

Method to Foster Sense of Community among Students in K-12 Online Education

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Abstract. K-12 education is of great significance in students' growth, not only because it provides knowledge to children, but also in that it equips them with necessary interpersonal skills and affectivity, without which, education can at most be called training. Online education is booming around the world, but data obtained from Australia's schools of K-12 online education indicates the lack of sense of community nurturance among students. Based on the framework of role assignment and "engagement theory", synchronous lessons for role-playing and subject-related games is recommended. In order to avoid overloading the teachers in online education, volunteer supervisors for these synchronous lessons can be picked from caring parents.

Introduction

Online education is coined, improved and expected to grow prosperously. Nowadays, most of the lessons it provides are asynchronous, which not only help learners overcome the constraints of time and location, but also allow them to study at their own pace (Richardson & Swan, 2003; Simonson et al., 2009). Some researches also proved that distance education, which is almost the synonym for online education now, can offer crucial educational and social support to parents homeschooling their children (McDonald & Lopes, 2014). Besides, in terms of academic achievement, no significant differences have been found between online education and school-based education (Falck et al., 1997; Ryan, 1996; Smith, Clark & Blomeyer, 2005).

However, without face-to-face interaction with teachers and peers, students may feel isolated (Hara & Kling, 2000; Liu et al., 2007; Rovai & Wighting, 2005). Natale et al. (2015) straightly stated that although students can review learning materials repeatedly to reach full understanding in online education, without human mediation, it is training not education. Natale & Libertella (2016) further explained six shortcomings of online education, a half of which are related to interaction among students. Moore et al (2012) also pointed out that students' feeling of frustration and anxiety would increase when they hold certain misconceptions like 24-hour access to teachers. These may all lead to high levels of dropout in online courses (Stover, 2005; Glass & Welner, 2011). Thus, establishing students' sense of community is strongly recommended (Liu et al., 2007; Rovai & Wighting, 2005), which can not only decrease students' anxiety and loneliness but also improve their interpersonal skills and empathy for others. Methods like assigning roles to students have been put forward in higher online education (Hara et al., 2000), which inspires more peer interaction, encourages students to shoulder certain responsibilities and helps them to obtain better understanding of the learning materials. Jiang (2017) claimed that most students participate passively in the role-assigned discussion, only to satisfy the minimum requirement of a course. If it is hard to organize students in higher education to do such kind of work, it would be almost impossible for students in k-12 online education to participate actively and independently in their asynchronous activities even with role assignment.

Although the significance of sense of community nurturance is obvious, few related studies have been conducted in terms of k-12 online education. The methods or theories employed in higher online education may not be applicable at the K-12 level. Furthermore, while higher education is optional, k-12 education in many countries is compulsory, making it more urgent to conduct some researches or design certain methods to scaffold young students' sense of community in k-12 online education. This paper firstly analyses data from schools of distance education in Australia, where young children living in rural areas or with special needs rely heavily on distance education; then, based on engagement theory, methods are proposed to foster students' sense of community in online education.

Sense of Community nurturance in Australian K-12 distance education

Australia's vast territory and scattered population push it into a country with advanced distance education. Schools of the air were first invented to provide education to children in remote Australia. Radio used to be the main media, but recently it has been replaced by internet technology. Other schools of distance education in Australia also rely on the internet. Thus, distance education in Australia can be generalized as online education, except the fact that distance education also involves certain face-to-face interaction between teachers and students.

At present, Australia has 10 schools of the air and 19 schools of distance education, all of which provide extracurricular activities, like camps, school tours to promote the interrelationship among students, since most of their lessons are asynchronous. Detailed information is showed in Table 1.

School	Number of annual extracurricular activities
Kalgoorlie School of the Air	4
Alice Springs School of the Air	5
Carnarvon School of the Air	3
Katherine School of the Air	Not found
Kimberley School of the Air	2
Meekatharra School of the Air	Not found
Mount Isa School of the Air	2
Open Access College	5
Port Hedland School of the Air	5
School of the Air	5
Bourke Walgett School of Distance Education	3
Brisbane School of Distance Education	4
Cairns School of Distance Education	7
Capricornia School of Distance Education	5
Charleville School of Distance Education	7
Charters Towers School of Distance Education	3
Distance Education Centre Victoria	10
Dubbo School of Distance Education	1
Longreach School of Distance Education	5
North East Public School of Distance Education	Not found
Northern Territory School of Distance Education	4

Schools of Isolated and Distance Education	1
Sydney Distance Education High School	7
Sydney Distance Education Primary School	Not found
Riverside Christian College	7
Groves Christian College	2
ACC Moreton	9
ACC Marsden Park	Not found
ACC Albany	Not found

Table 1: Numbers of Co-curricular Activities in Australian Online Education

(Data is collected from the schools' websites and their annual reports.)

Related information of six schools in table 1 could not be found online. From the statistics obtained, we know the average number of annual extracurricular activities in Australian k-12 online education is only 4.61. Besides, although certain schools like Distance Education Centre Victoria organize many activities for students, most of the activities last only for a day or for a few hours, which means the total amount of time those students spend together is still too little and they can easily feel isolated in their daily online learning. Furthermore, due to the consideration of expense, time or students' special needs, parents may choose not to send their kids to these optional activities, which adds difficulty to facilitate intercommunication and social contacts among the students. Therefore, it can be concluded that Australia's k-12 online education severely lacks the nurturance of students' sense of community.

Methods to promote sense of community

Extracurricular activities can never be compulsory, increasing the uncertainty of students' sense of community nurturance. Education should be different from skill training, so methods need to be invented for curricular lessons. In the field of technology-based education, "Engagement theory" reminds people that authentic learning can be achieved more easily under project-based engagement and meaningful interactions (Kearsley&Shneiderman, 1998). Thus, more fascinating online projects need to be inserted into those curricular lessons. Though role assignment tasks applied in higher online education may not be suitable for k-12 distance education, they are quite inspiring.

1. Synchronous lessons for games

Students can be better involved when assigned roles in a learning project. However, even students in higher online education may fail to participate actively in those asynchronous role-assigning tasks. According to Jiang (2017), students finishing their part early in a week might miss all the discussion posted later, in that they could be unwilling to browse the forum after the completion of their own task. Thus, it may work better if the role-assigning projects are in synchronous lessons instead of asynchronous ones.

As for students at the level of K-12, if students' keen interest is aroused, stronger motivation, more active participation and more intimate interrelationship are expected to occur. Digital games have been proved to be useful in the field of education. Gros (2007) pointed out the benefits of digital games as user-oriented, challenging-promoting, cooperation-fostering and strategies-developing. Thus, digital games with different roles may be employed in the synchronous lessons. Students can switch roles each week to get a full understanding of the whole learning program. Creating digital games based on the learning materials may be time-consuming but profound and meaningful in the long run. Some educational games like *Kahoot!* can also be adopted

in K-12 online education and different roles assigned to students can be teamleaders, members and supervisor's assistants, etc.

On the one hand, weekly synchronous games for each subject is recommended to scaffold students' sense of community; on the other hand, online education's high efficiency and great convenience is usually based on the sacrifice of the teachers' time and energy. To balance the contradiction between teachers' limited time and energy and students' urgent need for supervision over their weekly synchronous lessons for different subjects, responsible and caring parents may be picked as volunteers to manage the virtual classroom. They can send feedbacks to teachers each week, which will help teachers to make adjustment to the arrangement of the synchronous lessons. Besides, the frequent communication between parents and teachers can also improve the quality of students' online education.

Conclusion

Australia's online education is relatively advanced around the world. However, the data obtained indicates that schools offering K-12 online education fail to provide enough chances for students to build their sense of community, which is indispensable in the process of one's growing up. Thus, more compulsory lessons in curricular should be inserted with programs fostering students' interaction and communication. This paper, based on "engagement theory", puts forward a new method to get students fully involved and attracted by the programs. Digital games with role assignment can theoretically increase students' engagement and comprehension of the learning materials, which will finally lead to strong sense of community. More empirical researches are needed to testify this new method in the future.

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