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RESEARCH ARTICLE

PROSPECTIVE TEACHERS' PERCEPTIONS ON SELF-EFFICACY IN TECHNOLOGY BASED TEACHING

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Abstract

Self-efficacy is one of the innate and integral qualities of teacher for effective teaching. Now-a-days technology based teaching is an inseparable part for effective learning. That's why teachers need to develop the skill of ICT based teaching and they also must have the quality of self-efficacy. By employing Descriptive Survey research design, the present study aimed in comparing prospective teachers' perceptions on self-efficacy in technology based teaching on the basis Arts stream and Science Stream and course of the study (1st year and Final year). 100 prospective teachers were selected as sample by employing random sampling method. Data were collected by using standardised tool & collected data were analysed by using IBM SPSS Statistics 20. The notable findings of the study were that both hypotheses were rejected.

Introduction:-

Teaching is a complex activity. Teaching is not only the activity of delivering content in the classroom, but also the activity of integration of various teaching methods and strategies on the basis of learners' characteristics. Effective teaching depends on various variables like teachers' content knowledge, general pedagogical knowledge, technology knowledge, self-efficacy etc. Now-a-days technology based teaching is an inseparable part for effective learning, but integrating technology into teaching is among the greatest challenge facing today's teachers (Cennamo, Ross & Ertmer, 2010). Bingimlas (2009) pointed out that teachers' integration of technology in education are often related to lack of confidence, limited technological knowledge, negative attitudes etc. That's why teachers need to develop the skill of ICT based teaching and they must have the quality of self-efficacy. The mentioned challenge can be overcome by teachers' 'willingness' and 'I can' attitude that is known as self-efficacy of teachers.

Bandura (1997, p.3) defines self-efficacy as "beliefs in one's capabilities to organise and execute the course of action required to produce given attainments". Teacher's self-efficacy can be considered as powerful capability for teacher's overall effective teaching with students' effective academic performance (Moore & Esselman, 1992). Tschannen-Moran & Woolfolk Hoy (2001) supported the development of self-efficacy that is essential for effective, committed and enthusiastic teachers. Prospective teachers can develop the quality of self-efficacy as well as pedagogical knowledge of using ICT that makes them as effective, committed and enthusiastic teachers. That's why the present investigators wanted to know prospective teachers' perceptions on self-efficacy in technology based teaching.

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Background Of The Study:
Positive attitude of teachers is very important aspect of good teachers. This can be developed during the professional teaching course. Many studies have given proofs that pre-service teachers hesitate when they asked to use technology and integrate technology into their instruction (Gürşimşek, Kaptan & Erkan, 1997; Yıldırım, 2000) even not everyone has the knowledge required to teach using technology. In the context of self-efficacy, Bandura pointed out that it affects how much effort will be given and persisted by people due to obstacles and aversive situations and according to him people with stronger self-efficacy belief will spend more effort to cope with obstacles.That's why the present investigators wanted to see how much level self-efficacy in technology -based teaching environment the prospective teachers have as well as on basis of streams and year of study if they have any difference between means of the groups.

Review Of Related Literature At A Galance:
Many researchers have conducted research on self-efficacy from different perspective and angle. Shaukat & Siddiquah (2007) conducted study on the prospective teachers' sense of self-efficacy, Kurt & Atay (2009) on the prospective teachers' self-efficacy for technology integration, Moore-Hayes (2011) on technology integration preparedness and its influence on teacher-efficacy, Pendergast et al. (2011) conducted a study on pre-service student-teacher self-efficacy beliefs, Alkan & Erdem (2012) on the relationship between teacher self-efficacy and competency perceptions of chemistry teacher candidates, Ferreira & Walinga (2013) done on the measurement of teacher self-efficacy in technology-enhanced student-centred learning environments, Lemon & Garvis (2015) on pre-service teacher self-efficacy in digital technology, Sharp et al. (2016) on relationship of self-efficacy and teacher knowledge for prospective elementary education teachers, Ektem (2016) on prospective teachers' self-efficacy beliefs regarding the implementation of constructivist approach, Kanadlı (2017) on prospective teachers' professional self-efficacy beliefs in terms of their perceived autonomy support and attitudes towards the teaching profession, Hatlevik and Hatlevik (2018) on examining the relationship between teachers' ICT self-efficacy for educational purposes, Titrek et al. (2018) on academic motivation and academic self-efficacy of prospective teachers, Panaoura (2018) on Prospective teachers' beliefs and self-efficacy beliefs about inquiry-based teaching approach in mathematics, Norris et al.(2018) on Preservice teachers' self-efficacy to teach primary science based on 'science learner' typology, Bakaç (2018) done on the impact on technology integration self-efficacy beliefs of prospective teachers' self-directed learning trends with technology, Dofková (2019) on evaluation of self-efficacy in prospective primary school teachers in the context of mathematics teaching.

So, it clearly has shown the research gap. That's why more exploration about self -efficacy in technology based teaching-learning environment is needed and the present work would be selected by the researchers.

Statement Of The Problem:
The present work was carried out to investigate the prospective teachers' perceptions on self-efficacy in technology-based teaching environment for students and their expectations. And, the present work is stated as "**PROSPECTIVE TEACHERS' PERCEPTIONS ON SELF-EFFICACY IN TECHNOLOGY- BASED TEACHING".**

Objectives:-
The objectives were framed for conducting study as –
1. To compare prospective teachers' perceptions on self-efficacy in technology-based teaching on the basis of **Arts stream and Science Stream** and
2. To compare prospective teachers' perceptions on self-efficacy in technology-based teaching on the basis of**course of the study** (1st year and Final year).

Hypotheses Of The Study:
Keeping in mind the objectives of the study the following hypotheses were framed as–
1. **Ho1**. There was no significant difference between means of prospective teachers' perceptions on self-efficacy in technology-based teaching in terms of Arts Stream and Science Stream and
2. **Ho2.** There was no significant difference between means of prospective teachers' perceptions on self-efficacy in technology-based teaching in terms of 1st year and Final year of the B.Ed. course.

Methodology Of The Study:-

To conduct the present study, the investigators employed the **Descriptive Survey** research design and total sample of the study was **100 prospective teachers** under Calcutta University and Burdwan University and they were selected randomly. Data were collected by employing **Lucy Mary Ferreira's SCUTTES (2013)** and collected data were analysed by using **IBM SPSS Statistics 20**.

Objectives Wise Result And Interpretation:

To satisfy the **objective no-1**, the investigators needed to test the **Ho1**. i.e. there was no significant difference between means of prospective teachers' perceptions on self-efficacy in technology -based teaching in terms of Arts Stream and Science Stream.

Table 1.1:- Descriptive Statistics.

Stream		N	Mean	SD	Std. Error Mean
Score	Arts Stream	59	129.4068	14.06649	1.83130
	Science Stream	41	140.2683	13.84743	2.16260

Table 1.2:- Independent Sample Test.

		Levene's Test for Equality of Variance		t-test for Equality Means		
		F	Sig.	t	df	Sig. (2-tailed)
Score	Equal Variance Assumed	.155	.695	-3.822*	98	.000

(* Significant at the level of 0.05)

From the table **1.1**, it is seen that the means score of Arts and Science Stream prospective teachers' perceptions on self-efficacy in technology -based teaching are 129.4068 & 140.2683 respectively and the SDs are 14.06649 & 13.84743 respectively. To know whether significant difference between the groups exists or not, further Independent t-test was done. The table **1.2** has shown the F value is .155 and p value is .695 ($p>0.05$). So, it clearly indicates the Equal Variance can be assumed by Levene's Test for Equality of Variance and the table **1.2** also shows that the calculated value of t value is 3.822 in respect of df (98) and p value is .000 ($p<0.05$). That's why, 't' is significant at the level of significance 0.05. Hence, **Ho1** was rejected and it can be positively said that the mean score of Science Stream prospective teachers is significantly different from the mean score of Arts Stream prospective teachers in respect of prospective teachers' perceptions on self-efficacy in technology-based teaching.

To satisfy the **objective no-2**, the investigators also needed to test the **Ho2.** i.e. there was no significant difference between means of prospective teachers' perceptions on self-efficacy in technology-based teaching in terms of 1st year and Final year of the B.Ed. course.

Table 2.1:- Descriptive Statistics.

Year		N	Mean	SD	Std. Error Mean
Score	1ST Year	60	131.10	16.60376	2.14354
	Final Year	40	138	10.85097	1.71569

Table 2.2:- Independent Sample Test.

		Levene's test for Equality of variance		t-test for Equality Means		
		F	Sig.	t	df	Sig. (2-tailed)
Score	Equal Variance Assumed	5.271	0.24	-2.317*	98	.023

(* Significant at the level of 0.05)

From the table **2.1**, it is seen that the means score of 1st and Final year prospective teachers' perception in technology-based teaching are 131.10 & 138 respectively and the SDs are 2.14354 &1.71569 respectively. To know whether significant difference between the groups exists or not, further Independent t-test was done. The table **2.2** has shown the F value is 5.271 and p value is 0.24 ($p>0.05$). So, it clearly indicates the Equal Variance can be assumed by Levene's Test for Equality of Variance and the table **2.2** also shows that the calculated value of t value is 2.317 in respect of df (98) and p value is .023 ($p<0.05$). That's why, 't' is significant at the level of significance

0.05. Hence, **Ho2** was rejected and it can be positively said that the mean score of Final year prospective teachers is significantly different from the mean score of 1st year prospective teachers in respect of prospective teachers' perceptions self-efficacy in technology-based teaching.

Conclusion:-

Self-efficacy is an inseparable element for those who choosing a profession, staying in the profession as well as succession in the profession. Though the study was delimited in 100 prospective teachers of Calcutta University and Burdwan University and technology-based teaching environment for student centred learning. The study showed that the perceptions of final year prospective teachers on self-efficacy in technology-based teaching were better than 1st year perspective teachers as well as the science stream prospective teachers' self-efficacy were better than the arts stream prospective teachers. The result of the study suggests the prospective teachers' perceptions on self-efficacy can be developed gradually throughout the course of the study.That's why this is an important for future and a hard task for teacher educators looking at the improvement of self-efficacy for all prospective teachers from different background.

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