Are management education professors aware and competent to use ICT for teaching and learning?

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ABSTRACT

We are witnessing fast paced progress in the field of higher education with the help of ICT tools and techniques in several countries of the world. However, this is not the case in India, where we are still struggling with several issues and challenges in Higher education, specifically in Management education. The use of ICT in Business education is becoming essential in view of the increasing trends of innovative products and services being launched in the industry and businesses. It is an imperative for the management education institutions to try and keep pace with the technology and business requirements in terms of business knowledge and job skills for the management graduates. Falling behind in this critical effort will further widen the gaps in the employability of the graduates, eroding the reputation and credibility of the management education institutions. This paper, through research conducted among the management institutions in Karnataka state in India, studies the level of awareness and abilities among the faculty members of management institutions to undertake specific activities in teaching process, using ICT tools and technologies. The results indicate that while some of the faculty members are aware of the activities and are in a position to use ICT in teaching, some others are not able to do so. It is suggested that extensive training programmes and workshops should be conducted for faculty members before the institutions consider implementation of ICT effectively.

Keywords— *E learning, Online education, Management education, Teaching, ICT, Digital learning, Faculty training*

1. INTRODUCTION

Many countries are pushing forward transformation in their education systems with integration of information and communication technologies. Information and communication technologies, especially internet-based technologies are increasingly being experimented in schools as well as in higher education settings for improving the quality of teaching and learning.

This is being necessitated due to the fast-paced changes in business and industry along with increasing globalization. While these changes are being welcomed and integrated enthusiastically in developed countries, the emerging economies are still finding this a challenge and are trying to explore ways to progress in the field of technology enabled education. With the fast appearance of newer and more sophisticated technologies in the industry, the need for higher level of skills and technology awareness is becoming essential. The newer job skills require appropriate methods of education to keep up with an ever-increasing pace of technology.

In India, there have been several initiatives from the government to create an ambience of ICT infrastructure for Universities to enable provision of high quality of education. The National Mission on Education through Information and Communication Technology (NMEICT) was launched in 2009. Under this mission, a proper balance was sought to be created on content and curriculum, research and connectivity on par with the advances seen in other countries progressing in this area.

The Government of Karnataka under the Rashtriya Uchatar Shiksha Abhiyan (RUSA), has established the Higher Education Academy at Dharwad to train the 13,000 teachers working in Higher Education institutions in Karnataka. The government has recognised that ICT is essential for improving the quality of academic initiatives in terms of teaching, learning and research and has allocated funds for the same.

The ubiquitous nature of internet and "smart" technologies in general society has forced the higher education institutions to take cognizance of the aspirations and inclinations of the millennial generation students and to keep up with the necessary changes in their pedagogical and research settings accordingly. Teachers in higher education institutions constitute important stakeholders in

these endeavours and it is necessary to inculcate a collaborative approach in the diffusion and usage of ICT in teaching and learning with the teachers in the colleges and Universities. It is therefore important that the teachers are supported and encouraged to gain critical skills in ICT and instructional methodologies using the ICT tools to improve the teaching and learning processes.

Introduction of ICT in colleges is a strategically important process which needs to be implemented in a planned and phased manner. Readiness of the faculty members to apply the technology tools in their daily routine of research and teaching is a slow and tenuous process, which nevertheless needs to be prioritised. Teachers in higher education are already burdened with their everyday schedules of work and need to find the time and space for such innovative methodologies and learning by experimentation to ensure effective implementation over a period of time. But with the fast-occurring changes in the field of business, industry and technology, there is growing pressure for such initiatives to become imperatives in modern higher education. While the gap is growing between the expectations of the industry on the skills required to drive their innovation and competitiveness, the students are finding it difficult to keep up with the demands in terms of the expectations imposed by such pressures. The students can only look upto their teachers and institutions to help them in this challenge and this becomes a responsibility for the higher education institutions to provide necessary support to their teachers to obtain these skills and implement them to improve the quality of teaching and learning.

This paper presents the findings of a survey conducted with eight higher education institutions in Karnataka on the awareness and competence of teachers in Management education to use ICT in teaching and learning.

2. REVIEW OF LITERATURE
Several studies have been done on the deployment of ICT in education and have presented varied findings on the implementation. The role of the teachers in the successful use and integration of ICT in teaching and learning is universally acknowledged and has been the subject of many international as well as national research investigations. The attitude of the teachers, their preparedness to implement ICT, access to resources, training and support are some critical areas of study towards the role of teachers in ICT.

Stigmar, M, Kornfors, R and Pagden, N (2006) have pointed out the positive as well as the negative implications on the role of the faculty members in their ability to use ICT in teaching and learning. They investigate the assumption that the role of the faculty members has been modified or changed due to the advent of ICT tools and technologies and their increasing use in education, the variable studied being tendencies of teacher de-professionalization, increased ICT vulnerability and uncertainty of quality of learning outcome.

Yaghi, H (2006) has presented a paper on the tools and competencies needed to be inculcated among the teachers and students for the infusion of ICT in teaching and learning. The paper demonstrates how readiness is to be demonstrated and what are the tasks students and teachers should be able to do in order to succeed in using ICT to improve teaching and learning. The paper also proposes a teacher training model and specifies the skills needed to use computer hardware, computing productivity tools, computerized communication tools, research tools, computer-based problem-solving tools, digital learning objects and digital resource centres.

Karlsson, M (2007) reported a case study from a University in Sweden, wherein the investigation aimed at studying the competencies considered essential for implementing ICT in teaching and learning. Substantial differences were observed in the results of the study on the expressed competencies in teachers as viewed by the teachers and their students. While the teachers emphasized the skills on MS office tools as the most important, the students cited skills and awareness on chatting and podcasting as important for implementing teaching in the classroom. This was attributed to the generational differences between the teachers and their students, the teachers being Digital Migrants whereas the students are Digital natives.

Jo Shan Fu (2013), presented in his paper with review of literature the role of the teachers in promoting use of ICT in teaching and learning in the classroom. He identified three critical qualities necessary for the teachers, being autonomy, creativity and capability. Teachers could create their own course material, adopt flexible teaching techniques and explain and guide students on the use of the ICT resources. He also listed insufficient time, skills or experience on managing the teaching materials could seriously limit the teachers' ability in using ICT resources successfully.

Goyal, E, Purohit, S and Bhagat, M (2013), examined the critical factors that impact the effective use of ICT in Management education and to identify the expectations and gaps in its use. The study was conducted across various management institutes in Navi Mumbai. The study found significant gaps in the expectations and actual satisfaction in the use of ICT.

Shivakumar, G.S and Manichander, T (2013) presents their suggestions and ways to restructure the classroom, which has not changed since many decades. With the advent of technology into every sphere of our lives, they do not see any reason as to why education too cannot be changed with the use of technology.

Schlenker, L and Chantelot, S (2014) lament the status of Management education in an age of Design thinking and suggest means to change the MBA course model with innovative tools and technology deployed in teaching and learning. They emphasize that the modern society and industry need a radically different education model with extensive use of technology.

Ahmed, T.B.T (2014) identified factors pertaining to the teachers in Malaysian schools which were inhibiting the diffusion of ICT in the schools. These were identified as self-inhibiting thoughts, lack of school support and negative attitude towards use of ICT.

Hewagamage, C and Hewagamage, K (2015), examined the ICT competence levels in the universities of Sri Lanka and assert that ICT competence levels should be far higher than just basic to enable the students to be successful Knowledge workers in the society. They propose two levels of ICT framework, one at the IT infrastructure level and the other at the Virtual Learning level to reinforce the ICT capabilities in the Universities.

Leger, M and Freiman, V (2016), in their paper, using longitudinal examination of ICT competence development across teachers and students, identify technological resourcefulness, digital self-efficacy and open-mindedness towards technology to be crucial factors in the effective implementation of ICT in schools.

Ungar, O and Baruch, A (2016), carried out a study to examine factors facilitating and hindering ICT implementation in teacher education institutes in Israel. Findings from their study indicated that providing technological and pedagogical support to teachers and their perceptions and beliefs regarding ICT usage were consistent with being either facilitating or hindering factors in the integration process of ICT in education. Professional development of teachers and guidance in applying advanced technologies were facilitating factors while lack of time and infrastructure were mainly hindering the ICT usage in classrooms.

Ejinkyeonye, U.B and Usoroh, C.I (2016) conducted a study among Home Economics lecturers in South Eastern Nigeria and reported that the usage of ICT in teaching was low due 10 critical factors which were found inhibiting. They suggested that workshops, seminars and in-service training could improve the implementation. Alexandra Salas (2016), presents a literature review of faculty perspectives on ICT usage and integration into the classroom teaching and learning. Technology tools such as Learning management Systems, Massive Open Online Courses, cloud-based multimedia applications and mobile apps were included in the study of literature. She concluded that faculty opinion is essential towards technology acceptance and innovation adoption.

3. STATEMENT OF THE PROBLEM

Integration of ICT in teaching and learning is a complex problem with many facets for consideration. However, it is established beyond doubt that the role of the faculty members is a critical factor for the successful deployment of ICT in the classroom. As seen from the review of literature, the attitudes and perception of faculty members help or hinder the implementation of ICT usage effectively. The literature, however, is not very clear on the competence of the faculty to implement specific tasks for teaching or engagement of the students using ICT consistently. There is a need for a definite process and design for the use of ICT in the classroom. Faculty comfort and confidence in using ICT in their teaching is a direct outcome of their competence in using ICT for specific tasks in the preparation and delivery of teaching in the classroom. The competence of the teachers in ICT usage also directly affects their ability to engage the students through ICT in the classroom and the students' confidence in their learning activities through ICT. The teacher should be able to design their own process of pedagogy and delivery of the course to suit the infrastructure available to both the teachers as well as the students.

ICT usage in Higher education in India is still at an early stage and there is a need for extensive research and documentation of various factors such as infrastructure availability, accessibility, funding and investments, faculty role and attitudes, student access and affordability, government policies and support and university commitment towards implementation of ICT in teaching and learning. This paper aims to provide insights into the abilities of the teachers in management education to perform specific activities to facilitate usage of ICT in the classrooms. Teachers should be able to present their content and lectures through specific activities using ICT to engage the students on a regular basis. Their understanding and commitment towards effective pedagogical processes is critical for the sustained implementation of ICT tools and technologies in the classrooms. These activities not only influence the teachers' own satisfaction in delivering their courses, but also affect the students' confidence levels in accepting and using ICT effectively towards their learning and giving assessments.

Despite Karnataka being one of the foremost states in the country in terms of its progress on Information technologies in its industry and business, use of ICT in its Management education institutions is at a low level and its infusion into the routine activities in teaching and learning is moving at a slow pace to be able to meet the needs of the industry. If management education institutions aspire to groom and educate their students to meet the requirements of the industry, increasing use of ICT in their own curriculum and pedagogy is essential. However, there is a clear trend and intention on behalf of the institutions to move at a faster pace towards integration of ICT in their teaching and learning activities. There is a need for extensive research efforts to study the preparedness and the current level of infrastructure in the management education institutions to provide better insights and guidance on implementing ICT usage in teaching and learning effectively. This paper would fill a critical gap in providing the necessary data and insights into how the teachers of management institutions use ICT to enrich their teaching and learning for the students.

4. RESEARCH DESIGN AND METHODOLOGY

Implementation of ICT in teaching and learning needs more than an initial level of awareness to be implemented in the classrooms successfully. The primary objective of this research effort was to assess whether the teachers of management institutions have the necessary skills to begin implementation of ICT tools and technologies in the classroom.

4.1 Research Objective

To assess whether the professors of Management education institutions have the necessary skills to implement ICT in the classroom.

4.2 Research Question

Do the Professors of Management Education Institutions possess skills to use ICT in their teaching process?

Considering the fact that the use of ICT tools and technologies is still in its early stages in the management education institutions in Karnataka, the authors have adopted a combination of exploratory and descriptive research on the question. The design uses the exploratory approach in that we seek to understand the general level of awareness among the management education professors regarding the use of ICT in teaching and learning. The descriptive aspect of the study arises from the fact that we also attempt to document the actual abilities of the professors to use ICT tools and technologies in their own course delivery in classrooms.

4.3 Sampling
The primary interest in this study is to get to know the status of ICT implementation and the ability of the professors to execute this effectively. Hence, we have used the Purposive sampling method with judgmental criteria to choose the respondent institutions and participants in this survey.

A pilot study was conducted wherein structured questionnaire was administered to 60 respondents. Standard deviation and Cronbach values were ascertained using Statistical Package for Social Sciences (SPSS). The research instrument was found to possess high reliability. The Cronbach alpha value for the pilot sample was found to be 0.79 for estimating the reliability of the instrument. The standard deviation of the pilot sample was found to be 0.75. The sample size was calculated to be 521.

Table 1: Questionnaire Design for Abilities for Professors

Question	Variables	No. of Items	Description / Types
	Awareness	5	Strongly disagree, disagree, Neutral, Agree, Strongly Agree.

Table 2: Questionnaire for Professors on ICT competence and ability

S no.	Awareness about the usage of ICT tools	SDA	DA	N	A	SA
1	ICT enables digitally confident and supportive teachers					
2	I am aware of combining files from different resources to create presentations					
3	I can publish educational blogs for students' usage					
4	I have knowledge about creating lessons that incorporate students' use of a digital video, graphics or sound editors					
5	I have adequate knowledge about using subject-specific software					

5. DATA ANALYSIS
Data was collected through questionnaires administered to the professors through mail and in person. The data was tabulated and classified according to the responses to the questions. Percentage of responses obtained for each question was calculated and tabulated alongside the respective data.

5.1 Findings
The data and findings are given in the table below:

5.1.1 Awareness and ability

Table 2: ICT enables digitally confident and supportive teachers

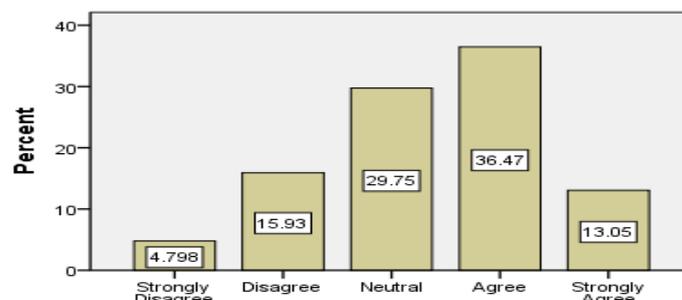| Particulars	Number of Respondents	Percentage (%)
Strongly Disagree	25	4.8
Disagree	83	15.9
Neutral	155	29.8
Agree	190	36.5
Strongly Agree	68	13.1
Total	**521**	**100.0**

Source: Primary Data

Fig. 1: ICT enables digitally confident and supportive teachers

Result: It can be seen from Table 4.58 that "ICT enables digitally confident and supportive teachers " obtained the following ratings: 4.8% respondents rated strongly disagree, 15.9% respondents rated disagree, 29.8% respondents rated neutral, 36.5% respondents rated Agree and 13.1% respondents rated strongly agree.

Inference: "Agree" dominates the rating for "ICT enables digitally confident and supportive teachers".

Table 2: I am aware of combining files from different resources to create presentations

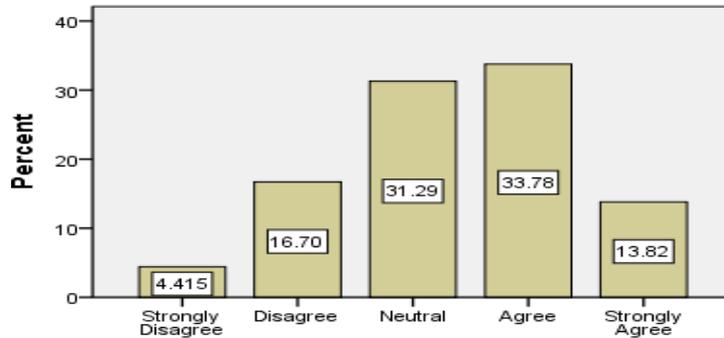| Particulars	Number of Respondents	Percentage (%)
Strongly Disagree	23	4.4
Disagree	87	16.7
Neutral	163	31.3
Agree	176	33.8
Strongly Agree	72	13.8
Total	**521**	**100.0**

Source: Primary Data

Fig. 2: I am aware of combining files from different resources to create presentations

Result: It can be seen from Table 4.59 that "I am enables digitally confident files from different resources to create presentation" obtained the following ratings: 4.4% respondents rated strongly disagree, 16.7% respondents rated disagree, 31.3% respondents rated neutral, 33.8% respondents rated Agree and 13.9% respondents rated strongly agree.

Inference: "Agree" dominates the rating for "I am enables digitally confident files from different resources to create presentation."

Table 3: I can publish educational blogs for students' usage

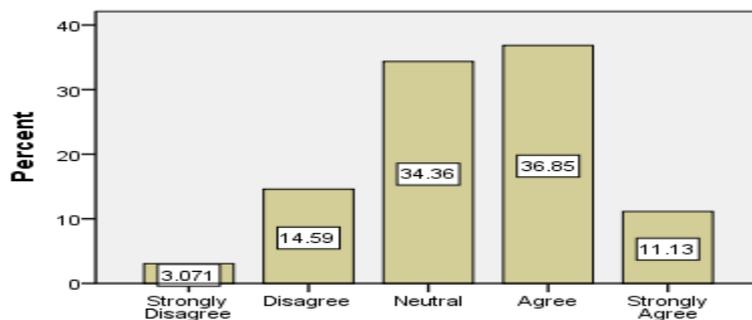| Particulars	Number of Respondents	Percentage (%)
Strongly Disagree	16	3.1
Disagree	76	14.6
Neutral	179	34.4
Agree	192	36.9
Strongly Agree	58	11.1
Total	**521**	**100.0**

Source: Primary Data

Fig. 3: I can publish educational blogs for students' usage

Result: It can be seen from Table 4.60 that "I can publish educational blogs for students' usage" obtained the following ratings: 3.1% respondents rated strongly disagree, 14.6% respondents rated disagree, 34.4% respondents rated neutral, 36.85% respondents rated Agree and 11.1% respondents rated strongly agree.

Inference: "Agree" dominates the rating for "I can publish educational blogs for students' usage".

Table 4: I have knowledge about creating lessons that incorporate students' use of a digital video, graphics or sound editors

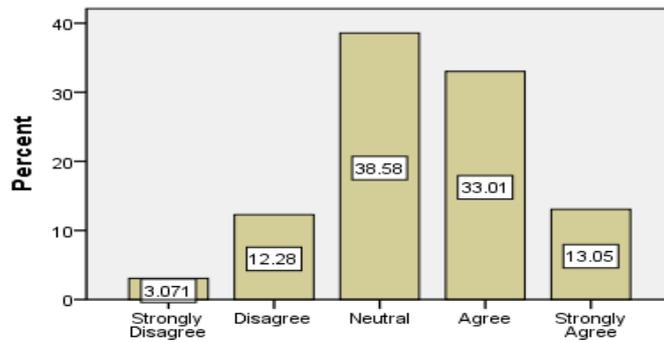| Particulars	Number of Respondents	Percentage (%)
Strongly Disagree	16	3.1
Disagree	64	12.3
Neutral	201	38.6
Agree	172	33.0
Strongly Agree	68	13.1
Total	**521**	**100.0**

Source: Primary Data

Fig. 4: I have knowledge about creating lessons that incorporate students' use of a digital video, graphics or sound editors

Result: It can be seen from Table 4.61 that "I have knowledge about creating lessons that incorporate students' use of a digital video, graphics or sound editors" obtained the following ratings: 3.1% respondents rated strongly disagree, 12.3% respondents rated disagree, 38.6% respondents rated neutral, 33.0% respondents rated Agree and 13.1% respondents rated strongly agree.

Inference: "Neutral" dominates the rating for "I have knowledge about creating lessons that incorporate students' use of a digital video, graphics or sound editors".

Table 5: I have adequate knowledge about using subject-specific software

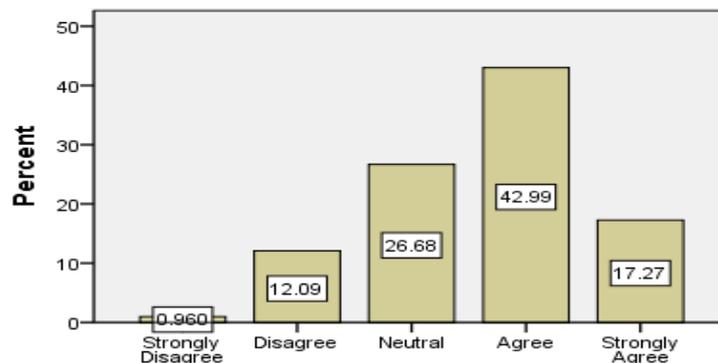| Particulars	Number of Respondents	Percentage (%)
Strongly Disagree	5	1.0
Disagree	63	12.1
Neutral	139	26.7
Agree	224	43.0
Strongly Agree	90	17.3
Total	**521**	**100.0**

Source: Primary Data

Fig. 5: I have adequate knowledge about using subject-specific software

Result: It can be seen from Table 4.62 that "I have adequate knowledge about using subject-specific software" obtained the following ratings: 0.9% respondents rated strongly disagree, 12.1% respondents rated disagree, 26.7% respondents rated neutral, 42.9% respondents rated Agree and 17.3% respondents rated strongly agree.

Inference: "Agree" dominates the rating for "My I have adequate knowledge about using subject-specific software".

Question	N+DA+SDA	A+SA
ICT enables digitally confident and supportive teachers	50.5	49.5
I am aware of combining files from different resources to create presentations	52.4	47.6
I can publish educational blogs for students' usage	52.1	47.9
I have knowledge about creating lessons that incorporate students' use of a digital video, graphics or sound editors	53.9	46.1
I have adequate knowledge about using subject-specific software	39.7	60.3

6. INTERPRETATION AND DISCUSSION

Table 1 indicates that a majority of 36.5% of the professors support the statement that ICT makes the teachers confident and supportive. An additional 13.1% even strongly support this statement. About 50% of the professors are in fact positively inclined towards the use of ICT and suitable facilitative measures. Only about 21.0% of the professors feel negatively about this statement though about 30% are neutral. With suitable training and better infrastructure, ICT usage could be substantially enhanced.

Table 2 "I am aware of combining files from different resources to create presentations." About 47.0% of the professors assert on the statement, which is a good majority, indicating positive inclination among them. However, 16.7% of them are neutral

indicating the need for better training and support. Only about 21.0% of the professors feel negatively about this and may need more facilitative measures to enhance the positive impact.

Table 3 "I can publish educational blogs for students' usage" A majority of 48.0% of the professors are confident that they support the statement, indicating a high level of proficiency and positive inclination towards of use of ICT in teaching. About 34.4% of the professors are neutral towards this statement indicating they need more support and encouragement to use their ICT skills. About 17.0% of the professors are negatively inclined indicating that deeper analysis and support are required.

Table 4 "I have knowledge about creating lessons that incorporate students" use of digital video, graphics or sound editors" About 46.0 % of the professors indicated that they agree with the statement and are positively inclined towards use of ICT for teaching. About 38% of the professors are neutral, indicating that more supportive and encouraging measures are required to get them to a positive level. Only about 15% of the professors are negative about the statement and may require more confidence building measures and training in the usage of ICT for teaching.

Table 5 "I have adequate knowledge about using subject specific software". An overwhelming 60% of the professors indicated agreement for this statement. This shows that these professors are actively supporting the use of ICT in teaching leading to better learning among the students. Only about 27% of the professors are neutral towards this statement, indicating that this will lead to positive support and involvement if more support and better access are provided. Only about 13% of the professors are negative on this statement indicating the need for more supportive measures and training to overcome their negativity.

As seen in the obtained data above, about 50% of the faculty members overall are able to use ICT in the specified tasks. The other 50% of the faculty members are not confident about the usage of ICT tools. The awareness among the faculty regarding the appropriate usage of ICT tools and technologies is critical in the successful implementation of technology integrated teaching and learning. Faculty members need to be aware about the various tools and technologies available and be able to use them in their course delivery by structuring their pedagogical activities accordingly.

7. CONCLUSIONS
From the study above, we may conclude that while some of the faculty members are aware about the usage of ICT tools and techniques in terms of specific activities in teaching, the others do not seem to possess this ability. In order to ensure sustained implementation of ICT usage in management education, it is necessary to have most of the faculty members convinced about their usefulness and feasibility. In order to achieve higher level of acceptance and confidence among the faculty members, the authorities should organise training programmes to develop these competencies in the faculty members. The college or University should also draw out a detailed plan on the implementation of ICT and promote it intensively to its faculty members and students for usage. The faculty members should also be encouraged to attend seminars and workshops on the use of ICT resources in teaching and learning.

8. REFERENCES
[1] Stigmar, M., Körnefors, R. and Pagden, N. (2006). The University Teacher Role in ICT-supported Flexible Learning. In T. Reeves and S. Yamashita (Eds.), Proceedings of E-Learn 2006--World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education (pp. 2388-2395). Honolulu, Hawaii, USA: Association for the Advancement of Computing in Education (AACE). Retrieved June 7, 2019 from https://www.learntechlib.org/primary/p/24066/.
[2] Yaghi, H. (2006). ICT-Based Teaching and Learning Indicators. In E. Pearson and P. Bohman (Eds.), Proceedings of ED-MEDIA 2006--World Conference on Educational Multimedia, Hypermedia and Telecommunications (pp. 228-234). Orlando, FL USA: Association for the Advancement of Computing in Education (AACE). Retrieved June 7, 2019 from https://www.learntechlib.org/primary/p/23454/.
[3] Karlsson, M. (2007). Teacher Educators Moving from Learning the Office Package to Learning About Digital Natives' Use of ICT. In C. Montgomerie and J. Seale (Eds.), Proceedings of ED-MEDIA 2007--World Conference on Educational Multimedia, Hypermedia and Telecommunications (pp. 100-107). Vancouver, Canada: Association for the Advancement of Computing in Education (AACE). Retrieved June 7, 2019 from https://www.learntechlib.org/primary/p/25364/. © 2007 Association for the Advancement of Computing in Education (AACE)
[4] Fu, J. (2013). Complexity of ICT in education: A critical literature review and its implications. International Journal of Education and Development using ICT, 9(1), 112-125. Open Campus, The University of the West Indies, West Indies. Retrieved June 7, 2019 from https://www.learntechlib.org/p/111900/.
[5] Goyal, E., Purohit, S. and Bhagat, M. (2013). Stakeholder Perceptions of ICT Usage across Management Institutes. International Journal on E-Learning, 12(2), 153-181. Waynesville, NC USA: Association for the Advancement of Computing in Education (AACE). Retrieved June 7, 2019 from https://www.learntechlib.org/primary/p/35487/. © 2013 Association for the Advancement of Computing in Education (AACE)
[6] Shivakumar, G.S. and Manichander, T. (2013). Restructuring the Future Classroom--A Global Perspective. Journal on School Educational Technology, 9(2), 19-24. Retrieved June 7, 2019 from https://www.learntechlib.org/p/175538/.
[7] Hewagamage, C. and Hewagamage, K. (2015). A Framework for Enhancing ICT Competency of Universities in Sri Lanka. International Journal of Emerging Technologies in Learning (iJET), 10(5), 45-51. Kassel, Germany: International Association of Online Engineering. Retrieved June 7, 2019 from https://www.learntechlib.org/p/172258/.
[8] Ahmad, T.B.T. (2014). Between School Factors and Teacher Factors: What Inhibits Malaysian Science Teachers from Using ICT? Malaysian Online Journal of Educational Technology, 2(1), 1-10.
[9] Leger, M. and Freiman, V. (2016). Examining Developing Digital Competence in Teachers and Students Over Time: A Mixed Method Case Study of a School That Has Undertaken a Technological Shift in Its Educational Environment.

In Proceedings of EdMedia 2016--World Conference on Educational Media and Technology (pp. 223-228). Vancouver, BC, Canada: Association for the Advancement of Computing in Education (AACE). Retrieved June 7, 2019 from https://www.learntechlib.org/primary/p/172955/. © 2016 Association for the Advancement of Computing in Education (AACE)

[10] Ungar, O. and Baruch, A. (2016). Perceptions of Teacher Educators Regarding ICT Implementation in Israeli Colleges of Education. Interdisciplinary Journal of E-Learning and Learning Objects, 12(1), 279-296. Informing Science Institute. Retrieved June 7, 2019 from https://www.learntechlib.org/p/180856/.

[11] Salas, A. (2016). Literature Review of Faculty-Perceived Usefulness of Instructional Technology in Classroom Dynamics. Contemporary Educational Technology, 7(2), 174-186. Retrieved June 7, 2019 from https://www.learntechlib.org/p/193455