

**UNIVERSITY OF EDUCATION, WINNEBA**

**PRE-SERVICE SCIENCE TEACHERS' COMPETENCE, SELF-EFFICACY  
BELIEFS AND READINESS LEVELS IN ICT INTEGRATION IN TEACHING**

**SCIENCE**



**AFFUL ALEXANDER**

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**UNIVERSITY OF EDUCATION, WINNEBA**

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The logo of the University of Education, Winneba, is a circular emblem. It features a central sunburst design with a blue and white pattern. The text "UNIVERSITY OF EDUCATION, WINNEBA" is written around the perimeter of the circle. The logo is faded and serves as a background for the author's name.

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of the MASTER OF PHILOSOPHY (SCIENCE EDUCATION) degree**

**APRIL, 2005**

## DECLARATION

### Candidate's Declaration

I, Afful Alexander hereby declare that this dissertation, with the exception of quotations and references contained in published works which have all to the best of my knowledge, been identified and acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole to any institution anywhere for the award of another degree.

.....  
**Afful Alexander**

.....  
**Date**

### Supervisors' Declaration

We hereby declare that the preparation and presentation of this dissertation was supervised in accordance with the guidelines set for dissertation as laid down by the University of Education, Winneba.

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**Dr. Ernest I. D. Ngman-Wara**

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**Date**

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**Dr. E. K. Oppong**

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**Date**

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## **DEDICATION**

With much delight, I dedicate this work to my children Adwoa Sarfowaa Afful, Kwadwo Aduyeboah Afful, Nana Yaa Bemah Afful and my wife, Miss Rachel Cramer.



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## ABSTRACT

The purpose of this study was to examine the levels of pre-service teachers' self-efficacy beliefs, competence and readiness toward ICT integration in science teaching. Data was collected in two phases. The first phase consisted of a structured questionnaire, which was given to one hundred and seventy-two (172) pre-service science teachers at Wesley and Akrokerri Colleges of Education in Ashanti Region of Ghana to gather their opinions. The second phase involved structured face-to-face interview with purposive sample of twenty-two (24) pre-service science teachers, who had already responded to the questionnaire to explore or cross check major issues, which emerged from the questionnaire data. The instrument used in analysing the data collected was SPSS version 16.00. The quantitative results of the study showed that the pre-service basic science teachers had high levels of competence (with subscale mean of 3.71 and standard deviation of 1.07), self-efficacy beliefs (with a subscale mean of 3.72 and standard deviation of 1.08) and readiness (with subscale mean of 3.73 and standard deviation of 1.34) in ICT integration in science teaching. However, the qualitative data obtained from the study did not wholly reflect the outcome of the quantitative aspect of the study. In spite of the disparity between the quantitative and the qualitative findings, the results in general raise significant issues related to the quality of ICT integration regarding pre-service basic science teachers' competence, self-efficacy beliefs and readiness, which need to be given a serious consideration.