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Teachers, Are They Really Needed?

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Abstract

Beginning in the mid-20th century, traditional educational models were challenged by educational experts. The traditional model of instruction is what is known as teacher guided instruction or direct instruction. The current focus in education moved to student centered learning or problem based learning (PBL). Given these pedagogical discussions, Sugata Mitra asked the question, "Do we need teachers?" and developed the term Self-Organized Learning Environments (SOLE) to describe self-directed learning. The idea behind a SOLE is independent learning among students as they work at their own pace, while satisfying their own goals and objectives. One doctoral level class, composed of deaf students, used this strategy for a beginning level course. Findings showed that students needed a bit more structure in the beginning of the course, but then they were able to direct their own learning in ways that went beyond the bounds of traditional learning. This strategy is suggested as a possible motivational one for deaf students who often employ more passive learning strategies.

Keywords

SOLE, Problem Based Learning, Deaf Learners

1. Introduction

Beginning in the mid-20th century, traditional educational models were challenged by educational experts (e.g., Shor & Freire, 1987). This traditional model of instruction is what is known as teacher guided instruction or direct instruction (Brown, 2003). Therefore, the current focus in education moved to student centered learning (Overby, 2011) or problem based learning (PBL). The characteristics of PBL include the following; 1) a problem based lesson where learners focus on an authentic but ill-structured problem, 2) a student centered environment, 3) which is self-directed, 4) such that students monitor their own learning, and 5) teachers or tutors support and facilitate learning but do not provide direct

answers (Hung, Jonassen, & Liu, 2008). Here, knowledge is individually constructed, includes multiple perspectives, is culturally embedded and context dependent. PBL involves small groups who collaborate, develop hypothesis, and integrate their learning based on real world types of problems. It fosters creativity, critical thinking, and independent learning (Hung et al., 2008).

Finland has adopted these new ideas and now teaches by topic rather than subject. They use PBL and include the idea that young children need to play and become "natural scientists" who use their own creativity to learn concepts based on Piaget's ideas (Wadsworth, 1996). Schooling now costs less than in other European countries, has shorter school days, and has led to Finland becoming one of the top, if not the top performing country, on the Programme for International Student Assessment (PISA) (Hancock, 2011). Importantly, Finland spends 30% less per student than the US, and still has more effective outcomes. The focus in Finnish schools is on teaching how to learn rather than on drilling facts; therefore, there is a view of education that encourages "play" and healthy development for later success. Saudi Arabia is currently working with the Finns to create their 2030 Vision to improve their own schools (Saudi Vision 2030, 2017) to help turn around their economy, which is currently struggling due to changes in the value of oil.

Given these pedagogical discussions, Sugata Mitra asked the question, "Do we need teachers?" (Mitra, 2014). In his 2007 TED Talk, "Kids Can Teach Themselves", he discusses the importance of pedagogies that historically focused on memorizing facts. This strategy made sense given the technology of the times. But in the 21st century with the widespread use of the internet, these facts are easily and readily available. So again the question is raised, "Do we need teachers?".

Mitra's (2007) focused on the idea that children can learn without formal instruction. This line of thinking began in 1999 when Mitra conducted his "Hole in the Wall" experiment near a slum outside of his home in India. Here a computer was placed in a wall leading to the road outside of his garden. There was a camera to monitor who interacted with the computer and how they used it. This "experiment" demonstrated that a teacher was not needed and that within one month the local children had taught themselves to use the computer on their own, even learning some basic English. He relates how his colleagues challenged this conclusion by saying, 'Your graduate students stopped by and taught the children how to use the computer' (Mitra & Dangwal, 2010). To determine if the same thing would happen again, he set up two more sites with a computer in a wall.

These replications occurred in economically depressed rural villages in India, where English was not known. Again, the children learned independently, first learning how to use the computer and then picking up English. It seems that there were necessary components to the success of these experiments: a group of highly motivated individuals and the internet. Mitra developed the term Self-

Organized Learning Environments (SOLE) to describe this learning (Kulkarni & Mitra, 2010). The idea behind a SOLE is primarily self-directed learning among students as they work at their own pace, satisfying their own goals and objectives. Originally SOLE was a method to provide quality education in remote parts of the world where teachers were not readily available. By utilizing the internet, academic instruction could be accessed by anyone in the world who had access to a computer. Given the benefits seen with these underprivileged children the question asked here was; can this method be successful with deaf students given their long history with limited academic success using traditional instructional methods.

2. Academic Performance among Deaf Students

Historically, researchers have noted that on average deaf students perform at lower academic levels than do hearing students and often are passive in their learning (Marschark, 1993). A frequently quoted statistic is that deaf students have an average reading level of 4th grade (Allen, 1986; Marschark & Harris, 1996; Traxler, 2000). Importantly, this 4th grade reading level is an average; therefore, an additional 50% read well above this level. In an attempt to determine what permits deaf individuals to become members of this upper 50% of skilled readers with high levels of academic success, researchers have investigated the early language experiences of deaf children. Some suggest that having deaf parents is the key (Padden & Ramsey, 1998; Singleton, Supalla, Litchfield, & Schley, 1998) while others find no difference between those with deaf parents and those with hearing parents (Marschark, 1993; Marschark, Sapere, Convertino, & Seewagen, 2005). Others suggest that early access to language is important and that those who are ASL/English bilinguals demonstrate higher academic performance (Freel et al., 2011; Hrastinski & Wilbur, 2016). Still others believe that early implantation of cochlear implants leads to higher academic success (Cupples, Ching, Crowe, Day & Seeto, 2014; Geers, Nicholas, & Sedey, 2003; Nicholas & Geers, 2006).

In trying to untangle these conflicting ideas, Marschark, Convertino, & LaRock (2006) looked at what we know about how to optimize academic performance for deaf students. They found several problematic issues for college students; these included that interpreted classrooms tended to create barriers, that some students arrived at college with gaps in their metacognitive knowledge, and that the types of pedagogy designed for hearing students were not optimal. Marschark et al. (2006) point out that these issues are not mutually exclusive but are related to each other and show a cause and effect relationship, most likely related to the effectiveness of early language access. The conclusions reached for improving deaf educational outcomes by Marschark et al. (2006) include 20 issues. In general, they grouped their suggestions around families who are involved with language learning and academic efforts, rigor in academic curriculums to avoid the cycle of low expectations and passive learning, improving lite-

racy skills, providing early accessible language, and additional research. The question becomes, "How do we develop curriculum and pedagogical strategies to improve deaf education". Here we investigate the outcomes of using the SOLE strategy among a group of deaf doctoral students.

3. Methodology

3.1. Procedure

During the Fall of 2016, four doctoral students registered for the course, ASL/English Bilingual Education and Deaf Students in a Deaf Studies/Deaf Education department at a regional university in the southwest area of the US. This department uses direct instruction in American Sign Language (ASL) for their classes and enrolls a large number of deaf students. This semester the instructor who was scheduled to teach the course was unable to teach, due to unforeseen health issues. In part because of limited faculty availability, the course was assumed by the chair of the department. Given that this program is a weekend program, only three slots are available for the required face to face sessions. The chair was physically unable to teach this course, considering her course schedule. Given that this course is the first in a sequence, she decided on an experiment, given her interests in the work of Mitra and his Hole in the Wall ideas. She had the students watch Mitra's (2013) TED Talk, "A Classroom in the Cloud". This TED Talk discussed how students were able to help each other learn with minimal guidance from an instructor who was online. The students agreed to use this method for their own learning. The research questions were: 1) what happens when deaf doctoral students are in a PBL environment that is unstructured; 2) what types of attributions will they have regarding their own learning; and 3) will they be able to create a SOLE for themselves.

3.2. Participants

All participants are deaf, use ASL for communication, and were first semester doctoral students in an Ed.D. program. Three men (average age 36) and one woman (age 40) participated in the project. Two of the participants are international students, and one of the male participants is Middle Eastern while the other three participants are non-Hispanic white.

3.3. Students' Experiences

Students were initially anxious about the fact that this course was not a traditional instructional approach to learning. There was no formally structured course outline, other than the traditional course syllabus, which was not designed for a SOLE. The syllabus required two actions, participating in the discussion board through BlackBoard and student presentations. The student's however modified and adjusted the course expectations to meet their individual and collective learning objectives. These changes posed a challenge for the students, as they were not accustomed to functioning without restriction and ac-

countability.

The students collaborated and began to develop strategies on how to approach the learning environment. One strategy included the discussions based on the book, *Foundations of Bilingual Education and Bilingualism* (5th ed.) by Baker (2011). Students also arranged to meet regularly face to face on campus and remotely through video conferencing software such as *FUZE* or *appear in* which allows for group conferencing.

As the semester progressed, the instructor shared her concerns with how the course was progressing and posted a message in the discussion board, stating that the SOLE experiment had failed. The students were motivated by this comment because they were afraid that it would result in their failing the course and the students did not want the project to fail. One factor that helped the students refocus on their effort was the instructor stepping in and clarifying the need for discussion board posts at least three times a week. Students had previously only posted when they felt they had something pertinent to add to the discussions. However regular contribution through blackboard is a crucial component to collective learning. Establishing the need for regular posts encouraged the students to become more proactive with posting information that they deemed important or applicable to the course. Additionally, they were unafraid to reply to a classmate's post, regardless if they agreed with the post or not. This push was what was needed to ensure the success of the course.

Each student reflected on their experiences and how and why they were successful. A summary of each student's ideas are reported below.

Student A. I am attending the university as an international student from the Middle East. I graduated from a school for the Deaf. In those schools, most teachers are not fluent in sign language and would often try to compensate for their weak signing skills by using oral methods/gestures or assigning a hard of hearing student in the classroom to interpret. The students were expected to follow the traditional teaching style by just sitting there and listening to the teacher lecture, often without understanding the teacher. They were expected to learn through rote memorization. I then went to a university for the deaf in the United States and became a more active participant, but the learning style was still somewhat traditional with the teacher being a lecturer and discussion facilitator with some student led discussions.

For me, the SOLE experience was different from the expected classroom learning style. As mentioned earlier, it was difficult at the beginning to take a more active role in participation because of my anxiety with language as an English Language Learner. Additionally, my different experiences in school made me hesitant to engage in discussion with different perspectives, especially when it came to disagreements. It was also difficult to keep the momentum going without a lot of guidance. However, as the class progressed and we all became familiar with each other, the learning felt less forced for me. As it was with the "granny cloud", I felt it was necessary to have an "outside" guidance to keep the momentum and motivation going. I started to go outside the traditional boun-

daries of research and used sources such as recent newspaper articles to expand interest in different areas.

Overall, I felt this experience was beneficial and think it is a potential style of education for Deaf children, especially those who do not have access to teachers who are fluent in sign language. It also appeals to the inquisitive nature of children.

Student B. My overall experience with the course was positive in that I had a great group of peers to work with and learn from. Having developed a sense of trust with my peers helped in facilitating a more cohesive approach to meeting our course goals within the framework of the SOLE. The ability to establish our own learning criteria related to the material shared in the context of the course subject allowed us to more easily touch on topics that were of interest to each of us within the framework of the course.

Having taken online courses previously that were more formally structured and guided by the professor, I found this experiment interesting as it challenged my preconceptions related to more traditional learning methods. I believe students can self-teach given the opportunities provided by SOLE.

Student C. When it comes to academics, this course, using the SOLE framework, was a completely unique experience. This experience is closer to what I've been exposed to growing up with Deaf parents, within the Deaf community. I remember growing up, always asking people "why?" and they'd always answer with "go find out and tell me later". That is basically what this course has been like. You'd think that by having this experience, the SOLE framework would be easier for me to work with, but the opposite happened. It's harder because I've been so acclimated to the traditional method of spoon-feeding learning process. It was a big adjustment bringing my personal experience to the academic world.

This does not mean that this experience was negative. It was a positive experience for me, because by doing this, I learned to trust my classmate and learned to rely on them for assistance when I faced any problem or struggle. This SOLE was a beneficial experience for me in this case, and I would love to take other courses that use a SOLE approach to see if it is successful for Deaf students. I do believe that the SOLE approach is an appropriate learning method for graduate/doctoral students.

Student D. With my experience with the SOLE approach, it was clearly interesting, and it challenged my way of thinking about whether students can learn without a teacher and what kind of students will benefit from this approach. I have attended another university with sign language interpreters in my English-speaking country and a university for the deaf in the United States, both in the classroom, online and hybrid courses which included both face to face and online classes. I have not experienced a class that was not structured by a teacher and was fully student-led with minimal professor's involvement. We were the first-year students in our first doctoral semester when we participated in this SOLE course; additionally we had two other courses. In the beginning there was

confusion and uncertainty, but we slowly designed the course to suit and meet our learning needs through face to face and online classes. At the same time, through collaboration, we took up the responsibility and ownership over our own learning with the guidance of our "granny cloud". Our "granny cloud" checked on us at regular intervals to ensure our progress in the course, to provide us resources, and to challenge our ways of thinking. I feel that we were able to progress at a pace that works for us without educators rushing us or slowing us down. With the SOLE approach, I believe we were more engaged by making the course more meaningful to us by bringing detailed discussions in from our different areas of interests, both within and outside of the content of the course. This approach also allows us the opportunities for "anywhere" and "anytime" learning outside of the traditional school days and traditional face to face classroom. One evening, we had our face to face class at a coffee shop, and we had guest speakers through video conference during our personal time on a weeknight. We were fortunate and surprised how professors at different universities were more than happy to give an hour-long lecture or to run interactive discussions with us through video conferences or in person. Since the four of us have different networks and by bringing in various guest speakers, we helped each other build bigger network within the academic world. With that said, SOLE has many advantages over traditional highly structured teacher-led learning.

Faculty Perceptions. As the faculty monitoring this course, there were many important lessons. First, the students utilized higher levels of active, cognitive activity; their behaviors fit into the higher levels of Bloom's taxonomy including, application, evaluation, and synthesis. They moved from somewhat external attributions about their learning to internal attributions. They became more responsible for their learning and demonstrated an internal locus of control. The four students went beyond materials provided and found information to support or challenge ideas. They responded respectfully to each other, even when they disagreed; in this way they learned how to have civil disagreements, sometimes coming to consensus while at other times they agreed to disagree. Some of the information that they found was outside of the traditional bounds of the course, but here they integrated these ideas across topics. When monitoring their BlackBoard discussions, one impressive issue was that they never summarized information. This difference was extremely noticeable because they were in two other classes with students in my conflicting time class. The students, in this more traditional class, were unable to avoid summarizing what they had read, even after they were repeated asked to avoid summaries. When discussing this difference, the SOLE students stated that they were teaching each other and therefore summaries were not necessary to show what they had discussed. They were not concerned with faculty censure or negative assessments. Rather they simply engaged in this discussion. They made the comment that it would not be appropriate to "teach" the faculty, who they assumed already knew the information. This difference in and of itself shows the power of this learning strategy.

The ideas that emerged from their interactions were ones that would have never developed in a traditional classroom. On their own they invited well known researchers from the field to have on-line discussions with them and all of these senior people accepted their invitation to participate in their learning. These experiences exposed them to a wide variety of perspectives and permitted them to informally interact with high level researchers. Even as first semester doctoral students, they began to pose research ideas that began to build their own research agendas.

After a slow start, the group developed a cohesiveness that is typically not seen in the classroom. They supported each other's learning and shared their own personal experiences. Given that these students are working professionals who are a bit older, they all had much to contribute to each other's learning. In a traditional classroom, this synergy would have been lost.

Clearly, some structure and mentoring were required to get the system started, which is not surprising given that most educational systems tends to demand more teacher centered practices. But when given the opportunity to facilitate their own learning and apply a student centered focus, they were not "working" but learning for enjoyment. The task was self-directed by their own interests. Given that all of these students are at least bilingual, the personal and the academic overlapped in a way that permitted deep learning.

4. Discussion

This project focused on the SOLE method of Mitra (2007; 2013) and found that students were able to structure their own learning environment, support each other's learning, and become active learners. It demonstrated changes in locus of control and the types of attributions students mentioned when discussing their own learning. Therefore, in a PBL or SOLE environment, the deaf students were able to create the necessary structure to support their own learning. Their motivation and independence demonstrated that learning can be "fun". What was needed to make the process effective was a mentor and a bit more structure. This follows the Self-Organized Mediation Environments (SOME) discussed by Kulkarni & Mitra (2010) where they added volunteer mediators. Some people refer to this as the "granny cloud" as Mitra recruited grandmothers in Great Britain who shared their thoughts with those participating in the on-line activities. Here, having the faculty member establish some structure and checking in with the members of the SOLE established the necessary motivation. For this effort it would appear that there are three necessary components to permit the SOLE/SOME to function; a motivated group, the internet, and a mentor. It is possible if the group had more continuous face to face interactions, this mentor may not be as vital to the success of the SOLE/SOME.

As discussed, the students were accustomed to learning in a passive manner (Soukup & Feinstein, 2007), and this experiment helped the students to become more active learners, assisting each other in the learning process. This change

from an external locus of control to an internal locus of control (Rotter, 1966) is critical for independent learning. Given that so many deaf students are passive (Soukup & Feinstein, 2007) and teachers' expectations are frequently low for their deaf students (Marschark & Hauser, 2008), providing pedagogical methods that empower deaf students may help to reduce the gap in metacognitive knowledge. Wolsey, Clark, van der Mark, & Suggs (2017) noted that many deaf students have negative experiences where their teachers were unable to communicate with them, leading them to dislike learning; this factor was explicitly mentioned by one of the participants regarding his own early educational experiences. Providing learning environments that allow student centered learning can make school work into self-motivated play for the sake of knowledge, as has been done in Finland. The use of SOLE/SOME may reduce the fear of failure and negative assessments, permitting the joy of learning to become the center of schooling. For example, Guardino (2015) during a summer camp focused on deaf students learning to write their own graphic novel, reported that a mother told her that her son, who hated school and reading, could not wait to come to the camp.

Using this SOLE/SOME strategy takes advantages of the benefits of PBL as students solve unstructured problems and are motivated to become active learners (Hung et al., 2008). As noted by Marschark et al. (2006) identifying pedagogies that are not those typically designed for hearing students may be the key for deaf literacy and to reduce or eliminate the gaps in metacognition. The SOLE/SOME method avoids assessments, encourages an internal locus of control, and makes learning "fun"; it just may be the needed set of ingredients to revolutionize deaf education. Additionally, as mentioned by one of the doctoral students, this type of individualized structure may be helpful in situations where teachers are unable to effectively communicate with their deaf students. Here, students become the "teacher" who solve problems that are of interest to them, rather than being forced to learn teacher centered lessons through drill. As in Finland, the potential to restructure education for more effective outcomes offers an interesting novel solution for a group of students for traditionally have been subjected to low expectations (Mitchell & Karchmer, 2011) and frequently seen as disabled rather than different in their learning characteristics (Marschark et al., 2006).

5. Limitations, Future Research, and Conclusion

This project was labeled an "experiment" but in effect it was serendipitous. Given a lack of faculty to cover a course, this solution was attempted with great success. Establishing a more controlled project would help evaluate the potential for using a SOLE/SOME model. These results suggest that the method has strong potential in Deaf Education, but given that this project was a doctoral course it may not be effective with younger deaf children. There is reason to suspect that it would be effective based on the work of Mitra and his colleagues in extremely

rural and poor areas of India, but until it is attempted with other populations, this idea is not confirmed. Future research in the deaf K-12 population would provide evidence of the potential or failure of this pedagogical method.

Another limitation is the number of participants and the selection strategy for this study. However, given the findings from Mitra it could be predicted that these limitations would not detract from the benefits one would find with a larger sample with more random selection. Rather, it supports the idea that even a small group can create an effective learning environment that enriches the outcomes of their learning experiences.

In conclusion, the SOLE/SOME method appears to offer a new strategy to engage deaf students. This strategy encourages an internal locus of control and active participation in the learning process. Historically deaf students have been "spoon fed" information, rather than encouraged to actively engage with materials, leading them to have an external locus of control (Bodner & Johns, 1977) as well as external attributions for failure (Koelle & Convery, 1982). Therefore, when using self-organizing strategies, deaf students have to take control of their own learning. Again, as here they needed the "granny cloud" or a mentor to get them started and to support them in the beginning of the project. Giving them permission to explore topics related to their own interest within the overarching theme of the course, motivated them to develop an internal locus of control. Giving students freedom to choose their own topics removed learned helplessness. Moreover, these students were no longer afraid of being "wrong" as they were in control of their own learning.

This ability to control one's own learning is all too often missing in Deaf education. Teachers often have low expectations for deaf students (Simms & Thumann, 2007) and as all teachers know, students will "sink to the lowest level of expectation". As noted by Sternberg & Subotnik (2006) setting high expectations with a caring model allows the development of reasoning, resilience and responsibility. These characteristics are often missing in deaf education, leading to poorer academic outcomes. Future research using this method may be beneficial for the field and empower deaf students of all ages to accept responsibility for their learning and adopt internal attributions about their ability to learn.

In addition to educational impacts, supporting deaf students with high expectations will impact their own self-concept. Koelle & Convery (1982) noted the interaction of self-concept and locus on control. When students accept responsibility and become resilient (Sternberg & Subotnik, 2006) they are able to overcome difficulties and feel positive about their own skills, even if the larger culture sets low expectations for them. All too often, deaf students have difficulty finding their identity and develop a self-concept that includes the idea that they are not "good enough" (Wolsey et al., 2017). These SOLE/SOME types of supportive and empowering educational opportunities can lead to not only an internal locus of control but a broader world knowledge base, creating both social and academic successes in life. This pedagogy is well worth a try in deaf education.

Conflict of Interest Statement

The authors declare that there are no conflicts of interest.

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