second group were able to view their self-directed learning positively. For the last group, they were neither interested in self-directed learning nor were they able to benefit from the accommodations made by the teachers. It was only this group that did not see self-directed learning positively. However, what also differed in this group was, unlike the other two, these students did not demonstrate the same positive motivation to learn English and, as such, began with negative mental health in relation to their studies. What was common among all the students is the poor internet connections they experienced. It is because accessing the online learning consistently and regularly was so difficult for these learners that online learning was judged negatively. On the other hand, had the connection been reliable, this article would have been among those judging each of the three variables positively.

For the article concerned with the challenges and opportunities of online distance learning, although these authors acknowledge that not all students adjust well to self-directed online learning, the found that the majority do [67]. What the group studied could not adjust to was the situation regarding COVID-19. In the view of these authors, students remained depressed and anxious because of COVID-19, even though they may have found self-directed online learning to be effective. As a result, these authors were unable to judge the consequence of either self-directed learning or online learning on mental health independently from COVID-19. For this reason, the negative assessment regarding mental health in this study of both self-directed learning and online learning during COVID-19 cannot be considered to be a judgement regarding the forms of learning in themselves.

4.1.3. One Positive, Two Negative

With one positive result and two negative were five different articles listed in Table 1. They concern the following topics: Motivating online learning [68], High school experience of online learning [69], Students' acceptance towards online learning [70], Adaptability and high school students' online learning [71], and A literature review on teaching and learning [72]. With self-directed learning the one positive variable are the articles concerning motivating online learning [68], and the literature review on teaching and learning [72]. High school experience of online learning [69], students' acceptance towards online learning [70], and adaptability and high school students' online learning [71] are the topics of articles that were positive regarding online learning alone. There were no topics of articles that considered only mental health positive of the three variables.

The paper regarding motivating online learning presupposes that self-directed learning is valuable and that all learning should be moving in this direction [68]. Yet, although self-directed learning is considered positive, self-initiation of learning is not mentioned. This is likely because where the article finds challenges with the self-directed learning demanded during COVID-19 is with students' engagement with online learning. Although the authors appreciate the autonomy that comes from online learning, their negative opinion of online learning is most likely because of also considering in-person social engagement, both with teachers and peers, as fundamental to positive mental health. Since the type of in-person social engagement with teachers and peers viewed as essential by these authors cannot be provided with online learning and this is viewed as a cause of poor mental health, both online learning and mental health are judged as negative in the switch to online learning during COVID-19.

With respect to the literature review on the impact of COVID-19 on teaching and learning, this was the second of two papers that was positive about self-directed learning but negative concerning both online learning and mental health [72]. Similar to the previous article, the authors of this article

assume self-directed learning to be the preferred methods of learning. Nevertheless, predominantly because of poor internet connections, online learning was a negative experience for students. Yet, it was not because of the effect of either self-directed learning or online learning that the mental health of the students studied was negative. This was attributed to the rise in domestic violence and child abuse that was a result of children being required to stay at home during extended periods of the COVID-19 pandemic. Whether self-directed learning is self-initiated was not remarked on in this paper.

In relation to those papers returned in the Google Scholar search that were positive regarding online learning but negative with respect to the other two variables, the first of the three to consider is the one that investigated high school students' experience of online learning during Covid-19 in association with the influence of technology and pedagogy [69]. The authors of this paper assumed that online learning was a positive development in learning. However, they also assumed that teacher-directed learning was the type of learning appropriate for public school students. As a result, they did not support the self-directed learning that students had to resort to as a result of COVID-19 limitations. Furthermore, they also indicated that that the most important aspect of distance education is empathy by teachers to support students emotionally—this they also found lacking during the pandemic. It is evident that the view of self-directed learning considered by these authors was not the self-initiated learning necessary for self-directed learning to succeed [47,48]. Therefore, it is reasonable that these authors would judge self-direction as negative.

For the article assessing the impact of COVID-19 on students' acceptance of readiness for online learning [70], with online learning being considered the new norm by these authors, it is assessed positively. The purpose of the article is to determine what is holding students back in their ability to accept online learning. In this regard, the need to self-direct learning was seen to be a burden by the students studied because they lacked mental readiness and this negative aspect of their mental health affected their lack of motivation to accept online learning. In this regard, unlike other articles that considered online learning negatively with similar results, these authors saw the problem not with online learning but, rather with poor self-direction and diminished mental health. Yet, without mention of self-initiated learning, it is unclear what these authors understood in their reference to self-directed learning.

The final article that considered online learning to be positive but self-directed learning and mental health to be negative in public school students during COVID-19 is the article looking at adaptability and high school students' online learning [71]. From the perspective of these authors, online learning is the only method of learning available during COVID-19, so, as a result of it continuing student learning, it is positive. However, given the focus of these authors on adaptability, both self-directed learning and mental health were negative because students were not found to be able to adapt appropriately to either self-directed learning or to the uncertainty that came with COVID-19, causing their mental health to be negative. As such, what these authors did not compare were the conditions under which self-directed learning was successful with respect to online learning and mental health during COVID-19, and this is because the lens through which they viewed self-directed learning was that of adaptability to online learning.

4.1.4. All Negative

Equaling 8, by far the greatest number of relevant articles that were returned in the Google Scholar search of 30 May 2023, as is evident from Table 1, were those that considered each of self-directed learning, online learning and mental health to be negative for public school students during COVID-19. These publications are of the following topics: Learning in isolation [73], High school student-athlete experiences [74], Self-directed learning and attitude on online learning [75], School connectedness still matters [76], Implementation and challenges of online education [77], Student evaluations of transitioned-online courses [78], The impact of learning on science, social and digital literacy [79], A comparison of online learning challenges [80], and "Teachers act like we're robots" [81].

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For the first article in this regard, which focused on the isolation that students felt during COVID-19, this isolation necessarily produced negative mental health in the view of these authors [73]. As a result of the students' perceived negative mental health, they were unable to engage with self-directed learning, and online learning only served to further increase their isolation—providing the reason why they were both judged as negative. However, in assuming that working on one's own is equivalent to feeling isolated, these authors could not consider any potential benefits of either self-directed learning or online learning, demonstrating the author's particular prejudice. Nevertheless, even while they themselves focused on isolation, these authors did report as a theme that the students perceived advantages to self-directed learning. Nevertheless, they still end their discussion by concluding that self-directed learning is a "plight in solitary learning". These authors did not consider the role of self-initiation to self-directed learning.

It is to be expected that an article focused on high school student-athlete experiences would judge all accommodations made during COVID-19 regarding the physical education program to be negative [74]. For an experience often dependent on physical contact, regularly in team situations, the social distancing ban on team sports [82] demanded by COVID-19 limitations made the self-directed learning of online learning pale in comparison to in-person classes and, as a result, was seen by these authors to lead to the negative mental health of the students studied. For those students of physical education who were athletes, the only meaningful alternative was to wait out the pandemic and hope for a return to normalcy. What was not considered in this article were those students who did not prefer the regular in-person physical education classes because they had a disinterest in the physical contact of team sports. For these type of students, their mental health has been found positive during COVID-19 in other research, although neither self-directed learning nor online learning were included for consideration in this finding [83].

A paper investigating self-directed learning and attitude to online learning, was one specifically concerned with both self-directed learning and online learning regarding public student mental health [75]. Although this paper ultimately judged self-directed learning, online learning and mental health each as negative in public school students during COVID-19, this judgement was made from a very balanced look at the factors involved in both the positive and negative results. The authors clearly believed that for those students who self-initiated their learning, self-directed online learning was positive and correlated with positive mental health. The problem they identified is that most students do not fall in this category and, as a result, for the majority, their experiences were entirely negative during COVID-19. According to these authors, their results show that ability in self-directed learning in this regard can predict the student's mental state and this has an indirect influence on the effectiveness of online learning.

An article that proclaims school connectedness still matters [76], as does one of the articles that judged all three variables as negative, begins with a biased point of view that connectedness is best experienced in school. As such, necessarily these authors would conclude that self-directed learning, online learning, and mental health were all negative as a result of the school closures brought on by COVID-19 merely because the students were not physically in school. This result demonstrates again that all negative results regarding the three variables often stem from the authors' beginning with a particular point they want to make that is not directly related to the three variables but, as a result of that point of view, the three variables must then be judged as negative.

The article concerned with implementation and challenges of online education is one that represents a balanced approach to considering online learning [77]. What is particularly interesting about this reported study is that it was conducted of a sample of 28,334 children in China and, unlike the previous articles mentioned with respect to China, this account does not consider the move to self-directed online learning in China to be positive. Furthermore, it finds that this move produced negative mental health in the children. What is most notable in this study, and supports previous research [49,55], is that the primary cause of these negative results was parental expectations of their children's learning during the lockdown. Although balanced in its assessment of the three variables, these authors don't discuss that type of initiative necessary for self-initiated learning.

A paper on student evaluations of transitioned-online courses [78] has a similar focus to the article reporting on children's attitudes in China; however, this paper is from the perspective of students in higher education in the U.S.A. and only takes a cursory look at the views of high school students bound for higher education. As such, this paper has very little to say about high school student's views regarding self-directed learning, online learning and mental health. What it does say is that, because of the self-directed online learning they experienced during COVID-19 that 24% of college-bound students report that their college choice has been affected. Given that the concern of this publication is choice in post-secondary education, this provides the reason why each of the three variables would be judged negative.

The impact of learning on science regarding social and digital literacy is the topic of a paper that concentrates on the role of online learning with respect to science understanding during COVID-19 [79]. The results show a relationship between the impact of social distancing regarding COVID-19 and a decline in mental health as well as digital literacy when students were required to master digital media in online learning, leading to a decrease in scientific literacy. Nevertheless, the research concludes that, if appropriate supports are introduced and "responded to positively and applied optimally", this can reduce the negative impact of the pandemic regarding online learning. In other words, the negative results concerning self-directed learning, online learning and mental health were not seen as necessary by these authors. Their view is it was the speed at which the changes to place to self-directed online learning that caused these negative consequences, but this was merely an untested hypothesis. Self-initiation of learning was not investigated as a factor.

A comparison of online learning challenges was undertaken for another study that involved a negative evaluation of self-directed learning, online learning and mental health of both adults and public school students during COVID-19 [80]. The authors begin with the view that online learning is the "education revolution". Yet, with respect to considering public school students, it is because of insufficient support by parents and teachers that the public school student assessment of the self-directed online learning remains negative, negatively affecting their mental health. In the view of these authors, this negative assessment can only improve with online learning support provided by these adults. Thus, it appears that, for these authors, these supports necessarily will be provided in the future because of the inevitability of online learning. Again, consideration is not given to the importance of self-initiation of learning for a positive analysis of self-directed learning.

Using TikTok as a window into youth experiences of online learning during COVID-19, this final article of the 21 is titled with an exclamation of one of the students interviewed: "Teachers act like we're robots" [81]. Given this initial proclamation, that the authors found each of self-directed learning, online learning and mental health of public school students negative during the pandemic is to be expected. To undertake this research, the authors examined 1,930 TikTok videos by students who posted their experiences regarding, among other things, the three variables under consideration. What they found was that, of those students who posted, they were overwhelmed and felt traumatized regarding the pandemic and that their concentration was on seeking support, empathy and authenticity from teachers and that their coping in relation to the three variables was significantly affected by their home life. What this research demonstrated is that for these students, their anxiety related to COVID-19 itself produced negative mental health and affected their perception of self-directed learning and online learning as also negative—self-initiation of learning was not investigated.

4.2. Limitations

The primary limitation of this research it that the returned results depended on the particular day the author conducted the search on Google Scholar, as the articles returned might have been otherwise if the author had chosen another day. Once these articles were returned as the ones to be assessed for inclusion, the additional limitation was that the evaluation of the articles for their authors' points of view regarding self-directed learning (particularly with respect to self-initiation of that learning), online learning, and mental health was contingent on the reading done by this author. Although this author undertook the present study with the aim of objectivity, it is possible that the

author had a cognitive bias that was unrecognized [84]. This type of cognitive bias was identified by the author as actually affecting the results of 38% of the 21 studies that were included for examination [59,61,63,68,70,72,73,76]. Although various frameworks have been developed to debias research, there remains little research on the efficacy of these models and, as such, how to recognize and reduce cognitive bias is identified as an area in need of additional research [84].

When assessing the role of self-initiation with respect to self-directed learning in relation to online learning and mental health of public school students during COVID-19, it is a limitation that few of the articles returned in the search of Google Scholar on 30 May 2023 considered self-initiation. Of the 21 articles that were ultimately included, there were only 4 [60,63,66,75] that examined the role of self-initiation in self-directed learning. Two of these articles gave positive assessments to each of self-directed learning, online learning and mental health {60,63}. One other, viewed only self-directed learning and mental health positive with self-initiated learning. However, those students surveyed predominantly had poor internet connections. As a result, online learning was judged negative. The final paper considering self-initiated learning, in contrast, judged all three variables as negative [75]. Still, as mentioned in the discussion, this is because the authors of this paper recognized that few of the students affected by the COVID-19 limitations were willing or able to self-initiate their learning. For those who were, these authors—comparable to the authors of the first two papers that discuss self-initiation in self-directed learning—judged each of self-directed learning, online learning and mental health of the public school students to be positive during COVID-19. That there were so few articles returned on 30 May 2023 in the Google Scholar search that mention self-initiation with respect to self-directed learning is a limitation that calls for further research in this area.

5. Conclusions

It has been noted that student's positive psychosocial outcomes are necessary if the mental health crisis in youth is to be alleviated [50] as these outcomes reduce anxiety, increase resilience, improve well-being and increase positive mental health in children and adolescents [51]. Unlike the standardized learning that has been the norm since the 1860s in public education, self-initiated self-directed learning has been identified as providing these positive psychosocial outcomes [47,48]. During the COVID-19 pandemic, when public school students were forced to become self-directed online learners, it became evident that the role of self-initiation of self-directed learning (along with a reliable internet connection) was paramount if all of self-directed learning, online learning and mental health were to be judged positive and that without it, self-directed learning was judged as negative [49]. This has become clear from a Google Scholar search of the parameter containing the following keywords: "self-directed learning, online learning, mental health, public schools, COVID-19" that returned 110 articles before none contained all of these keywords that, upon further investigation, revealed only 21 articles among those searched that actually considered all of the keywords in this parameter. Of those 21 articles, merely 4 included mention of self-initiation in self-directed learning [60,63,66,75] and, in support of previous research regarding self-initiation in self-directed learning, all identified that it is because of self-initiation that self-directed learning promotes positive psychosocial outcomes—those identified by John Dewey over 100 years ago as the fundamental goal of public schooling.

Knowing the importance of self-initiation to positive self-directed learning with positive mental health, it became evident during the COVID-19 limitations related to in-person public school attendance that public schools have the capability of supporting self-directed online learning outside the overseeing of in-school learning. There were students who did not experience positive self-directed online learning or positive mental health during this period. However, there were others—the self-initiated self-directed online learners—who did experience a positive result with each of their self-directed learning, online learning, and their mental health. This improved their psychosocial outcomes, with much of the difference in the level of success a result of parent expectations of students that were not tied to standardized learning [49,55,77,80]. Furthermore, with the right type of teacher support, students who might not start with an interest in self-directed learning can develop to have a positive experience with self-directed learning [66,79,80]. Consequently, for those self-

initiating self-directed online learners, public schools are advised to continue the online learning they permitted these students, rather than demanding such students return to the in-person standardized learning which is acknowledged as unable to produce positive psychosocial outcomes in both the most [3,4] and least achieving students [5]. With reliable internet connections, in this way, some of these most and least achieving students may be safeguarded from the continuing international mental health crisis of public school students.

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