

## **MOOCs and Teacher Professional Development: An Analysis**

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### **Abstract**

MOOCs are open online courses that are designed to be accessed by many of the teachers through internet. The phenomena of MOOCs has become the most researchable phenomena in the education in recent years and a number of significant studies have been conducted on this phenomena. Massive online courses (MOOCs) are considered one of the most significant opportunity for distance learning and it is also considered the best way to implement the continuous training. The aim of the study was to; explore the MOOCs as a mechanism for teacher professional development, find out the necessity of MOOCs for professional development and investigate the contributions of MOOCs in teacher professional development. A meta-analysis approach was used to explore the data. Research papers, theses and books were used as a tool to collect the data. The results of the study revealed that MOOCs has an important role in the teachers' professional development and training through MOOCs provide a chance to easily implement the training in the classroom. On the basis of results it is recommended that teachers need to be trained through MOOCs for the effective teaching and learning process in the 21<sup>st</sup> century. Training and workshops might be conducted to train the teachers through MOOCs.

***Key words:*** MOOCs, Teacher professional development, Online Courses

## **1. Introduction**

In the era of the 21<sup>st</sup> century internet has made the progressed to a bidirectional model of communication in which the user has picked up a dynamic and participative part, both from the web per user and web writer perspective. In this setting the main responsibility of a teacher is to get to numerous interactive media content when going to online courses. Access towards the higher education is considered one of the enormous issues in education. (NAFSA 2010).

Recently MOOCs have caught the consideration as another method for learning and skills, and they have been depicted both as a risk and a chance to traditional instruction (Beaven, 2013).

Massive Open Online Courses (MOOCs) are at present one of the most discussed and debated topics in higher education. Researchers and professionals intensely think about results and interest of these courses, and higher education foundations acutely endeavor to decide the impacts of this most recent instructive change. Along with the eventual future of these courses and their conceivable consequences for traditional education in higher learning, support is huge and expanding gradually. For instance, in approximately one year, more than 6.5 million students have selected in more than 800 free courses from more than 200 distinctive learning organizations (Gallagher and Garrett, 2013). There are various MOOC suppliers, however the three biggest are Coursera, Udacity, and edX (Shumski, 2013). Starting at 2013, Coursera is the biggest with around four million students and 400 courses from 80 unique organizations, edX has roughly one million students and 60 courses from 28 distinct establishments, and Udacity has around one million users and 30 courses that were instructed by faculty from five universities and private partners (Shumski, 2013).

The status of MOOCs themselves, clarifies a large portion of what they mean. They are huge because they are accessible to a wide group of users. They are open since they encourage the democratization of learning and have no efficient or any different limitations. They are online that they utilize the Internet, to be specific web to be overseen, conveyed and utilized. They are a course since they compare to a

sufficient and clear, arranging with a plainly characterized start and completion, with its members associating through the securing of new information or potentially redesigning of past learning and in addition experiencing assessment. Adaptability is certainly one of the primary highlights of these courses when contrasted with traditional courses which rely upon a specific number of members or educators so as to begin. MOOCs can have a corresponding nature when adding to the accomplishment of the instructing and learning process, since they focus on all the applicable educational, innovative, financial, political and lawful parameters of traditional courses (Siemens, 2013).

The advancement of learning science and the development of information and correspondence innovation gives different strategies for teacher professional development. The utilization of remote educational framework in teacher professional development is a significant amongst the most vital strategies, which is still during the process of developing. A considerable measure of elements adds to the procedure, including the accentuation on proficient showing conduct, the need for the standard showing capacity, the expanded measure of students, the broadened need of students, and the changing educating innovation. The changing showing innovation upgraded remote educational framework through the usage of sight and sound, agreeable educating and learning configuration, individualized instructing and learning technique (Shumski, 2013).

MOOC is the most recent remote educational framework, which applies a significant effect on traditional teaching mode, drives another pattern in training, and furthermore gives another strategy for teacher professional development. Many of the researchers examined MOOC students' support and the viability of MOOC, and instructive organizations, likewise detected the tremendous effect of MOOC on instructive change. As indicated by Clay Shirky, the broad use of MOOC will without a doubt overpower traditional training, much the same as what MP3 conveyed to the music business. MOOC begins to venture into teacher professional development. The larger part of past research on MOOC focused on advanced education and lifetime

instruction, however few explored its application for teacher professional development.

According to Evans (2002) professional teacher development is in itself a setup and developing exploration field. He furthermore also explained that the absence of an unmistakable meaning of the idea of professional teacher development, however, gives a wide definition that spotlights on professional development as a procedure, where an instructor plays out an action to accomplish attitudinal and useful improvement. Professional development for teachers is a vital but time and resources are not utilized well it becomes worthless and when done effectively can enhance educating, learning in the many professions. There are a many ways by which MOOCs can really give a relatively perfect medium to professional development of teachers (Choy, Chen, and Bugarin, 2006). One of the basic components of MOOC for professional development is that it is free and can be accessed by anyone anywhere. It provides no or sometimes low-cost options for the professional development of teachers. It is flexible in time and location for those who cannot get professional development due to many responsibilities (Wei, Darling-Hammond, Andree, Richardson, and Orphanos, 2009). The content of the MOOC courses is adaptable according to the circumstances and can be used according to the needs of the students. So MOOCs are really a significant venue for the teachers' professional development that help teachers with their professional needs according to the circumstances and students' needs (Choy et al., 2006).

### **1.1. Objectives of the Study**

Objectives of the study were to;

1. Explore the MOOCs as a mechanism for teacher professional development
2. Investigate the necessity of MOOCs for professional development and
3. Investigate the contributions of MOOCs in teacher professional development.

### **1.2. Research Questions**

1. What are major contributions of MOOCs in teacher professional development?
2. To what extent MOOCs are necessary for the teacher professional development?
3. To what extent MOOCs are contributing for teacher professional development?

### **1.3. Research Design**

The study was qualitative in the nature. The Meta - analysis approach was used to answer the research questions. Research articles, theses and books were used as a tool to collect the data for the study. Data were analyzed on the base of investigating literature.

## **2. Literature Review**

Massive Open Online Courses (MOOCs) are another sort of online class that permits anybody, anyplace, to take an interest by means of video addresses, PC reviewed tests, and talk gatherings. One of the guarantees of the Internet has dependably been to democratize education, making the gathered learning of humankind accessible to everybody (Mackness, Mak Sui Fai, and Williams, 2010; Weller and Anderson, 2013). In the course of the most recent decade, numerous educational institutions have started offering courses by means of the web in an assortment of arrangements. Recently, another type of online class has risen: the Massive Open Online Course (MOOC) (Cooper and Sahami, 2013). They are comprised of short video addresses joined with PC reviewed tests and online gatherings where members can talk about the material or get help. MOOCs are available to any individual who needs to enroll, and classes frequently have a huge number of members (Pappano, 2012).

### **2.1. Types of MOOCs**

With regards to education and preparing numerous scientists have guarded that the future of learning exists in learning content and

learning objects. In parallel, others have guarded that the specific circumstances can't be disregarded, since these would just have esteem if utilized as a part of learning situations. Figueiredo (2012) alludes that teaching is tied in with making settings where individuals can learn. Learning is to investigate the contents.

According to Siemens (2013), MOOCs can be partitioned in two kinds: cMOOC and xMOOC. The cMOOC is fixated on settings and takes after the Connectivism approach with courses in light of organizing, since it exercises centered around the member and on his connection with others in the scan for data and information. The contents of the course are shared among all members and the educator guides, leads and enables the figuring out how to process. Then again xMOOCs are extensions of traditional online courses. They take after a Behaviorist approach (Blanco, 2013) and they center on settings with a more inflexible association by limiting the creativity.

All things considered, while cMOOCs emphasize the association between the few members, offering need to the sharing of resources between every one of the members, xMOOCs depend on the conveyance of contents, for the most part through video lessons, where the teacher expects a more significant part. With the development of MOOCs in the educational field, specifically in higher education establishments, different types have developed, specifically: aMOOCs, Adaptive MOOCs (Blanco, 2013); Moses, Mechanical MOOCs (Ponti, 2014) and semi MOOCs (Daradoumis, Bassi, Xhafa and Caballe; 2013). There are numerous more kinds and sub-sorts of MOOCs and it ought to be focused on that every one of the stages also, sorts of MOOC center around content or on settings, on the quantity of members (from hundreds to thousands) and on the corresponding procedure (synchronous or no concurrent).

Moreover, unique emphasis must be put on the way that every organization is allowed to make their own model of MOOC, the Universidad Alberta (Open University in Portugal) had developed model for iMOOC (Fassbinder, Delamaro, and Barbosa, 2014).

## **2.2. MOOCs and HEIs Institutional Strategies**

A few investigations propose that MOOCs have turned into a vital component in colleges crosswise over Europe (Jansen and Schuwer, 2015), the US (Allen and Seaman, 2015), and Australia (O'Connor, 2014). The inspirations for incorporating MOOCs in the instructive offer of HEIs are various. Davis et al. (2014) say deceivability on the institutional mark as a standout amongst the most vital, together with the open doors that these courses bring to professional development. Such advancement needs to do with the adaptation that academic need to make, keeping in mind the end goal to address exceptionally different learning groups with one element in common: they all learn through the web.

In spite of the fact that it has not been exhibited that professional development is the fundamental driver for incorporating MOOCs in HEI techniques, it has been noticed that the connections amongst MOOCs and higher education is a prevailing theme in the specialized press (León et al., 2015a).

## **2.3. Scope of MOOC for Teacher Professional Development**

Teacher professional development is a developing examination territory. Linda (2002) guaranteed that teacher professional development had not achieved a reasonable and exact definition in a restricted sense, and that it could be considered as a procedure in a more extensive sense, through which instructor can accomplish their passionate and expert improvement with an arrangement exercises. However, the required online learning and assessment was a long way from fulfillment and the absence of high quality resources, effective monitor and assessment techniques, proficient correspondence system, and sound administration traded off educators' learning energy and learning outcomes (Hongbo, 2012; Weiguo, 2013). But China has investigated that professional development of teachers through MOOCs had a great influence on the teachers' development and aptitude.

Massive open online courses can address the need of teacher professional development largely. MOOCs connects many students and teachers all through the world by the utilization of online open courses

(Larry, 2013). Through MOOCs, teachers can gain admittance to regular educational courses with few obstructions. MOOCs have turned into an imperative device for a few teachers to increase professional development subsequent to getting their degrees. MOOCs have turned into a powerful solution for great teacher professional improvement requiring little to no effort.

Second, MOOCs empower teachers to pick up as indicated by their individual needs. MOOCs unite magnificent teachers, specialists, and expert courses in every one of the zones. The subcategories of MOOCs, for example, xMOOC and cMOOC, give online courses diverse instructing and learning logic, which could fulfill the need of various students (Yonggu, 2014). MOOCs could likewise be used with Wiki, blog and other message applications, which could enable them to take notes, record their appearance, have exchanged, and set up learning group, in order to accomplish significant learning comes about.

Third, MOOCs likewise gives capable help to teachers' day by day work with its impact on cultivating teachers' professional development. MOOC advanced the improvement of hybrid learning and Flip classroom teaching, which convey drive to the instructive change. Teachers can increase a wide range of information from MOOC, and convey it to their classroom educating, which will make student's classroom adapting more proficient. When learning through MOOC, teachers can set up a learning group at the base of comparative premium or profession to advance correspondence and trade. This will thus be useful to build a net of professional development with members from the entire world through MOOC (Hongbo, 2012; Weiguo, 2013).

## **2.4. Feasibility of MOOCs in Teacher Professional Development**

MOOC is a hotly debated issue in training region, but it is still a new concept in teacher professional development. The attainability of its application in teacher professional development still should be assessed. This area will manage such an inquiry from three most powerful points of view, including MOOC-related policy, quality, and value.

### **2.4.1. Policy**



MOOCs can improve teachers' learning background and meet their different needs, so MOOC has a promising future in its application for teacher professional development, and it will advance the change on instructor training to some degree. Teacher professional development is constantly guided by national strategies. Hence, steady strategies are the base and presupposition for the use of MOOCs of teacher professional development. The educators' societal position has been rising as of late, and instructive degrees are winding up increasingly appealing. Consequently, different strategies were issued to advance teacher professional development, and bunches of computerized training assets were produced to serve the educators. In China, for instance, the National Education Department propelled National Elite Teacher Education Course, Pool Program in November 2012, and reported initially 200 allowed course in April 2013. The Teacher Bureau of National Education Department asserted its timetable on promoting administration, organization and digitalized instructor training, proceeding with National Elite Teacher Education Course, Pool Program, and outlining and promoting incredible MOOC courses on instructor training. The strong arrangements, obviously, likewise confront numerous difficulties, and the most concerning issues is lack of funding. In China, government guides instructive enactment, sets national training points, and guides its training division to create legitimate approaches to understand the calendar. The approach that guide the utilization of MOOCs in teacher professional development characterize the reserve assignment. In spite of the fact that the government composed a few strategies and granted certain finances, the immense measure of educational institutions participated forcefully for the restricted measure of grants.

#### **2.4.2. Quality**

The education adequacy of MOOC framework in teacher professional development is influenced by both funds and its qualities. MOOC makes it feasible for educators to have classes whenever at wherever, which breaks the constraint of synchronic instruction. The transparency and adaptability of MOOC have changed the traditional comprehension of classroom teaching. By and large, the application

routine with regards to MOOC in teacher professional development is a long way from enough, and the traditional teacher professional development just uses workshop to build up educators' abilities in specific zones. The generally allowed credits are never again the best way to demonstrate the educators' capacity, and web based learning is picking up fame among teachers in their professional development (Yonggu, 2014).

MOOC gives another platform for educators to illustrate, keep up, and assess their profession proficiency (Mary and Steve, 2006). In any case, MOOC ought to advance from its broad improvement state of mind, create application benchmarks for teacher professional development, and set up logical and accommodating operational component.

First, logical and regularizing principles are the keys. Setting up guidelines is a more famous practice in instructor training change, which is additionally an indication of professionalization of educator training. The utilization of MOOC in teacher professional development additionally needs such guidelines. The accreditation with certain preparation exercises will secure the connection between training innovation and instruction quality. Obviously, the benchmarks likewise require some formal acknowledgment, including institutional acknowledgment (from instructive organization or expert affiliation) and program acknowledgment (from some expert preparing programs or constant training programs) (Fassbinder, Delamaro, and Barbosa, 2014).

Second, the adequacy of MOOC in teacher education development is the center concern. Donn (2004) assessed and broke down numerous remote teacher training, and asserted that the remote projects could accomplish same the quality as compared to face-to-face programs. Mary (2003) demonstrated with tests that there was no significant difference between the showing impact of remote and face-to-face teacher training programs. MOOC, as a redesigned web based learning framework, performs much better in target setting, content normalizing, approach planning, and program assessing. In this manner, it can give a decent support of teacher professional development.

### **2.4.3. Value**

All the teacher professional development programs have their predictable, nonstop, and interrelated center esteem, which expects to secure showing quality by building up educators' information and aptitudes on educational program setting, showing strategies and social condition. In the projects, teachers can trade and collaborate with different educators, researchers and specialists in training, and they can likewise accomplish more careful correspondence with students to increase profitable criticism.

Other than the fundamental information, aptitudes and systems, teachers need to reflect their own training practices, which is basic for their deep rooted learning and commitment to showing the course (Ken, 1999). With a specific end goal to address the issues of online teacher professional development, all the online instruction assets should be balanced, including on the web training offices, innovation improvement, and appraisal framework. The use of MOOC for teacher professional development is a social-driven potential, the acknowledgment of which needs the help of web based learning innovation and offices (Hilary, 2010).

### **2.5. The Application of MOOCs in Teacher Professional Development**

MOOC has shown its potential in teacher professional development. MOOC is promising for its cMOOC system, Connectivism base and logical assessment and confirmations. However, the quality and many of the course resources still can't take care of the demand of teacher professional development. There are few experts who are planning and creating MOOC courses for teacher professional development, there are still there is a lot of work to improve the situation the readiness of expert, reasonable and convenient teacher training courses (Hilary, 2010). The present online teacher instruction courses are excessively broad, and can't address the issues of teachers with various qualities, distinctive controls, or diverse areas, which affect their teaching productivity and impact.

The long term viability and manageability of MOOC are as yet easy to refute, at the same time, as most scientists' concern, MOOC does have a long term effect on the teacher professional development training. The accomplishment of MOOC relies upon the essential instruction organizations' acknowledgment and its adequacy in teacher professional development (Ken, 1999). The utilization of MOOC in teacher professional development will bring shared advantage to the both teachers and MOOC. Teachers can get a high - quality teacher professional development for free, and MOOC can extend its users through the assistance of teachers. The utilization of MOOC in teacher professional development is still in the exact stage, and trial information investigation is required to additionally examine (Ian, 2014).

## **2.6. MOOCs Design for Professional Teacher Development**

The two noteworthy issues that should be addressed to while examining the utilization of MOOCs to supplement and perhaps substitute current endeavors for teacher professional development are the sort of courses commonly utilized by MOOC suppliers and approval/accreditation of learning. This structure fundamentally repeats how courses are given on campus. The master instructor makes video accounts of addresses and makes assignments, tests, exams, and so forth that must be finished keeping in mind the end goal to finish the course. XMOOCs additionally normally take after controlled timetables with settled, begin and stop dates. The change expected to address this issue is that MOOC suppliers need to rebuild the teaching method of courses to end up cMOOCs (Singh, 2012).

CMOOCs center of group building and social communication. The content and necessities can be the same, however the attention on the educator as a specialist moves with an emphasis on peer survey and communication, where the instructor is a greater amount of a tutor/manage. Moreover, cMOOCs have a tendency to have a more self-controlled timetable with adaptable begin and stop dates. The second issue is the difficulties related to acknowledgment, approval, and accreditation of learning. As already specified, it is important to plan an enormous course to offer some type of free endorsement as well as advanced identification, so educators can come back to their learning

foundations with confirmation that they have achieved particular learning results (Wei, Darling-Hammond, Andree, Richardson & Orphanos, 2009).

Another key viewpoint is that this approval of learning ought to ideally be reachable for nothing or for almost no cost. A favored plan component in a massive course would even be accreditation. Accreditation is clearly a difficult objective to accomplish, however ideally popularity will realize institutionalization and more noteworthy acknowledgment. Such a uniform framework would make it less demanding for students to substantiate their achievements and for employees to assess the achievements (Weller & Anderson, 2013).

### **3. Conclusion**

It is true that MOOCs are criticized by some researchers and also praised by others, but the fact is that they are getting more common nowadays as an educational novelty. The reason behind being novelty is the huge potential in pedagogical terms that is offered by the MOOCs. We are living in the era of technology and digital environments so it is necessary for institutions to reflect on the teachers' professional development through MOOCs which have a significant effect on the traditional teaching classroom environment. MOOCs are online accessible courses for a large number of teachers through the internet. MOOCs provide chance to teachers to be accessible with the updated knowledge through web. MOOCs give an opportunity to teachers for professional development to build up a connection with members worldwide.

#### **3.1. Discussion**

MOOCs speak to an undiscovered potential for teacher professional development, particularly if the genuine courses are rebuilt as cMOOCs and dependably give acknowledgment and approval. Deliberately focusing on courses for teacher professional development might be an approach to discover a way or slot that is financially stable. The possible acknowledgment of MOOCs by elementary and secondary level educational institutions as quality substitutes for conventional professional development is an essential factor for long term

achievement and feasibility (Cooper and Sahami, 2013). Another potential advantage for utilizing MOOCs for teacher professional development is that they offer an expanded introduction for educators to OER (open educational resources), and make the effort of blended learning and flipped classroom more accessible. Additionally, teachers themselves build up a comprehension for MOOCs and concentrate online that they can at that point bring into the classroom. Performing teacher professional development by means of MOOCs can give a stretched out system in which to make a group for learning with similar companions in comparable circumstances. At long last, a current issue for utilizing MOOCs for proficient instructional improvement is that numerous courses might be broader in nature and not be particularly coordinated towards teachers (King and Nanfity, 2013).

## **References**

- Allen, I E and Seaman, J. (2015). *Grade Change: Tracking Online Education in the United States*. Babson Survey Research Group and the Sloan Consortium. Retrieved from <http://www.onlinelearningsurvey.com/reports/gradelevel.pdf>
- Beaven, A. (2013). Using MOOCs in an Academic English Course at University Level. In A. Beaven, A. Comas-Quinn, & B. Sawhill (Eds.), *Case Studies of Openness in the Language Classroom* (pp. 217-227).
- Blanco, A. F., García-Peñalvo, F. J. and Sein-Echaluce, M., (2013) "A methodology proposal for developing adaptive cMOOC", In: Proceedings of the First International Conference on Technological Ecosystem for Enhancing Multiculturality (TEEM '13), ACM, New York, pp. 553-558.
- Clay S. (2012). Napster, Udacity and the Academy Available from <http://www.shirky.com/weblog/2012/11/napster-udacity-and-the-academy>
- Choy, S., Chen, X., & Bugarin, R. (2006). Teacher Professional Development in 1999-2000: What Teachers, Principals, and District Staff Report. Washington, DC: US Department of

- Education. Retrieved from <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006305>
- Cooper, S., & Sahami, M. (2013). Reflections on Stanford's MOOCs. *Communications of the ACM*, 56(2), 28–30. doi:10.1145/2408776.2408787
- Daradoumis, T., Bassi, R., Xhafa, F. and Caballe, S., (2013)"A Review on Massive ELearning (MOOC) Design, Delivery and Assessment", In: P2P, Parallel, Grid, Cloud and Internet Computing (3PGCIC), pp.208, 213, 28-30.
- Davis, H, Dickens, K, León Urrutia, M, Sánchez Vera, M Del M, and White, S. (2014). MOOCs for Universities and Learners. An analysis of motivating factors. In *Proceedings of the 6th International Conference on Computer Supported Education*. Barcelona. Retrieved from <http://eprints.soton.ac.uk/363714/1/DavisEtAl-2014MOOCsCSEDUFinal.pdf>.
- Donn R. G. (2004) Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education*.
- Evans, L. (2002). What is teacher development? *Oxford Review of Education*, 28(1), 123–137.
- Figueiredo, A. D., (2012). "MOOCs – Virtudes e Limitações", URL: <http://moocead.blogspot.pt/2012/10/moocs-virtudes-e-limitacoes.html>
- Fassbinder, A.; Delamaro, M. E. and Barbosa, E. F. (2014). "Construção e Uso de MOOCs: Uma Revisão Sistemática". In *Anais do Simpósio Brasileiro de Informática na Educação*, Vol. 25, No. 1. URL: <http://br-ie.org/pub/index.php/sbie/article/view/2959>
- Gallagher, S., & Garrett, G. (2013). *Disruptive Education: Technology-enabled universities*. Sydney: The United States Studies Centre at the University of Sydney.
- Hongbo L. (2012). On the professional development of county ECE teacher. *Continuing Education Research* 11-12.

- Hilary P. (2016). Teacher education: the role of open and distance learning [http://www.col.org/PublicationDocuments/pub\\_Teacher\\_Ed\\_Role\\_ODL.pdf](http://www.col.org/PublicationDocuments/pub_Teacher_Ed_Role_ODL.pdf).
- Innovation, Research and Practice, (2013) p. 5, URL: [http://www.col.org/PublicationDocuments/pub\\_PS\\_OER-IRP\\_web.pdf](http://www.col.org/PublicationDocuments/pub_PS_OER-IRP_web.pdf)
- Ian M. (2014). An exploratory analysis of motivation and engagement in massive online open courses. University of California Riverside. 60-65.
- Jansen, D and Schuwer, R. (2015). Institutional MOOC strategies in Europe. *Status Report Based on a Mapping Survey Conducted in October-December 2014*. Mimeo.
- Ken Z. (1999). The new scholarship in teacher education. *Educational Researcher*. 9:4-15.
- King, J., & Nanfito, M. (2013). *MOOCs for the Rest of Us*. Webinar. Retrieved from <http://www.insidehighered.com/sites/files/MOOCsforthe20restofus2013.pdf>
- Leon, M, White, S and White, S (2015) a, May MOOCs in Higher Education Magazines: A Content Analysis of Internal Stakeholder Perspectives. In *International Conference on Computer Supported Education* (pp. 395–405). Springer International Publishing. DOI: [http://dx.doi.org/10.1007/978-3-319-29585-5\\_23](http://dx.doi.org/10.1007/978-3-319-29585-5_23)
- Linda E. (2002). What is teacher development? *Oxford Review of Education*. (1):123–137.
- Larry J. et al. (2013). NMC horizon report. Austin: The New Media Consortium. 11-14.
- Mary G. S. (2003). Distance delivery of pre-service teacher education: Lessons for good practice from twenty-one international programs. *Pennsylvania State University*, 210-213.



- Mary T., Steve G. (2006) Interaction and e-learning, the student experience. *Studies in Continuing Education*. 3:203-221.
- NAFSA. (2010). *the Changing Landscape of Global Higher Education*, Association of International Educators, Washington, DC.
- National Education Department. Notice for National Elite Teacher Education Course Pool Program, 2015. [http://www.moe.gov.cn/publicfiles/business/htmlfiles/moe/s7011/201211/xxgk\\_144993.html](http://www.moe.gov.cn/publicfiles/business/htmlfiles/moe/s7011/201211/xxgk_144993.html)
- O'Connor, K (2014). MOOCs, institutional policy and change dynamics in higher education. *Higher Education*, 68(5), 623–635. DOI: <http://dx.doi.org/10.1007/s10734-014-9735-z>
- Pappano, L. (2012). Massive Open Online Courses Are Multiplying at a Rapid Pace. *The New York Times*. Retrieved May 8, 2013, from <http://www.nytimes.com/2012/11/04/education/edlife/massive-openonline-courses-are-multiplying-at-a-rapid-pace.html>
- Ponti, M., (2014). "Hei Mookie! Where Do I Start? The Role of Artifacts in an Unmanned MOOC", In: *SystemSciences (HICSS)*, 47th Hawaii International Conference, pp.1625, 1634, 6-9.
- Shumski, D. (2013). MOOCs by the numbers: How do edX, Coursera and Udacity stack up? *Education Dive*. Retrieved January 9, 2014, from <http://www.educationdive.com/news/moocs-by-the-numbers-howdo-edx-coursera-and-udacity-stack-up/161100/>
- Siemens, G., (2013). "Massive Open Online Courses: Innovation in Education?" eds. *Commonwealth of Learning, Perspectives on Open and Distance Learning: Open Educational ResourcesInnovation, Research and Practice*, p. 5. URL: [http://www.col.org/PublicationDocuments/pub\\_PS\\_OER-IRP\\_web.pdf](http://www.col.org/PublicationDocuments/pub_PS_OER-IRP_web.pdf)
- Singh, M. (2012). UNESCO GUIDELINES for the Recognition, Validation and Accreditation of the Outcomes of Non-formal and Informal Learning. *PLA Inside Out: An International Journal on Theory, Research andPractice in Prior Learning Assessment*,

- I*(2). Retrieved from <http://plainsideout.org/index.php/home/article/view/39>
- The Teacher Bureau of National Education Department. Notice to deliver the list of major tasks in 2014 Available from <http://www.moe.gov.cn/publicfiles/business/htmlfiles/moe/s3735/201402/164775.html>.
- Wei, R., Darling-Hammond, L., Andree, A., Richardson, N., & Orphanos, S. (2009). Professional Learning in the Learning Profession: A Status Report on Teacher Development in the U.S. and Abroad. Technical Report. *National Staff Development Council*. Retrieved from <http://www.eric.ed.gov/ERICWebPortal/detail?accno=ED504168>
- Weiguo W. (2013). The effect of distance learning in National Teacher Professional Development Program. *Continuing Education Research*. (2): 51-53.
- Wei, R., Darling-Hammond, L., Andree, A., Richardson, N., & Orphanos, S. (2009). Professional Learning in the Learning Profession: A Status Report on Teacher Development in the U.S. and Abroad. Technical Report. *National Staff Development Council*. Retrieved from <http://www.eric.ed.gov/ERICWebPortal/detail?accno=ED504168>
- Weller, M., & Anderson, T. (2013). Digital resilience in higher education. *European Journal of Open, Distance and ELearning (EURODL)*, 2013(1).
- Yonggu W. Qing Z. (2014). MOOC: Feature and learning system. *Education Research*; (9): 112-120.