

A SYSTEMATIC LITERATURE REVIEW: A PRAGMATIC MODEL OF ONLINE ENGAGEMENT AND AFFORDANCES TO SUPPORT ADOLESCENT LEARNERS

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Abstract

Adolescent learners, who often have fewer self-regulatory and metacognitive skills than adult learners, require more support and higher quality interactions for online learning (Borup, Graham & Davies, 2013; Cavanaugh, Barbour & Clark 2009). Through a systematic literature review, this paper identified a pattern of student feedback that collectively addressed the wide range of support they required and received from multiple stakeholders when learning online. This work is inspired by the theoretical framework of adolescent community of engagement (ACE) involving members who play different critical roles in supporting adolescent students who are enrolled in online courses (Borup, West, Graham & Davies, 2014). To thoroughly capture who, what, and how elements within online learning environments supported or failed to support adolescent students and influenced either their positive or negative perception of their online learning experiences, five major types of support were identified, and the evidence was analyzed using thematic analysis across studies included in this review. The five types consist of 1) support by the formalized teacher-student relationships and interactions, 2) support via peer relationships and interactions, 3) support from a Proximal Community of Engagement (PCE, Oviatt, Graham, Borup & Davies, 2016, p. 223), including support from a broad yet immediate cycle, the school, familial and community members, 4) support through technological affordances that are unique to online learning environments, facilitating communication synchronously and asynchronously, and 5) support regarding structured and enriched curriculum development in online course shells/learning management systems (LMSs) for self-direct learning.

The shift to online learning due to the COVID 19 pandemic has greatly shaped adolescent students' perceptions of and experiences in distance learning, as well as their readiness for the future adoption of online learning. Therefore, it is important to enhance our understanding of "smart" designs and implementation of online courses, and the related teaching and learning strategies that can lend adolescents strong support to improve their learning experience and outcomes.

Keywords: *Systematic review, online engagement and support, adolescent students, learning community.*

1. Introduction

With the rapid development of internet technologies, there was already an upward trend pre-pandemic for secondary schools to integrate online education for adolescent students. The COVID-19 pandemic has changed the online education landscape and forced educators and learners to make a swift transition to online learning environments (Lockee, 2021); in turn, this has resulted in the widespread disruption of school systems for nearly 1.6 billion learners around the world (the United Nations, 2020). This shift represents the most extensive uprooting of educational delivery in human history (Pokhrel & Chhetri, 2021). Even with end of the school closures, online education has taken on a much more central role than before. For these and other reasons, many parents and students have indicated an unprecedentedly increased interest in taking online courses.

The adoption of online teaching and learning has been extremely challenging for adolescent students, who often have fewer self-regulatory and metacognitive skills than adult learners and face critical transitions from elementary school to middle school and from middle school to high school studies. With increasing academic demands on their learning, these students require more support and higher quality interactions throughout online courses (Borup, Graham & Davies, 2013; Cavanaugh, Barbour & Clark 2009). Therefore, a systematic literature review is needed to thoroughly examine research evidence prior to and during the pandemic from adolescent students' perspectives—the cumulative impact—of their experiences with online learning.

2. Objectives and research questions

Given the fact that one of the most often reported challenges online learning posed for adolescent learners was a lack of support and interaction, as well as decreased engagement, this paper specifically examined two research questions below.

1. What was the major form of support that adolescent students received from their school and social network, one that they valued, and which helped with their online engagement and learning?
2. What was the major form of support that adolescent students received via technological tools, one that they valued, and which helped with their online engagement and learning?

3. Methods

This systematic review was conducted according to the guideline of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA; Liberati et al., 2009). A systematic search was conducted for scholarly peer-reviewed articles in English published between 2000 and 2022. The search focused on studies of adolescent students' perceptions of the online learning experience, with student participants aged 13-17 years and in grades 7-12).

To conduct this systematic review, key terms listed in Table 1 were used to search for each database. The articles were further screened using the inclusion criteria, i.e., adolescent students from any geographical location who had at least one term of online learning experience that was enabled by any type of digital technology. The articles reported on empirical studies based on primary data collected using quantitative, qualitative, or mixed methods.

Fourteen databases were searched. These included the educational databases, i.e., Education Source (via EBSCO) and ERIC (via ProQuest), multidisciplinary databases with education coverage, i.e., Academic Search Premier (via EBSCO), Canadian Business and Current Affairs, i.e., Social Science, PsycARTICLES and PsycINFO (via ProQuest), JSTOR, and Web of Science. Further online learning research databases were searched, including IEEEExplore and ACM Digital Library. Hand search was also conducted from the reference lists of the articles deemed relevant to the topic. A total of 17 articles were identified meeting the criterial for the review.

Table 1. Search terms used for databases.

Category	Search terms
Population of interest	(teen* OR adolescent) AND (“high school” OR “secondary school”)
Learning environment	(“online learning” OR online course*)
Learner perception	(“student experience*” OR perception OR perspective* OR engage* OR support* OR feedback)

4. Thematic analysis and results

To thoroughly capture who, what, and how elements helped or failed to support adolescent students and greatly influenced their perceptions of their online learning experience, thematic analysis was conducted to identify the patterns of feedback. Open coding was applied to major results (Braun & Clarke, 2019), and ideas within the same theme were consolidated to provide an in-depth understanding of the adolescent students' collective perspectives, specifically regarding the support they received and appreciated as well as the support they required but did not receive during their online learning experience.

4.1. Major support for adolescent students' online learning and engagement: School and social network

To answer Research Question 1: What was the major form of support that adolescent students received from their school and social network, one that they valued, and which helped with their online engagement and learning? The results indicated that adolescent learners, who often had fewer self-regulatory and metacognitive skills than adult learners, required more support and higher quality interactions (Borup, Graham & Davies, 2013; Cavanaugh, Barbour & Clark, 2004). These included support

through interactions with their immediate circle online and onsite—teachers, peers, parents, and other community members—that were described as “a proximate community of engagement” (PCE) by Oviatt et al. (2016, p. 223). Based on the adolescent community of engagement (ACE) framework (Borup, Graham & Drysdale, 2014), a PCE involves members who play different critical roles in activities or interactions to support adolescent students enrolled in online courses. Greater engagement by PCE members in contributing to adolescent students’ learning was more likely to increase the students’ engagement (Borup et al., 2014), their positive perception of their online learning experience, and the likelihood of success (Oviatt, Graham & Davies, 2018).

Three major types of support from school and social network were reported in the reviewed studies. The first type of support was via formalized teacher-student relationships. Some research reported students’ satisfaction with the amount of interaction they had with their online teachers (Harvey, Greer, Basham & Hu, 2014); some students expressed feelings of being cared about as a result of the different forms of teacher support that they received, e.g., pep talks and one-on-one interactions (Borup & Stevens, 2017). The students also expressed their appreciation toward online “shepherds,” the supporting staff, who advised them with non-judgmental attitudes (Drysdale, Graham & Borup, 2016).

Second, support via peer relationships and interactions was critical to many students who believed that their social connections with and getting support from classmates helped them to stay motivated online (Dijkers, Whiteside & Lewis, 2013; Keaton & Gilbert, 2020). Evidently, students who completed their online course also perceived having more and higher quality interactions with their peers than those who did not (Hawkins, Graham, Sudweeks & Barbour, 2013). Their satisfaction levels with online learning were significantly correlated with peer interactions regarding the course content and procedures (Borup, Graham & Davis, 2013).

Third, regarding support from the PCE—a broader yet immediate cycle of school, family, and community members, some research reported that students got even more support from their parents than from teachers and peers, which also made important positive impact on their online learning engagement and outcomes (Oviatt et al., 2018).

4.2. Major support for adolescent students’ online learning and engagement: Technological affordance

To answer Research Question 2: What was the major form of support that adolescent students received via technological tools, one that they valued, and which helped with their online engagement and learning? Two major aspects were identified by the students as being supportive of their online learning and engagement. The first was communicative support enabled by technological tools built into online course designs. With the recent speedy advancement in digital media technology, students felt that their interactions with teachers and peers were effectively supported through multiple means of communication in online learning environments, e.g., teachers’ support using different avenues of open communication (web-conferencing, instant messaging, emails, chats, blogs) (Kumi-Yeboah, Dogbey & Yuam, 2018). The promptness and reliability of online communications, including reaching out to teachers by texting and meeting with teachers using video conferencing, made a great difference for students; in turn, they felt being cared by their teachers and this enabled them to collaborate effectively with their peers online during group learning activities.

The second aspect was in regard to structured and enriched curriculum development in online course shells/learning management systems (LMSs) that could lend strong support to students’ independent learning of course content at their own pace. Students provided positive comments on the availability of well-planned materials. For example, a training unit on LMS that helped them understand course expectations and reduced dependency on online teachers and facilitators (Borup & Chambers, 2019) and weekly guides that teachers posted online helped them to stay on track (Borup & Stevens, 2017). To better support their self-directed learning more effectively, students also indicated the support they needed but was not available for their learning of course content. They made many suggestions to improve curriculum materials on course shells. These included posting course content in audio or video files and developing study aids, e.g., visual samples of problem-solving in math (Oliver, Kellogg & Patel, 2010), and various assessment and supplement materials that allow students to evaluate their understanding of course content (Oliver, Osbourne & Brandy, 2009; Oliver, Kellogg & Patel, 2012).

5. Discussions and conclusion

The adoption of online teaching and learning is an important yet complex undertaking, given that the challenges experienced by diverse students are often intertwined with socioeconomic factors (Kuhfeld, Soland, Tarasawa, Johnson, Ruzek & Liu, 2020). To effectively engage adolescent students in their online learning with adequate academic, personnel and technological support is key to their positive learning

experience and outcomes. With the uncertainty of the COVID-19 pandemic situation and its post-pandemic impact on instruction delivery mode, it is important to develop a pragmatic model of a supporting network and technological affordance for adolescent students' online learning.

Based on students' feedback on their online learning experience, this review also identified a wide range of supports that adolescent students felt they needed but which were not provided by multiple stakeholders. Some studies reported that students cited some constraints in online course designs, including restricted teacher-student interaction, which led to delayed, sparse teacher feedback and reduced learning opportunities (de la Varre, Irvin, Jordan, Hannum & Farmer, 2014; Oliver, Kellogg & Patel, 2012). Furthermore, students' negative perception of inadequate support was associated with their teachers' use of limited, inefficient communication tools, e.g., email (Oliver, Osbourne & Brandy, 2009). The dynamic, engaging educator-student relationship is critical to supporting students' online learning and should be fostered at the early stage of online instruction. Students also were concerned by feelings of isolation—the lack of social presence that comprised their online learning experience (Kumi-Yeboah, Dogbey & Yuam, 2018).

To conclude, based on students' shared experiences and perspectives on the support they received and needed through a network of relationships and interactions afforded by multimodal communications, a magnitude of support is required to ensure that students succeed in online learning environments. Further research is warranted to examine the variations of online support required by different subject matter. Also, the extent to which the perceived absence of social relationships and interactions led to adolescents' sense of inadequate support in online learning will be worthwhile to investigate.

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