



7-5-2019

## Schism or Communion? A Discussion of the Morality of Online Learning through a Christian/Catholic Lens

Michael K. Barbour  
*Touro University California*

Jason Paul Siko  
*Madonna University*

Mark Beadle  
*Sevenstar Academy*

Greg Bitgood  
*Karmidable LLC*

Follow this and additional works at: <https://digitalcommons.lmu.edu/ce>



Part of the [Instructional Media Design Commons](#), and the [Online and Distance Education Commons](#)

### Recommended Citation

Barbour, M. K., Siko, J. P., Beadle, M., & Bitgood, G. (2019). Schism or Communion? A Discussion of the Morality of Online Learning through a Christian/Catholic Lens. *Journal of Catholic Education*, 22 (1). <http://dx.doi.org/10.15365/joce.2201092019>

This Article is brought to you for free with open access by the School of Education at Digital Commons at Loyola Marymount University and Loyola Law School. It has been accepted for publication in *Journal of Catholic Education* by the journal's editorial board and has been published on the web by an authorized administrator of Digital Commons at Loyola Marymount University and Loyola Law School. For more information about Digital Commons, please contact [digitalcommons@lmu.edu](mailto:digitalcommons@lmu.edu). To contact the editorial board of *Journal of Catholic Education*, please email [CatholicEdJournal@lmu.edu](mailto:CatholicEdJournal@lmu.edu).

---

## Schism or Communion? A Discussion of the Morality of Online Learning through a Christian/Catholic Lens

### Cover Page Footnote

The authors would like to thank Dr. Jonathan Malesic for providing copies of his notes and paper from various invited and conference presentation, as well as his interaction during the initial planning of this manuscript.

## Schism or Communion? A Discussion of the Morality of Online Learning through a Christian/Catholic Lens

Michael K. Barbour  
Touro University California

Jason Paul Siko  
Madonna University

Mark Beadle  
Sevenstar Academy

Greg Bitgood  
Karmidable LLC

*While massive open online courses (MOOCs) garnered plenty of attention at the beginning of the decade, initial findings about their value have been disappointing. In particular, only a narrow range of participants appear to be successful in completing and passing these unmonitored courses: white, educated, affluent males. One prominent Catholic scholar, Jonathan Malesic, went as far as saying that the very nature of MOOCs does not align with Catholic teachings of learning through social interaction, adapting to the needs of the learner, and teaching (i.e., successfully) the masses. Further, by extension, he applied these criticisms to online learning in general. This article examines these criticisms, describes how these problems are present in K-12 online learning, and gives examples of how these issues are mitigated. The article concludes with ideas for using the online learning medium to promote Catholic and Christian values.*

### Keywords

K-12 online learning, massive open online courses

Distance education has been a formal part of the educational process for well over a century (Moore, 2013), although some may argue that it began during the first century with Paul's letters on issues of doctrine to the various Christian communities that he helped established (Demiray & İşman, 2001). Regardless, in recent decades distance education has primar-

ily been delivered in the form of online learning (Pittman, 2013; Rudestam & Schoenholtz-Read, 2010). Over the past five years, education has seen the rise of a particular type of online learning that has been met with fanfare—the massive open online course (MOOC). For example, the *New York Times* even went so far as to name 2013 the “Year of the MOOC” (Pappano, 2012). Some even went so far as to claim that MOOCs represented the first serious challenge to formal higher education institutions in a millennia (Anderson, 2012).

Approximately one year after this initial hoopla, with three major corporate- and university-supported consortiums created to support the delivery of MOOCs (e.g., EdX, Coursera, and Udacity), Jonathan Malesic published an article in the *Chronicle of Higher Education* that noted “only Georgetown University has forged a partnership with one of the three major companies offering platforms for massive open online courses” (Malesic, 2013, ¶ 1). Malesic indicated that one of the reasons for this might be the fact that MOOCs were antithetical to the mission of Catholic universities, and that Catholic institutions should come together and take “a principled stand against producing MOOCs or offering students credit for completing them” (¶ 3). This article generated a great deal of interest within the Catholic higher education community. As a former faculty member at Sacred Heart University, the lead author had the opportunity to attend one of Dr. Malesic’s invited presentations, where he outlined what he believed were the three Catholic cases against MOOCs: a lack of personalization, an inability to adapt to the needs of the learner, and the fact that MOOCs actually limit the ability of students to successfully learn (Malesic, 2014a).

As a faculty member who had taught online for over a decade, the lead author was struck by the fact that many of the same criticisms had been made against traditional online learning. For example, the inability for online learning to personalize the educational experience to the individual learner is a common criticism within the literature (e.g., Magoulas, Papanikolaou, & Grigoriadou, 2003). Similarly, the most common accepted theory of distance education is focused on a learner’s level of autonomy and, recognizing that not all learners are autonomous in their orientation to learning, has additional variables of course design and delivery to accommodate those non-autonomous learners (Moore, 1972; 1973; 1993; Moore & Kearsley, 1996). However, as scholars, practitioners, and advocates for online learning at the K-12 level, we, the authors, were even more troubled that these were the same criticisms often heard from opponents—and that Catholic and Christian K-12 online learning programs were among the best at actually designing, delivering, and supporting programs that refuted Malesic’s three cases.

In this article, we begin with a brief overview of the current state of K-12 online learning, with a particular focus on situating Catholic and Christian K-12 programs. Next, we will outline and describe the three Catholic cases against MOOCs – and by extension online learning, and K-12 online learning. We will then transition to a rebuttal of each of these three cases from the K-12 online learning perspective. Each rebuttal will begin with a commentary on the research into K-12 online learning related to that case, followed by specific examples from one Christian K-12 online learning program (i.e., Heritage Online School) and one that serves Catholic schools (i.e., Sevenstar Academy). We continue with a discussion of some implications that practitioners of online learning might consider to mitigate the potential to fall into Malesic's critiques. We conclude with a statement of the current state of K-12 online learning, with a focus on the potential for Catholic- and Christian-focused programs to continue to address the concerns outlined by Malesic.

### **Overview of the Field of K-12 Online Learning**

The field of K-12 online learning is a growing and diverse field. Within the United States, it was estimated that during the 2000-01 school year there were approximately 40,000 to 50,000 K-12 schools engaged in one or more distance education courses (Clark, 2001). Recent estimates indicate that this number is probably between one and six million students (Ambient Insights, 2012; Gemin & Pape, 2017; Wicks, 2010). The diversity of online learning experience within this population is significant. For example, some students are enrolled in brick-and-mortar schools and are taking one or more courses from supplemental virtual schools. During the 2015-16 school year, it was estimated that there were at least 600,000 students that accounted for approximately a million or more course enrollments of this nature in state virtual schools (Gemin & Pape, 2017), but this number also often excludes the numerous district-based and consortium operated supplemental programs. In other instances, students are not enrolled in brick-and-mortar schools at all, but take all of their schooling from a full-time cyber school. According to Miron, Shank, and Davidson (2018), there were approximately 300,000 students enrolled in full-time cyber schools during the 2016-17 school year. There is also a growing number of K-12 students that are exposed to online learning within their brick-and-mortar schools as a part of blended learning programs (i.e., where online learning is blended into a face-to-face environment).

Similarly, there were approximately 25,000 K-12 students enrolled in distance education opportunities in Canada during the 1999-2000 school year (Canadian Teachers Federation, 2000). By the 2015-16 school year, this figure had increased to approximately 280,000 K-12 students (Barbour & LaBonte, 2017). Like in the United States, the nature of participation in online learning opportunities ranges the full spectrum of students from kindergarten to grade twelve, including supplemental and full-time, public and private (i.e., independent) programs that are district-focused or provincial in their geographic reach. There is also a growing body of literature detailing the growth and nature of K-12 online learning programs outside of North America (Barbour, 2018; Barbour, Brown, Hasler Waters, Hoey, Hunt, Kennedy, Ounsworth, Powell, & Trimm, 2011; Barbour & Kennedy, 2014; Powell & Patrick, 2006).

Within the North American context Catholic, and more broadly Christian, K-12 online learning programs are often found in the form of private or independent schools. For example, Sevenstar, which is one of the better-known Catholic-focused K-12 online learning programs in the United States (Fischer, 2009). A Canadian example would be the province of British Columbia, where there are approximately 20 different independent K-12 online learning programs, most of which have a Christian-focused mission (Barbour, 2013a). The Canadian province of Ontario is actually an anomaly in this respect, as Catholic education is funded as public schooling and—as such—there are approximately 30 school districts that cooperate in offering online learning through the Ontario Catholic eLearning Consortium. However, this model is an exception, as the vast majority of Catholic- and Christian-focused K-12 online learning programs are independent K-12 online learning programs.

Regardless of the type of program or its geographic scope, K-12 online learning is primarily found in one of two delivery models: synchronous and asynchronous. For those not familiar with online learning, the synchronous delivery model is an easy one to understand. Instruction occurs in real-time, mediated through a technological tool (e.g., a virtual classroom environment). Murphy and Coffin (2003) provided a good overview of a virtual classroom environment when they wrote, “when students first enter the virtual classroom, they have access to DM [direct messaging] and hand raising. Access to other tools, such as the microphone or the WB [whiteboard], must be assigned by the teacher” (p. 236). Using these tools, the teacher can deliver a traditional lecture using slides on the whiteboard to guide their thoughts,

or by using the whiteboard to write notes for the student in much the same way a teacher might do in a traditional face-to-face classroom. Conversely, the asynchronous model is not delivered in real-time. In this delivery model, students would interact with curriculum, often with some choice in the resources that they use and how they demonstrate a mastery of the content. After interacting with the curriculum, students turn “in assignments, and the teacher gives written feedback in the electronic course room or phones to discuss ways the students can improve performance” (Friend & Johnston, 2005, p. 109). Within the North American context, the dominant delivery model for K-12 online learning is the asynchronous model (Barbour, 2013b).

### The Catholic Case Against MOOCs (and Online Learning)

While Malesic’s (2013) initial case was laid out specifically against MOOCs, the later refinements of his thinking expanded this scope to include both MOOCs and online learning in general (Malesic, 2014b). At the heart of Malesic’s (2013) argument is the fact that Catholic “education is a moral enterprise that develops human dignity and promotes social justice” (¶ 3). Most people learn best in this enterprise through social, in-person interactions (Malesic, 2014a). Inherent in these main arguments are the principles that underscore each of Malesic’s three cases against MOOCs. However, based on these general arguments it is also easy to see how each of these complaints could also be made of online learning, and K-12 online learning in particular.

### Impersonal Learning

The “first pillar of the Catholic case against MOOCs rests on the Catholic ideal of ‘personalized’ education, captured in the Jesuit motto *cura personalis*: care for the person” (J. Malesic, personal communication, December 17, 2014). Malesic (2013) indicated that readers should not confuse customization with personalization. He argued that personhood could be defined as “a subjective being capable of acting in a planned and rational way, capable of deciding about himself, and with a tendency to self-realization” (Pope John Paul II, 1981, ¶ 23). Malesic (2014b) added, “that a person in the Catholic sense of the term is relational—reflecting the interrelationships of the persons of the Trinity” (p. 7). Essentially, a personalized education is one where the teacher is able to get to know the student and provide learning opportunities that are best suited to that individual person.



Malesic (2014b) supported this viewpoint by referencing several studies relating student learning and satisfaction with their relationships with instructors. A Gallup-Purdue University (2014) study of over 30,000 college graduates found that students who developed meaningful relationships with their instructors felt more excited about learning, more engaged in their future workplace, and expressed an overall greater sense of well-being. Further, a study cited by Chambliss and Takacs (2014) found that surveyed students felt that a close relationship with a professor had the greatest impact on them after graduation. However, it should be noted that these findings—surveys about well-being, engagement, and impact—are ambiguous in nature.

The nature of MOOCs—at least those provided by the corporate and university consortiums—is standardized in nature. For example, the instruction provided in most MOOCs includes static readings or lecture-style videos (Shirky, 2013; Yousef, Chatti, Schroeder, Wosnitza, & Jakobs, 2014). Feedback and interaction are generally either in the form of peer-review and group collaboration or objective quizzes (Degrees of Freedom, 2013). Under this model of education, every student receives the same model of instruction and, with the exception of some variation in the level and nature of interaction from peer review and group collaboration, the exact same kind of feedback.

Within the K-12 online learning environment, this personal nature is often referred to as social presence (Short, Williams, & Christie, 1976). Social presence is the ability for one party (e.g., the teacher) to project themselves and make it seem like they are a real person that is engaged with another party (e.g., the student). Within the online learning environment, Garrison and Anderson (2003) described it as “the ability of learners to project themselves socially and emotionally into a community of inquiry through the mediums of communication being used” (p. 49). The issue of personal presence, and the ability of teachers and students to project themselves as a part of their interactions, within the online environment has been a common criticism of K-12 online learning (Cuban, 2009; Glass, 2009; Glass & Welner, 2011; Ravitch, 2011; 2013). Further, the standardized nature of many K-12 online learning environments, often means that there is little actual interaction between the student and the teacher—thus, there is little opportunity for social presence to occur or be felt (Molnar, Huerta, Barbour, Miron, Shafer, & Gulosino, 2015; Molnar, Rice, Huerta, Shafer, Barbour, Miron, Gulosino, & Horvitz, 2014).



### Inability to Adapt to the Learner

Second, personalized education “reflects the pedagogical need to adapt education to the mode of the learner. This is a concept at the heart of the theology of Thomas Aquinas, the giant of medieval Catholic theology” (J. Malesic, personal communication, December 17, 2014). For example, Aquinas (1947) argued that the metaphors used in the Holy Scripture were appropriate teaching tools because God provided his teaching “according to the capacity of its nature. Now it is natural to man to attain to intellectual truths through sensible objects, because all our knowledge originates from sense” (I.1.9). The capacity of a learner’s nature is based on their unique abilities, to which pedagogical strategies must be adapted. Further, Malesic (2013) argued that, “to educate anyone fully—addressing their moral and spiritual development as well as their intellect—teachers and students must be present to each other” (§ 7). Basically, when a teacher is able to directly interact with the student (i.e., when they are in the same geographic or physical location), the teacher has a greater ability to modify the design, delivery, and support of the instruction they provide based on the individual student’s needs and feedback.

Perna et al. (2013) described several patterns in their study of 17 MOOCs offered by the University of Pennsylvania. The courses, which ran for generally fewer than ten weeks, saw a steep decline in participation after only two weeks. Further, the overall completion rates were usually less than 5%. In addition, students who actually completed the courses often had subpar grades. These results were not limited to one institution, as similar findings appeared in studies examining completion rates at Massachusetts Institute of Technology (Ho, Reich, Nesterko, Seaton, Mullaney, Waldo, & Chuang, 2014). Finally, Firmin et al. (2013) examined at-risk students in an online course and found higher failure rates in a developmental math course offered online when compared to a cohort of students in a similar face-to-face course.

In a MOOC, and really in all forms of distance education, the teacher and the student are geographically separated. The geographic distance between these two parties also creates a psychological or perceived sense of distance, which is known as transactional distance (Moore, 1972; Moore & Kearsley, 1996). Another way to describe it is the “space of potential misunderstanding between the inputs of instructor and those of the learner” (Moore, 1993, p. 22). Moore (1973) argued that transactional distance was based on three variables: learner autonomy, course structure, and dialogue. For autonomous learners a course that has high dialogue and a low level of structure will result in a low level of transactional distance. Conversely, a course that has high

structure and low dialogue will result in a higher level of transactional distance. Within the MOOC environment, the model of instruction is highly structured and level of interaction is generally quite low and standardized. This means that MOOCs, by their very nature, create a “high transactional distance [environment] means that the learner must be highly autonomous in order to succeed” (Malesic, 2014b, p. 5). Essentially, the teacher is unable to adapt the learning environment to meet the needs of the student, but it is up to the student to gain the self-directedness and self-motivation necessary to be successful.

Transactional distance is also present in the K-12 online learning environment (Hawkins, Barbour, & Graham, 2011; Weiner, 2003). One of the reasons for the presence—and many argued an increased presence—of transactional distance within the K-12 online learning environment is due to the fact that most K-12 students are not autonomous learners (Barbour, 2009; Barbour & Reeves, 2009; Cavanaugh, Barbour, & Clark, 2009; Rice, 2006), and thus there is an even greater need for interaction with online K-12 students (DiPietro, Ferdig, Black, & Preston, 2008; Hawkins, Graham, Sudweeks, & Barbour, 2013; Mulcahy, Dibbon, & Norberg, 2008; Nippard & Murphy, 2007; Roblyer, 2006). Murphy and Rodriguez-Manzanares (2008) surmised that the synchronous delivery model of online learning might allow less autonomous K-12 students to overcome that sense of transactional distance. Unfortunately, the vast majority of K-12 online learning in most jurisdictions is delivered in a completely asynchronous format (Barbour, 2013b). As such, the combination of standardization and lack of personal interaction in online courses and MOOCs a poor fit for educating based on Catholic ideals.

### **Unable to Educate the Masses**

Finally, “a great irony of massive online education is that it claims to open education up to anyone and everyone, but it actually limits who can benefit from education, since only a small percentage of people can really learn in the way MOOCs teach” (J. Malesic, personal communication, December 17, 2014). Malesic argued that one of the principles of Catholic social teaching was that that “God Himself seems to incline rather to those who suffer misfortune” (Pope Leo XIII, 1891, ¶ 24). Malesic (2014a) claimed that this principle translated into the belief that “persons, and even states, had an obligation to give principle concern for the least fortunate. The poor need education, and Catholic institutions should offer it to them” (pp. 10-11). If the literature demonstrated success in reaching the poor with MOOCs, then resources should be allocated toward their development.

Malesic relies on the teachings of Aquinas on law and virtue to make the case that education is meant to have structure and purpose (i.e., *telos*). Laws are meant to make human beings good; laws do not assume that people are already good. Likewise, structured education is meant to train the uneducated; otherwise, formal education would not be necessary. For example, a small minority of people will learn just by handing them the necessary textbooks on a given subject.

Unfortunately, there have been numerous studies that have found that the vast majority of those that enroll and, in particular, complete MOOCs are male, educated, wealthy, and from developed nations (Firmin, Schiorring, Whitmer, Willett, & Sujitparapitaya, 2013; Ho et al., 2014; Perna, Ruby, Boruch, Wang, Scull, Evans, & Ahmad, 2013). These same studies found that those who were less affluent, less educated, and from developing or under developed nations either did not enroll or were much less successful in the MOOCs in which they enrolled. Simply put, the promise that MOOCs will democratize education for those that currently do not have access to high quality education has not materialized. These findings seem to support Malesic's notion of the need for structure in education to serve its purpose.

One of the longstanding claims made by proponents of K-12 online learning is also that it provides access to educational opportunity for those that are underserved or not served by the traditional education system (Berge & Clark, 2005; Cavanaugh, 2001; Christensen, Horn, & Johnson, 2011; Freedman, Darrow, Watson, & Lorenzo, 2002; Moe & Chubb, 2009; Packard, 2013; Peterson, 2010; Vander Ark, 2012; Zucker, 2005). However, similar to the MOOC environment, the reality of virtual school students is quite different from the promise. Based on the literature, from its inception K-12 online learning catered primarily to students that were highly motivated, self-directed, self-disciplined, independent learner who could read and write well, and who also had a strong interest in or ability with technology (Clark, Lewis, Oyer, & Schreiber, 2002; Espinoza, Dove, Zucker, & Kozma, 1999; Haughey & Muirhead, 1999; Kozma, Zucker, Espinoza, McGhee, Yarnall, Zalles, et al., 2000; Kozma, Zucker, & Espinoza, 1998; Stevens, 1999b; Zucker & Kozma, 2003). Even more recently, annual studies of K-12 online learning continue to report on the bimodal nature of the distribution of K-12 online learners – i.e., those historically high achieving students, and those students generally classified as at-risk (Molnar et al., 2015; Molnar et al., 2014; Watson et al. 2014). Also similar to MOOCs, as the participation from at-risk learners increases, the levels of student success often decrease (Barbour, 2013b; 2017; Barbour &

Adelstein, 2013; Molnar et al., 2015; Molnar et al., 2014). In many ways, the reality of MOOCs being unable to democratize education is the same reality experienced by the field of K-12 online learning.

### **K-12 Online Learning Rebuttal**

While MOOCs have only been present within the online learning landscape for less than a decade (Masters, 2011; Yuan & Powell, 2013), K-12 online learning has a history of approximately 25 years (Barbour, 2009) —well over a hundred years if you consider the broader field of K-12 distance education, which would include a variety of earlier delivery models such as correspondence education, educational radio, and telematics/audiographics (Clark, 2013). This longer history has resulted in an increase in the number of practitioners who have attempted to focus on solutions to many of these criticisms, as well as a greater body of research to report on the successes of addressing Malesic's three cases. In this section, we will challenge each of Malesic's case individually — first by examining the K-12 online learning literature related to each case, then by providing specific examples of how two Christian-focused K-12 online learning programs (i.e., Heritage Christian Online School and Sevenstar) are attending to the concerns raised by each case.

Heritage Christian Online School is an independent K-12 online learning program based in the Canadian province of British Columbia (see <http://www.onlineschool.ca/>). As an independent school in British Columbia, Heritage Christian Online School receives funding from the provincial government at a rate of 50% of their full-time equivalent enrollment of students residing in the province. Heritage Christian Online School is one of a number of education initiatives of the Kelowna Christian Center Society, which also includes a brick-and-mortar pre-school and a brick-and-mortar K-12 school. The Heritage Christian Online School statement of faith includes elements such as the belief in a divine Christ, the Trinity, and the infallibility of the Bible. It should be noted that the final author of this paper, Greg Bitgood, was the founder and former Superintendent of Heritage Christian Online School from 1996 to 2016. While Mr. Bitgood is no longer with Heritage Christian Online School, he was still employed at the school at the time he wrote the examples for this article.<sup>1</sup>

---

1 As Mr. Bitgood was no longer employed at the time this article was published, the authors wish to thank Mrs. Sara Kraushar, the current Academic Head of School for Heritage Christian Online School, who reviewed the content of this article and suggested some specific minor revisions to ensure its accuracy and currency.

Sevenstar is an independent K-12 online learning program that maintains its administrative offices in the American state of Texas, but primarily partners with brick-and-mortar schools throughout the United States and internationally to provide online and blended learning alternatives (see <http://sevenstar.org>). The online program offered by Sevenstar is accredited by AdvancEd (<https://www.advanc-ed.org/>), a US-based accrediting body that accredits most K-12 online learning programs (as well as numerous other public and non-public preK-12 schools and school systems). While not associated with a specific church or denomination, the Sevenstar statement of faith also includes elements such as the belief in a divine Christ, the Trinity, and the infallibility of the Bible. The third author on this paper, Mark Beadle, is the Chief Executive Officer and Head of School at Sevenstar, a position that he has held for the past 12 years. Prior to his conceptualizing Sevenstar, he was the elementary principal of Cincinnati Hills Christian Academy for 16 years. Dr. Beadle is recognized nationally as a Christian school leader and an expert in the use of educational technology, and has assisted on projects for the Association of Christian Schools International, the Council for the Advancement of Private Education, and the US Department of Education.

### **Impersonal Learning**

With the research cited by Malesic regarding personal relationships with instructors, one can infer that, regardless of the medium (i.e., online or face-to-face), student-instructor relationships can fall on a continuum from impersonal to deep and meaningful. Put differently, it could be argued that while the online medium can present barriers to developing such relationships, face-to-face courses do not guarantee that every instructor will develop a close relationship with every student. Rakes and Dunn (2015) surveyed pre-service and in-service teachers and found that many were uninterested in online learning, citing concerns about social dynamics. From post-secondary perspective, one could argue the level of personalization in a 500-seat lecture hall. As such, we can begin to examine what is effective in building personal relationships in online courses. However, it is prudent to begin by reiterating Malesic's earlier discussion of personalization versus customization in the Catholic context, as "personalized learning" has a specific meaning in K-12 online learning circles that will be covered in subsequent sections. Here, we will focus on the concept of presence as it relates to K-12 online learning.

Garrison (1997) defined social presence as a person's ability to project affectively. Whiteside's (2015) Social Presence Model described five integrated

components of social presence: affective association, community cohesion, instructor involvement, interaction intensity, and knowledge and experience. In their meta-analysis of social presence and learning, Richardson, Swan, Lowenthal, and Ice (2016) found a large positive correlation between social presence, perceived learning, and student satisfaction. The authors noted that it is difficult to use a single measure of social presence, and that the influence varied based on factors such as course length, topic, and target audience.

Online learning presents unique challenges for instructors and students to exhibit social presence due to the lack of physical interaction (e.g., hearing tone and inflection of voice, facial cues, etc.), particularly in an asynchronous course. Even in a synchronous course, these cues may be absent or muted due to the limitations of video and audio technology. However, Lin, Zheng, and Zhang (2017), in their survey of students enrolled in world language courses at a virtual high school found that student satisfaction was influenced more through learner-instructor and learner-content interaction rather than learner-learner interaction. Further, Nippard and Murphy (2007), in their observations of an online synchronous class in Newfoundland and Labrador, found that social presence was observed in the more informal aspects of the course, such as the direct messaging tool, or when discussions diverged from the course content. Finally, Borup, Graham, and Drysdale (2014), using instructor interviews and the Community of Inquiry framework (Garrison, Anderson, & Archer, 2000), described ways of increasing student outcomes through increased engagement, including facilitating parent/student discourse, 1:1 instruction, nurturing a safe environment, motivating, and close monitoring. In summary, one can conclude that course structure and instructor facilitation are key to increasing social presence, which, in turn, should lead to improved outcomes. Next, we look at how Heritage Christian Online School and Sevenstar Academy incorporate these concepts into their instruction.

Heritage Christian Online School in British Columbia works with the majority of their high school learners in an asynchronous environment. This delivery model does not necessarily translate into a lower transactional relationship in fact it often improves and personalizes this relationship from the traditional classroom model. The asynchronous approach has much more to do with providing a personal pace to the content and allows for freedom of when the student interacts with the instructional content. This does not mean a lack of teacher/student transactions. A good example would be their approach towards teaching mathematics. The entire instructional content



is available to the student to learn and work on. The material is taught through animated lectures. Students have an average of 1200 practice questions per course that provides immediate feedback and solutions. The course itself is highly customizable based on the student's mastery and needs. The teacher receives abundant feedback on each student's progress through the content, the questions and their achievement. The course has assignments that are handed in to provide formative assessment. Once a level of mastery is achieved the teacher unlocks the summative assessment. Throughout the process the student has access to dialogue with the teacher via Skype or Messaging. The school has several teaching assistants for math that are available every evening for immediate questions or tutoring. This process is all done asynchronously which allows every student to work at their own pace and from any place at any time. Nevertheless there is an abundance of transactional support between the teacher and student.

Every online student enrolled at Sevenstar Academy is assigned a certified teacher who is given the charge of developing a personal relationship with that student. Teachers utilize Skype to have personal synchronous contact with the student, and teachers work in various ways to develop this relationship. For example, the AP Computer Programming teacher takes time to meet and pray with her students, encouraging them in the development of their relationship with Christ. She helps them examine how the content and skills they are learning may be used to ultimately bring glory to God. The school has found that some students, and even parents, resist developing a personalized relationship (as Malesic would define it) with instructors. However, the school feels that building this relationship is key, and that the online medium is more in tune with how students from the current generation develop many of their relationships.

### **Inability to Adapt to the Learner**

The International Association for K-12 Online Learning (iNACOL) defined personalized learning as the process of "...tailoring learning for each student's strengths, needs and interests—including enabling student voice and choice in what, how, when and where they learn—to provide flexibility and supports to ensure mastery of the highest standards possible" (Abel, 2016, para. 4), which aligned to what Malesic referred to as "customization" earlier. Malesic stated that MOOCs fail in this regard due to the lack of interaction and ability to differentiate the content for the variety of learners enrolled in the course. At the K-12 level, there are valid concerns with the concept of



personalized learning. For example, Roberts-Mahoney, Means, and Garrison (2016) reviewed government and think-tank policy reports related to personalized learning and found that most use the term in reference to creating human capital rather than developing skills such as social justice awareness and democratic participation. Further, the movement of the role of the teacher to one of facilitation leads to the de-skilling of the position. Finally, the authors had concerns about the use of the data collected from personalized learning, which often uses technology to collect, analyze, and distribute data about student attributes.

With that said, the idea of tailoring learning to individual needs and interests is worth considering, given the diverse range of students present in K-12 schools today. At-risk students who have fallen behind their peers in completing their graduation requirements need mechanisms in place to get back on track. Online competency-based credit recovery is one option increasingly available to students. Powell, Roberts, and Patrick (2015) stated five best practices for competency-based credit recovery included:

1. students advance upon demonstrated mastery;
2. competencies include explicit, measurable, transferable learning objectives that empower students;
3. assessment is meaningful and a positive learning experience for students;
4. students receive timely, differentiated support based on their individual learning needs; and
5. learning outcomes emphasize competencies that include application and creation of knowledge, along with the development of important skills and dispositions. (p. 11)

Additionally, Pane, Steiner, Baird, and Hamilton (2015) reviewed the accomplishments at over 60 public and charter schools utilizing personalized learning practices and found that student achievement, particularly in mathematics, exceeded peer schools. In addition, lower achieving students showed higher rates of growth. Finally, Basham, Hall, Carter, and Stahl (2016) examined an urban reform district's attempts to improve outcomes for special education students using personalized learning practices and found that performance between students with and without Individualized Education Plans (IEPs) were not significantly different. These practices included a personalized and proficiency-based curriculum, Universal Design for Learning (UDL), embedded self-regulation, and continual feedback. Given the need to close achievement gaps in at-risk and urban populations, the results of these studies are promising.

Heritage Christian Online School provides personalized education for students throughout the province of British Columbia. A personalized learning plan is developed for each student in order to ensure they meet their educational goals. There are options for Christian community through online video conferencing like a high school “Breakfast Club” or weekly class meetings with committed Christian teachers. Heritage offers regional learning support services for all students where they live through regional administrators, teachers, face-to-face programs, educational assistants and specialist supports. This allows all students who enroll with Heritage to receive appropriate educational supports regardless of location.

Sevenstar Academy conducts extensive testing on all of its incoming students to assess their competencies in the subject areas. Students are assigned credit recovery modules where deficiencies exist, while other learning modules are removed if the student exhibits proficiency in that particular area. This instructional model allows more time for students to focus on their gaps and not waste time on content they already know. The adaption to learning styles and academic needs in online courses is more of a short-term reality instead of a long-term vision. Students may choose areas of interest (e.g., marine biology) instead of the selected courses their local school can offer, and students can take courses outside of normal age level courses (i.e., dual credit) based on their academic talent, exemplifying the concepts of personalized learning: meeting the needs, strengths, and interests of the individual student.

### **Unable to Educate the Masses**

Malesic’s final critique is an extension of the previous criticism regarding the inability to adapt to diverse learners. As such, he believes that this inability leads to only a small segment of the population able to benefit from MOOCs. However, this view overlooks one of the primary benefits of online learning: the ability to reach learners in remote areas, or areas where access to educational materials is limited.

A lack of access to education can take several forms, from a lack of access to any educational materials to a limitation on the variety of courses available to students. In the case of the former, one example where online learning has increased access to K-12 students is in Nepal. Cavanaugh (2014) detailed multiple barriers to traditional brick-and-mortar learning in the country, including infrastructure, geography, and economic and civil unrest. While the nation ranks very low on multiple UNESCO metrics for quality of life, the

country is in the process of developing an e-learning framework, as well as public-private partnerships to provide mobile technology and infrastructure to both students and teachers. Similar initiatives are also underway in India and the United Arab Emirates. In the case of the latter, Gagnon and Mattingly (2016) found that poor rural schools are less likely to offer Advanced Placement (AP) courses, and when they do, their achievement rates lag when compared to other areas. They discuss the implications of these findings, which include a worsening of the achievement gap across the socioeconomic spectrum. The State of Illinois recently began an initiative that allows students in rural areas (i.e., places with a low student population where offering any electives is difficult due to lack of students and staffing) to take Advanced Placement (AP) courses online (Gaines, 2018, January 23). In addition, these rural areas are often poor, and the cost of the course is being subsidized by the pilot. Shepherd (2008) discussed benefits of high-achieving students taking AP courses online, including practice with personal time management (i.e., to prepare them for college), and when the course is appropriately designed, increased opportunities for self-reflection on how a student learns. Finally, Jakobsdóttir & Jóhannsdóttir (2018) described how a variety of K-12 online learning initiatives in Iceland increased access to learning opportunities that would have been otherwise unavailable to learners in that country if not for online learning. Thus, online learning at the K-12 level can act as a way to improve both the access to and educational outcomes for students in remote areas, which, in turn, can help to reduce inequities in these regions.

One area of support that Heritage provides to all students throughout the province of British Columbia is a cross-enrollment program called BC Online School where any high school student can take any number of courses to support their learning and credit needs. When students are not able to use the traditional classroom environment for their courses they are able to access the same course for credit online. Some examples of when students would utilize the BC Online School include scheduling conflicts or when they have obtained an unsatisfactory grade. The online program allows them to personalize their schedule, their pace of learning and their learning experience. These students are enrolled into the same program as the full time students and have access to most of the same learning supports. BC Online has successfully helped thousands of cross-enrolled students per year to achieve their academic goals in a supportive Christian environment.

Sevenstar Academy enrolls students from around the world, including remote areas where no other option for traditional schooling exists. For

students living in these remote areas, the program has a pass rate of approximately 85%. Part of the reason for this success is the placement of a coordinator at a local faith-based school who monitors the students, getting weekly reports and meets with the students for encouragement and accountability purposes. The local support realizes the difficulties associated with online learning, and limit most of their online learning in these regions to the secondary level, with the faith-based, face-to-face school providing more traditional educational services in the earlier grades. While primarily limited to the secondary level, the online learning provided by Sevenstar Academy provides opportunities for learners in locations where those specific opportunities would not otherwise exist.

### **Implications for Practitioners**

The previous sections have highlighted three of Malesic's concerns about the morality of MOOCs and descriptions of how these concerns are mitigated in online courses offered at the K-12 level. However, the context of K-12 online learning is quite different than offering MOOCs at the post-secondary level. Therefore, this section discusses how these solutions can be adapted to MOOCs as well as the barriers that prevent these solutions from being fully implemented. The primary challenge when considering how to increase access, decrease transactional distance, and increase adaptability of MOOCs is resource allocation. The main reason that the K-12 examples discussed in this paper were able to mitigate the challenges presented by Malesic was that they had dedicated teachers and facilitators who were paid to run these courses as part of their employment. As previously mentioned, most MOOCs consist of prepackaged video lectures, static content, and assessments that are easy to grade (e.g., multiple choice quizzes that are scored automatically within the platform). While it would be easy to simply recommend that the large universities offering MOOCs allocate resources from their large endowments for additional faculty and staff, the likelihood of such a policy recommendation being implemented on a large scale is doubtful. Therefore, the solutions must involve creative ideas that require little in the way of human resource allocation.

### **Impersonal Learning**

Based on the discussion so far, MOOCs could address the problem of impersonal learning by simply adding faculty to the course. However, as mentioned, part of the point of creating a MOOC is to simply take the

knowledge and package it in a way that is easily distributed with little to no oversight. Thus, unless faculty members or adjuncts are willing to volunteer to oversee a course with potentially thousands of students starting on a rolling basis, adding an instructor to a course is a non-starter.

One potential solution from the world of software development could have some potential in mitigating the effects of impersonal learning. Chat forums, such as Stack Overflow, act as a meeting place where novices and experts share knowledge. Novices in programming (and even experts with difficult questions or those venturing into new programming languages) ask questions on various chat forms, and the experts answer them. These forums are also searchable so people can see whether their question has already been answered.

Of course, the questions becomes why would experts give up their free time to help others? The answer is a mix of altruism, networking, ego, and behavioral economics. Some experts feel the need to give back to the programming community, while others may look to network for the purposes of hiring entry-level programmers or to connect with other experts if they are on the job market. Further, the website has elements of gamification. Users can “vote up” questions and answers, and authors of these posts receive points. There is also a badge system, where additional features to the site are unlocked when users answer enough questions or receive enough votes to access these additional features. A similar approach could be applied to MOOCs, where subject area experts volunteer their time or by having Ph.D. students and post-docs contribute to both enhance their novice teaching skills and/or as a signalling mechanism and resume builder for the job market.

### **Adapting to the Needs of the Learner**

Malesic’s primary criticism of MOOCs was the notion that courses were a one-size-fits-all package of video lectures and quizzes. Drawing on a combination of the previous solution and advancing technologies, MOOCs should evolve to identify and address the needs of various learners. First, courses could be packaged in multiple formats. For example, for those learners who succeed in the most common MOOC setup (i.e., primarily lecture and test), they would still have the option to continue in that format. Learners who are more likely to succeed in a more social learning setting could opt for a pathway that involves working in small groups. For example, in addition to the video lectures, students would progress through the course by also engaging in discussions and even submitting artifacts (i.e., artifacts or per-

formance assessments) as a team rather than individuals taking a test or quiz. The barriers to this scenario involve the early identification of which pathway is best for those who are novices to MOOCs, and the resources required to repackage the course and oversee groups.

In the case of the former, advances in learning management systems in the area of learning analytics are helping to track learner progress and identify areas of concerns as early as possible. If a student drops off in attendance or fails a quiz, the system can send automated notifications offering a different pathway to success. In the case of the latter, it would still require some human oversight, in addition to the initial creation of the various course pathways. Again, volunteers could be utilized for the initial creation of the pathways, with some form of reward for doing so. Groups could be assigned a team leader who is looking to signal their ability to teach and mentor in an online environment.

In addition, future research could examine why dropout rates for MOOCs are so high, beyond how the instruction is delivered. Because of the informal nature of MOOCs, what “nudges” could be utilized to retain students who would be likely to drop off? Are students dropping out because they obtained what they needed or desired before the course is complete? Are they dropping out because there is no substantial reward at the end? Or are they dropping out because they have no investment in the course? The latter is not unlike the case of exercising at home versus paying (and traveling to) a gym; a person can obtain, for free, a decent level of fitness at home, but is more likely to obtain those goals if they spend money on the membership and commit to a set schedule for a class.

Drawing from areas such as diet, exercise, and meditation, mobile apps are increasingly utilizing techniques to “nudge” users into good habits. If future research determines that noncompliance (due to the aforementioned reasons) is a major cause of dropping out, future MOOCs could be designed with additional features that mitigate these effects. Again, this would require time and money to fund and develop, but these could be automated and would only require resources for the initial development.

### **Educating the Masses**

Finally, Malesic criticized the MOOC movement for failing to educate the masses, despite the initial claims that MOOCs would democratize education. Some of the reasons for this failure can be address by the solutions mentioned above (e.g., adjusting how the course is offered to decrease drop-



out rates, advancing analytics to catch struggling learners before they lose interest, etc.). In addition, MOOC development could be more targeted to address the needs of the masses, and could be combined with other technical initiatives to advance learning in remote and underserved regions.

While the notion of a farmer in a remote village learning quantum physics is interesting, in general, many of the MOOC courses offered by prestigious institutions would have little impact on improving the quality of life for many people in remote and underserved areas. A better example would be a large land-grant university creating MOOCs on farming and irrigation techniques for that population. While access to the physics course is still there, an option to take courses that directly impact quality of life should be emphasized.

In addition, future research could examine how successful MOOC students complete their coursework and whether those methods can translate into serving diverse populations. For example, Malesic's point about how older, educated males are the most successful MOOC completers could lead to a further examination of both their setting and methods for taking in information. Perhaps these learners primarily work through the course, in the evening, while sitting in front of their desktop or laptop computer that has a very fast Internet connection. If the course is set up to work well under these conditions, how does that translate to potential learners who lack a dedicated computer workspace and work different hours? A low-income learner may only have a mobile device, and a farmer may have downtime in the afternoon heat (along with no internet connection). User experience (UX) designers could be employed (or volunteer for reasons listed above) to reformat MOOCs to be mobile-friendly or to employ design principles (both visual and pedagogical) to adjust to the needs of the masses. Further, MOOCs should be part of other strategic initiatives around the world to end hunger, prevent disease, etc., combining the educational components with physical and technical needs such as access to the internet, medical supplies, and the like.

In summary, MOOCs are meant to be low in resource utilization, taking educational content already created and placing it in a medium that requires low oversight. Malesic's criticisms of MOOCs stem from this fact, and the responses from K-12 online learning that mitigate these criticisms work because of intensive teacher-learner interactions. Therefore, in order to alleviate these concerns, creative interventions that increase the human aspects of learning need to be explored and examined.



### Conclusions

Johnathan Malesic's arguments against MOOCs from a Catholic perspective revolved around three ideas: an inability to foster teacher-instructor relationships, the inability to adapt to the needs of learners, and, by extension, the inability to successfully educate the masses. These criticisms are frequently aimed at K-12 online education as well. However, the academic literature—as well as examples from faith-based K-12 schools—described in this paper demonstrates a counterpoint to Malesic's criticism.

First, Malesic believed that educational endeavors void of social interaction did not embody... and thus was void of meaning. The often utilized theory of social presence and its practical application improve satisfaction and outcomes in online courses, thus confirming its value and also showing how it is possible to build social interaction into online learning environments. Second, Malesic expressed doubts regarding the ability of online learning to adapt to the needs of the learner (particularly at-risk learners), citing the work of Aquinas as well as Jesus' use of parables to convey meaning. Research has shown how personalized learning principles can help all online learners, including the most vulnerable, succeed in this medium. Finally, Malesic expressed concerns over how only a narrow segment of the population seems to succeed when learning is self-directed. However, the research and examples provided show how online learning can benefit a range of learners from across the globe. While Malesic's criticisms are valid and point to potential problems with online learning, when properly executed, online learning not only addresses these concerns, but can also exceed what is possible in a traditional, face-to-face classroom.

The growth of K-12 online education in North America shows no signs of slowing down. As such, there have been repeated calls to shift away from discussion and research into whether online learning at this level is 'good' or 'bad,' and toward more discussion and research into best practices to ensure that all learners can benefit from instruction in this medium. Further, online learning continues to extend its reach into the developing world as well as remote locations in developed nations. There is a potential to leverage the benefits of online learning to promote Christian and Catholic education around the world. Even in developed nations and urban centers, reaching today's youth through the medium with which they are most comfortable can have a positive effect on their spiritual development.

## References

- Abel, N. (2016, February 17). *What is personalized learning?* Retrieved from <https://www.inacol.org/news/what-is-personalized-learning/>
- Anderson, N. (2012, November 3). Elite education for the masses. *The Washington Post*. Retrieved from [https://www.washingtonpost.com/local/education/elite-education-for-the-masses/2012/11/03/c2ac8144-121b-11e2-ba83-a7a396e6b2a7\\_story.html](https://www.washingtonpost.com/local/education/elite-education-for-the-masses/2012/11/03/c2ac8144-121b-11e2-ba83-a7a396e6b2a7_story.html)
- Ambient Insight. (2012). *2012 Learning technology research taxonomy: Research methodology, buyer segmentation, product definitions, and licensing model*. Monroe, WA: Author. Retrieved from [http://www.ambientinsight.com/Resources/Documents/AmbientInsight\\_Learning\\_Technology\\_Taxonomy.pdf](http://www.ambientinsight.com/Resources/Documents/AmbientInsight_Learning_Technology_Taxonomy.pdf)
- Aquinas, T. (1947). *The summa theological*. (Fathers of the English Dominican Province, Trans.). New York: Bensiger Bros.. (Original work published 1265–1274). Retrieved from <http://www.dhspriority.org/thomas/english/summa/FP.html>
- Barbour, M. K. (2009). Today's student and virtual schooling: The reality, the challenges, the promise. *Journal of Distance Learning*, 13, 5-25. Retrieved from <http://jofdl.nz/index.php/JOFDL/article/view/35>
- Barbour, M. K. (2013a). *State of the nation study: K-12 online learning in Canada*. Victoria, BC: Open School BC. Retrieved from <http://k12sotn.ca/>
- Barbour, M. K. (2013b). The landscape of K-12 online learning: Examining what is known. In M. G. Moore (Eds.), *Handbook of distance education* (3rd ed.) (pp. 574-593). New York: Routledge.
- Barbour, M. K. (2018). A history of international K-12 online and blended instruction. In K. Kennedy & R. Ferdig (Eds.), *Handbook of Research on K-12 Online and Blended Learning* (2nd ed., pp. 21-40). Pittsburgh, PA: Entertainment Technology Center Press, Carnegie Mellon University. Retrieved from <http://repository.cmu.edu/etcpress/82/>
- Barbour, M. K. (2017). Virtual education: Not yet ready for prime time? In B. Mathis & T. Trujillo (Eds.), *Test-based education reforms: Lessons from a failed agenda, promises for success*. Charlotte, NC: Information Age Publishing.
- Barbour, M. K., & Adelstein, D. (2013). *Voracious appetite of online teaching: Examining labour issues related to K-12 online learning*. Vancouver, BC: British Columbia Teachers Federation. Retrieved from <http://www.bctf.ca/uploadedFiles/Public/Issues/Technology/VoraciousAppetite.pdf>
- Barbour, M. K., Brown, R., Hasler Waters, L., Hoey, R., Hunt, J., Kennedy, K., Ounsworth, C., Powell, A., & Trimm, T. (2011). *Online and blended learning: A survey of policy and practice from K-12 schools around the world*. Vienna, VA: International Association for K-12 Online Learning. Retrieved from [http://www.inacol.org/wp-content/uploads/2015/02/iNACOL\\_a-survey-of-policy-and-practice.pdf](http://www.inacol.org/wp-content/uploads/2015/02/iNACOL_a-survey-of-policy-and-practice.pdf)
- Barbour, M. K. and LaBonte, R. (2017). *State of the nation study: K-12 online learning in Canada*. Cobble Hill: Canadian E-Learning Network. Retrieved from <http://k12sotn.ca/>
- Barbour, M. K., & Kennedy, K. (2014). K-12 online learning: A worldwide perspective. In A. Hirumi (Ed.), *Grounded designs for online and hybrid learning: Trends and technologies* (pp. 53-74). Washington, DC: International Society for Technology in Education

- Barbour, M. K., & Reeves, T. C. (2009). The reality of virtual schools: A review of the literature. *Computers & Education*, 52, 402-416.
- Basham, J. D., Hall, T. E., Carter Jr, R. A., & Stahl, W. M. (2016). An operationalized understanding of personalized learning. *Journal of Special Education Technology*, 31(3), 126-136.
- Berge, Z. L., & Clark, T. (2005). *Virtual schools: Planning for success*. New York, NY: Teachers College Press.
- Borup, J., Graham, C. R., & Drysdale, J. S. (2014). The nature of teacher engagement at an online high school. *British Journal of Educational Technology*, 45(5), 793-806.
- Canadian Teachers Federation. (2000). *Facts sheets on contractual issues in distance/online education*. Ottawa, ON: Author.
- Cavanaugh, C. (2001). The effectiveness of interactive distance education technologies in K-12 learning: A meta-analysis. *International Journal of Educational Telecommunications*, 7(1), 73-88.
- Cavanaugh, C., Barbour, M. K., & Clark, T. (2009). Research and practice in K-12 online learning: A review of open access literature. *The International Review of Research in Open and Distance Learning*, 10(1) Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/607/1182>
- Chambliss, D.F., & Takacs C.G. (2014). *How College Works*. Cambridge, MA: Harvard University Press.
- Christensen, C. M., Horn, M. B., & Johnson, C. W. (2011). *Disrupting class: How disruptive innovation will change the way the world learns* (2nd ed.). New York: McGraw-Hill.
- Clark, T. (2001). *Virtual schools: Trends and issues - A study of virtual schools in the United States*. San Francisco, CA: Western Regional Educational Laboratories. Retrieved from [https://www.wested.org/online\\_pubs/virtualschools.pdf](https://www.wested.org/online_pubs/virtualschools.pdf)
- Clark, T., Lewis, E., Oyer, E., & Schreiber, J. (2002). *Illinois Virtual High School Evaluation, 2001-2002*. Carbondale, IL: TA Consulting and Southern Illinois University.
- Cuban, L., (2009). *Oversold and underused: Computers in the classroom*. Cambridge, MA: Harvard University Press.
- Degree of Freedom. (2013, March 22). *MOOC components - Assessment*. Retrieved from <http://degreeoffreedom.org/mooc-components-assessment/>
- Demiray, U., & İşman, A. (2001). History of distance education. *Sakarya Üniversitesi Eğitim Fakültesi Dergisi*, (1). Retrieved from <http://dergipark.ulakbim.gov.tr/sakaefd/article/download/500001990/5000012310>
- DiPietro, M., Ferdig, R. E., Black, E. W., & Preston, M. (2008). Best practices in teaching K-12 online: Lessons learned from Michigan Virtual School teachers. *Journal of Interactive Online Learning*, 7(1), 10-38. Retrieved from <http://www.ncolr.org/issues/jiol/v7/n1/best-practices-in-teaching-k-12-online-lessons-learned-from-michigan-virtual-school-teachers>
- Espinoza, C., Dove, T., Zucker, A., & Kozma, R. (1999). *An evaluation of the Virtual High School after two years in operation*. Arlington, VA: SRI International. Retrieved from [http://www.govhs.org/Images/WhatIsVHS/\\$file/evalvhs2.pdf](http://www.govhs.org/Images/WhatIsVHS/$file/evalvhs2.pdf)

- Firmin, R., Schiorring, E., Whitmer, J., Willett, T., & Sujitparapitaya, S. (2013). *SJSU+ augmented online learning environment pilot project report*. San Jose, CA: Research and Planning Group for California Community Colleges. Retrieved from [http://www.sjsu.edu/chemistry/People/Faculty/Collins\\_Research\\_Page/AOLE%20Report%20Final%20Version\\_Jan%201\\_2014.pdf](http://www.sjsu.edu/chemistry/People/Faculty/Collins_Research_Page/AOLE%20Report%20Final%20Version_Jan%201_2014.pdf)
- Fischer, D. A. (2009). *Classrooms without borders: the characteristics of international secondary schools that offer online courses*. Unpublished doctoral dissertation, University of Minnesota, Minneapolis, MN.
- Freedman, G., Darrow, R., Watson, J., & Lorenzo, G. (2002). *California virtual school report: A national survey of virtual education practice and policy with recommendations for the State of California*. Santa Cruz, CA: University of California College Preparatory Initiative.
- Friend, B., & Johnston, S. (2005). Florida Virtual School: A choice for all students. In Z. L. Berge & T. Clark (Eds.), *Virtual schools: Planning for success* (pp. 97-117). New York: Teachers College Press.
- Gaines, L.V. (2018, January 23). New pilot program brings AP classes to rural schools. *Illinois Public Media News*. Retrieved from <https://will.illinois.edu/news/story/new-pilot-program-brings-ap-classes-to-rural-schools>
- Gagnon, D. J., & Mattingly, M. J. (2016). Advanced placement and rural schools: access, success, and exploring alternatives. *Journal of Advanced Academics*, 27(4), 266-284.
- Gallup, Inc. (2014). *Great Jobs, Great Lives: The 2014 Gallup-Purdue Index Report*. Retrieved from [http://www.gallup.com/file/services/176768/GallupPurdueIndex\\_Report\\_2014.pdf](http://www.gallup.com/file/services/176768/GallupPurdueIndex_Report_2014.pdf)
- Garrison, D. R. (1997). Computer conferencing: The post industrial age of distance education. *Open Learning*, 12(2), 3-11.
- Garrison, D. R., & Anderson, T. (2003). *E-Learning in the 21st century: A framework for research and practice*. London: Routledge/Falmer.
- Garrison, D. R., Anderson, T. & Archer, W. (2000). Critical inquiry in a text-based environment: computer conferencing in higher education. *The Internet and Higher Education*, 2(2-3), 87-105.
- Gemin, B., & Pape, L. (2017). *Keeping pace with K-12 online learning, 2016*. Durango, CO: Evergreen Education Group. Retrieved from <https://www.evergreeneeducation.com/keeping-pace-reports/>
- Glass, G. V. (2009). *The realities of K-12 virtual education*. Boulder, CO and Tempe, AZ: Education and the Public Interest Center & Education Policy Research Unit. Retrieved from <http://nepc.colorado.edu/publication/realities-K-12-virtual-education>
- Glass, G. V & Welner, K. G. (2011). *Online K-12 schooling in the U.S.: Uncertain private ventures in need of public regulation*. Boulder, CO: National Education Policy Center. Retrieved from <http://nepc.colorado.edu/publication/online-k-12-schooling>
- Haughey, M., & Muirhead, W. (1999). *On-line learning: Best practices for Alberta school jurisdictions*. Edmonton, AB: Government of Alberta. Retrieved from <https://eric.ed.gov/?id=ED438798>
- Hawkins, A., Barbour, M. K., & Graham, C. (2011). Strictly business: Teacher perceptions of interaction in virtual schooling. *Journal of Distance Education*, 25(2). Retrieved from <http://www.ijede.ca/index.php/jde/article/view/726>

- Hawkins, A., Graham, C., Sudweeks, R., & Barbour, M. K. (2013). Course completion rates and student perceptions of the quality and frequency of interaction in a virtual high school. *Distance Education, 34*(1), 64-83.
- Ho, A. D., Reich, J., Nesterko, S., Seaton, D. T., Mullaney, T., Waldo, J., & Chuang, I. (2014). *HarvardX and MITx: The first year of open online courses*. Rochester, NY: Social Science Research Network. Retrieved from <http://papers.ssrn.com/abstract=2381263>
- Jakobsdóttir, S. & Jóhannsdóttir, T. (2018). The development of online and blended learning in primary and secondary education in Iceland. In K. Kennedy & R. Ferdig (Eds.), *Handbook of Research on K-12 Online and Blended Learning* (2nd ed., pp. 649-664). Pittsburgh, PA: Entertainment Technology Center Press, Carnegie Mellon University. Retrieved from <http://repository.cmu.edu/etcpres/82/>
- Kozma, R., Zucker, A., & Espinoza, C. (1998). *An evaluation of the Virtual High School after one year in operation*. Arlington, VA: SRI International. Retrieved from <http://www.govhs.org/Images/SRIEvals/sfile/vhseval.pdf>
- Kozma, R., Zucker, A., Espinoza, C., McGhee, R., Yarnall, L., Zalles, D., et al. (2000). *The online course experience: Evaluation of the Virtual High School's third year of implementation, 1999-2000*. Arlington, VA: SRI International. Retrieved from [https://www.sri.com/sites/default/files/publications/imports/VHS\\_Online\\_Experience.pdf](https://www.sri.com/sites/default/files/publications/imports/VHS_Online_Experience.pdf)
- Malesic, J. (2013, September 16). A Catholic case against MOOCs. *The Chronicle of Higher Education*. Retrieved from <http://chronicle.com/article/A-Catholic-Case-Against-MOOCs/141611/>
- Malesic, J. (2014a, January 27). *A Catholic case against MOOCs: Social ethics, care for the person, and online education*. An invited presentation to the Hersher Institute for Applied Ethics at Sacred Heart University, Fairfield, CT.
- Malesic, J. (2014b, September 19-20). *Could we educate the whole person online? Catholic pedagogical principles and online education*. A paper presented at the Idea of a Catholic College conference, Wilkes-Barre, PA.
- Magoulas, G., Papanikolaou, K., & Grigoriadou, M. (2003). Adaptive web based learning: accommodating individual differences through system's adaptation. *British Journal of Educational Technology, 34*(4).
- Masters, K. (2011). A brief guide to understanding MOOCs. *The Internet Journal of Medical Education, 1*(2). Retrieved from <http://ispub.com/IJME/1/2/10995>
- Miron, G., Shank, C. & Davidson, C. (2018). *Full-time virtual and blended schools: Enrollment, student characteristics, and performance*. Boulder, CO: National Education Policy Center. Retrieved from <http://nepc.colorado.edu/publication/virtual-schoolsannual-2018>
- Moe, A. M., & Chubb, A. M. (2009). *Liberating learning: Technology, politics and the future of American education*. San Francisco CA: Jossey-Bass.
- Molnar, A. (Ed.); Huerta, L., Barbour, M. K., Miron, G., Shafer, S. R., & Gulosino, C. (2015). *Virtual schools in the U.S. 2015: Politics, performance, policy, and research evidence*. Boulder, CO: National Education Policy Center. Retrieved from <http://nepc.colorado.edu/publication/virtual-schools-annual-2015>
- Molnar, A. (Ed.); Rice, J. K., Huerta, L., Shafer, S. R., Barbour, M. K., Miron, G., Gulosino, C., & Horvitz, B. (2014). *Virtual schools in the U.S. 2014: Politics, performance, policy, and research evidence*. Boulder, CO: National Education Policy Center. Retrieved from <http://nepc.colorado.edu/publication/virtual-schools-annual-2014>



- Moore, M. G. (1972). Learner autonomy: The second dimension of independent learning. *Convergence, Fall*, 76-88.
- Moore, M. G. (1973). Toward a theory of independent learning and teaching. *Journal of Higher Education*, 44(12), 661-679.
- Moore, M. G. (1993). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education* (pp. 22-38). London: Routledge.
- Moore, M. G. (2013). Historical and conceptual foundations: An overview. In M. G. Moore (Ed.), *Handbook of distance education (3<sup>rd</sup> ed.)* (pp. 1-2). New York: Routledge.
- Moore, M. G., & Kearsley, G. (1996). *Distance education: A systems view*. Belmont, CA: Wadsworth.
- Mulcahy, D. M., Dibbon, D., & Norberg, C. (2008). *An investigation into the nature of education in a rural and remote region of Newfoundland and Labrador: The Straits*. St. John's, NL: The Harris Centre, Memorial University of Newfoundland. Retrieved from <https://www.mun.ca/harriscentre/reports/arf/2007/FinalReportMulcahyEducation.pdf>
- Murphy, E., & Coffin, G. (2003). Synchronous communication in a web-based senior high school course: Maximizing affordances and minimizing constraints of the tool. *American Journal of Distance Education*, 17(4), 235-246.
- Murphy, E., & Rodriguez-Manzanares, M. (2008). Revisiting Transactional Distance Theory in a context of web-based high-school distance education. *Journal of Distance Education*, 22(2), 1-14. Retrieved from <http://www.ijede.ca/index.php/jde/article/view/38/550>
- Nippard, N. & Murphy, E. (2007). Social presence in the web-based synchronous secondary classroom. *Canadian Journal of Learning and Technology*, 33(1). Retrieved from <http://www.cjlt.ca/index.php/cjlt/article/view/24/22>
- Packard, R. (2013). *Education transformation: How K-12 online learning is bringing the greatest change to education in 100 years*. Hillsboro, OR: Beyond Words.
- Pane, J. F., Steiner, E. D., Baird, M. D., & Hamilton, L. S. (2015). *Continued Progress: Promises Evidence on Personalized Learning*. Santa Monica, CA: RAND Corporation.
- Pappano, L. (2012, November 2). The year of the MOOC. *The New York Times*. Retrieved from <http://www.nytimes.com/2012/11/04/education/edlife/massive-open-online-courses-are-multiplying-at-a-rapid-pace.html>
- Perna, L., Ruby, A., Boruch, R., Wang, N., Scull, J., Evans, C., & Ahmad, S. (2013, December 5). *The life cycle of a million MOOC users*. A paper presented at the MOOC Research Initiative Conference, Austin, TX. Retrieved from [http://www.gse.upenn.edu/pdf/ahead/perna\\_ruby\\_boruch\\_mooocs\\_dec2013.pdf](http://www.gse.upenn.edu/pdf/ahead/perna_ruby_boruch_mooocs_dec2013.pdf)
- Peterson, P. (2010). *Saving schools: From Horace Mann to virtual learning*. Cambridge, MA: Belknap Press of Harvard University Press.
- Pittman, V. V. (2013). University correspondence study: A revised historiographic perspective. In M. G. Moore (Ed.), *Handbook of distance education (3<sup>rd</sup> ed.)* (pp. 21-37). New York: Routledge.
- Pope John Paul II. (1981). *Laborem xxercens: To His Venerable Brothers in the Episcopate to the Priests to the Religious Families to the sons and daughters of the Church and to all Men and Women of good will on Human Work on the ninetieth anniversary of Rerum Novarum*. Retrieved from [http://w2.vatican.va/content/john-paul-ii/en/encyclicals/documents/hf\\_jp-ii\\_enc\\_14091981\\_laborem-exercens.html](http://w2.vatican.va/content/john-paul-ii/en/encyclicals/documents/hf_jp-ii_enc_14091981_laborem-exercens.html)

- Pope Leo XIII. (1891). *Rerum Novarum: Encyclical of Pope Leo XIII on capital and labor*. Retrieved from [http://www.vatican.va/holy\\_father/leo\\_xiii/encyclicals/documents/hf\\_1-xiii\\_enc\\_15051891\\_rerum-novarum\\_en.html](http://www.vatican.va/holy_father/leo_xiii/encyclicals/documents/hf_1-xiii_enc_15051891_rerum-novarum_en.html)
- Powell, A., & Patrick, S. (2006). *An international perspective of K-12 online learning: A summary of the 2006 NACOL international e-learning survey*. Vienna, VA: North American Council for Online Learning. Retrieved from <https://files.eric.ed.gov/fulltext/ED514433.pdf>
- Powell, A., Roberts, V., & Patrick, S. (2015). *Using Online Learning for Credit Recovery: Getting Back on Track to Graduation. Promising Practices in Blended and Online Learning Series*. International Association for K-12 Online Learning. Retrieved from <https://www.inacol.org/resource/using-online-learning-for-credit-recovery-getting-back-on-track-to-graduation/>
- Rakes, G. C., & Dunn, K. E. (2015). Teaching online: Discovering teacher concerns. *Journal of Research on Technology in Education*, 47(4), 229-241.
- Ravitch, D. (2011). *The death and life of the great American school system: How testing and choice are undermining education*. New York: Basic Books.
- Ravitch, D. (2013). *Reign of error: The hoax of the privatization movement and the danger to America's public schools*. New York: Vintage.
- Rice, K. L. (2006). A comprehensive look at distance education in the K-12 context. *Journal of Research on Technology in Education*, 38(4), 425-448.
- Richardson, J., Swan, K., Lowenthal, P. & Ice, P. (2016). Social Presence in Online Learning: Past, Present, and Future. In *Proceedings of Global Learn-Global Conference on Learning and Technology* (pp. 477-483). Limerick, Ireland: Association for the Advancement of Computing in Education. Retrieved from <https://www.learntechlib-org.proxy.lib.wayne.edu/primary/p/172799/>
- Roberts-Mahoney, H., Means, A. J., & Garrison, M. J. (2016). Netfixing human capital development: personalized learning technology and the corporatization of K-12 education. *Journal of Education Policy*, 31(4), 405-420.
- Roblyer, M. D. (2006). Virtually successful: Defeating the dropout problem through online school programs. *Phi Delta Kappan*, 88(1), 31-36.
- Rudestam, K. E., & Schoenholtz-Read, J. (2010). The flourishing of adult online education: An overview. In K. E. Rudestam & J. Schoenholtz-Read (Eds.), *Handbook of online learning* (2<sup>nd</sup> ed.) (pp. 1-29). Thousand Oaks, CA: Sage Publications, Inc.
- Shepherd, C. M. (2008). Any time, any place: online advanced placement courses for high school students. *Universal Access in the Information Society*, 7(4), 285-292.
- Shirky, C. (2013, July 8). *MOOCs and economic reality*. The Chronicle of Higher Education. Retrieved from <http://chronicle.com/blogs/conversation/2013/07/08/moocs-and-economic-reality/>
- Short, J., Williams, E., & Christie, B. (1976). *The social psychology of telecommunications*. London, UK: John Wiley & Sons.
- Stevens, K. (1999). *The Vista Digital Intranet - A model for the organization of virtual classes*. St. John's, NL: TeleLearning and Rural Education Centre, Memorial University of Newfoundland.
- Vander Ark, A. (2012). *Getting smart: How digital learning is changing the world*. San Francisco, CA: John Wiley & Sons, Inc.



- Watson, J., Murin, A., Vashaw, L., Gemin, B., & Rapp, C. (2014). *Keeping pace with K-12 online and blended learning*. Durango, CO: Evergreen Education Group. Retrieved from <https://www.evergreenedgroup.com/keeping-pace-reports>
- Weiner, C. (2003). Key ingredients to online learning: Adolescent students study in cyberspace - the nature of the study. *International Journal of E-Learning*, 2, 44-50.
- Whiteside, A. L. (2015). Introducing the social presence model to explore online and blended learning experiences. *Journal of Asynchronous Learning Networks*, 19(2). Retrieved from <https://www.learntechlib.org/p/157861/>
- Wicks, M. (2010). *A national primer on K-12 online learning, version 2*. Vienna, VA: International Association for K-12 Online Learning. Retrieved from [http://www.inacol.org/cms/wp-content/uploads/2012/11/iNCL\\_NationalPrimerv22010-web1.pdf](http://www.inacol.org/cms/wp-content/uploads/2012/11/iNCL_NationalPrimerv22010-web1.pdf)
- Yousef, A. M. F., Chatti, M. A., Schroeder, U., Wosnitza, M., & Jakobs, H. (2014). *MOOCs – A review of the state-of-the-art*. Barcelona, Spain: CSEDU International Conference on Computer Supported Education. Retrieved from <http://www.openeducationeuropa.eu/en/article/MOOCs---A-Review-of-the-State-of-the-Art>
- Yuan, L., & Powell, S. (2013). *MOOCs and open education: Implications for higher education white paper*. Bolton, United Kingdom: Centre for Educational Technology and Interoperability Standards, University of Bolton. Retrieved from <http://publications.cetis.org.uk/2013/667>
- Zucker, A. (2005). *A study of student interaction and collaboration in the Virtual High School*. Naperville, IL: Learning Point Associates.
- Zucker, A., & Kozma, R. (2003). *The Virtual High School: Teaching generation V*. New York: Teachers College Press.